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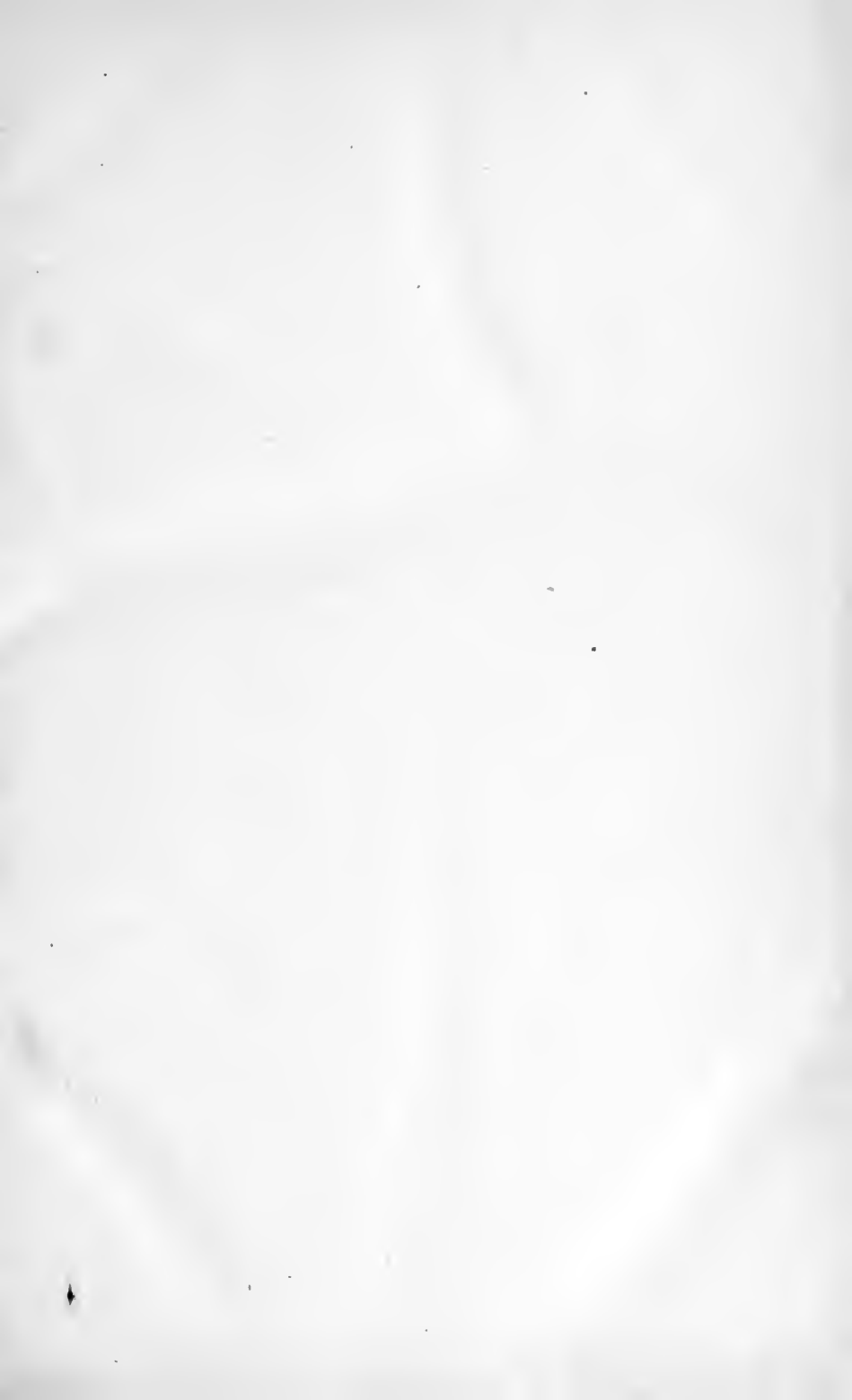
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PHYSICS & CHEMISTRY

BY

THE FACULTY OF THE DIVISION OF PHYSICAL SCIENCES

OF THE UNIVERSITY OF CHICAGO

CHICAGO, ILLINOIS, 1962

THE UNIVERSITY OF CHICAGO
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THE SOUTHERN
PLANTER & FARMER

DEVOTED TO

AGRICULTURE, HORTICULTURE,

AND THE

MINING, MECHANIC, AND HOUSEHOLD ARTS.

NEW SERIES. Vol. III.

CH: B. WILLIAMS, - - - EDITOR AND PROPRIETOR.

RICHMOND:
FERGUSON & RADY, PRINTERS,
1869.

STYTIKOD

STYTIKOD (Methylphenidate Hydrochloride)

STRENGTH	DESCRIPTION	PACKAGING
5 mg	Tablets	100 Tablets
10 mg	Tablets	100 Tablets
20 mg	Tablets	100 Tablets
30 mg	Tablets	100 Tablets
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THE SOUTHERN

PLANTER & FARMER,

DEVOTED TO

Agriculture, Horticulture and the Mining, Mechanic and Household Arts.

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

CH: B. WILLIAMS, EDITOR AND PROPRIETOR.
FRANK G. RUFFIN, CO-EDITOR.

New Series. RICHMOND, VA., FEBRUARY, 1869. Vol. III--No. 2.

Improvement of Land in Montgomery County, Maryland—Letter from Benjamin Hallowell.

We prefer to publish as original, rather than use as editorial, the letter of the venerable Benjamin Hallowell, formerly of Alexandria, now of Sandy Spring, Maryland.

We had written to him for an account of the farming of his particular section, because we had learned, through Mr. Pleasants, of the great improvements that had been made there; and we knew that the labor had been mainly performed by freedmen.

The attentive reader will note his observations, brief, but full of significance, on that subject. He testifies that laborers, the descendants of emancipated freedmen, are "*industrious, efficient and reliable.*" On this point we shall seek, and give to our readers, further information.

Again, it will be noted that all crops are conveyed to market, from eighteen miles inland, without either a railroad or canal; and that *hay* will bear that amount of transportation.

We reserve comments on the rotation for another occasion, when we can get more information on the subject. Suffice it for the present, to call attention to the fact that a calculating, economical, pains-taking farmer, of the sect of friends, a term synonymous with good farming, finds his account, in present return and profit, in dressing his land, during a six year course, with thirty-five bushels of bone-dust, 400 lbs. Guano, and fifty bushels lime.—Ed. So. P. & F.

Esteemed Friend,—Thy kind letter of the 26th ultimo, post-marked the 4th instant, was received last evening, and, I can assure thee, our mutual friend, Thomas C. Pleasants, was correct in telling

thee that it would afford me pleasure to impart any information I possess, and particularly in relation to the important interest of agriculture. It is a matter of regret that thou couldst not act out thy desire to make a visit to our neighborhood, converse with our farmers, and see the condition of things amongst us. It is to be hoped, however, the impediment thou mentions will soon be removed, and that we will yet have the pleasure of seeing thee here.

The land in our immediate neighborhood is not above third or fourth quality, naturally. It is principally stiff clay, with white quartz-rock, and, although rolling, having a tendency to being wet and swampy even in uplands. The timber consists principally of black oak, white oak, hickory, poplar, chestnut and maple, and, though now a good deal thinned out, it has been very heavy. Some oaks on my farm when I purchased it were as much as four and five feet in diameter, and of corresponding height. Those persons who originally settled here were deceived by the large timber in regard to the quality of the surface soil, the timber deriving its support from a stratum of talcose earth, into which the roots run, which lies only a few feet below the clay and quartz-rock, and in some places crops out. Experiments have been made of dressing the land with this talcose earth, which lies below, and with decidedly beneficial effects; but other manures being so much more convenient, they are now generally resorted to.

In addition to this original inferior quality of our soil, it had, when the present generation of farmers commenced their improving operations, say twenty-five years ago, been long under an exhaustive process of cropping, and was in a *very low* condition. In 1843, some experiments were made upon a small scale with the application of ground bones, and with very good effect, six bushels of bone to the acre, increasing the crops of corn, oats and clover fourfold at least. The results of these experiments, and corresponding ones with Peravian Guano which soon after came into use, justified a larger expenditure. My land was *very* poor when I commenced to improve it in 1842, and perhaps as hard a case to contend with as any in our district, as our friend Pleasants will tell thee.

The system I adopted for its improvement was, first, to get the wet places dry by under-drains, made with stones carefully placed to admit the passage of the water, and having regard to good *surface drains*, which the tight-clay character of the soil seemed to render indispensable.

In a lot of eight acres of meadow land, besides surface drains, I had nearly a mile of under-drains. I then worked it *well*, gave it a dressing

of ten bushels of bone to the acre, and sowed it with Timothy. The cash outlay for work and manure on the eight acres was \$136—\$17 per acre. My neighbors passed some jokes at my expense, I being a citizen farmer, which I endeavored to bear with becoming equanimity. The season previous to this improvement, the produce of the whole eight acres was a small wagon load of swamp hay; and the first year after I had twelve tons of good Timothy hay and three bushels of Timothy seed, and the next year fourteen tons of hay and about the same quantity of seed, so that I got the full amount of my original outlay for improvement back, *clear*, every year, above the value of the previous product of the lot for several successive years.

On the upland I first tried lime, but there being no organic matter in the soil, I could perceive no benefit whatever from it. The plan I finally adopted was to take one new field each year, grub it, drain it, remove the stones, break it up *well* in the fall or winter, and in the spring give it a dressing of ten bushels of bone to the acre, and put it down in oats and clover. The crop of oats generally paid for the manure and labor. The clover I permitted to grow and fall without a hoof going on it that season and the next, my object being to get an accumulation of organic matter in the soil. When the clover seed was fully ripe, a little over a year after the oats were cut, I turned the clover under well, ploughing the land every time a *little* deeper, so as *gradually* to increase the depth of the soil; dressed the land with ten bushels of bone and 200 pounds of guano to the acre, and put it down in wheat. The wheat would average twenty to twenty-five bushels per acre. The clover, from the seed turned under, would generally be a good crop, which we mowed once, and then permitted what grew afterwards to fall, not pasturing it still. On this sod I put, at any time when convenient within a year after the wheat came off, about fifty bushels of lime to the acre. The next winter or spring it was broken up for corn and planted, giving a dressing of *compost*, made of bone, prepared privy manure, &c., &c., in the hill; the next spring put it in oats, with a dressing of about five bushels of bone to the acre, and that fall put it down in wheat and Timothy, with ten bushels of bone and 200 pounds of guano to the acre, and sowed clover seed the next spring, when that field would be up to a fertile condition for our land, producing twenty to twenty-five bushels of wheat to the acre, forty to fifty of corn, and one-and-a-half to two tons of hay. I had, besides orchard, truck-patch, &c., six fields of twenty-five acres each, one in corn, one in oats, one in wheat, and three in

grass, two of which were to mow, and one for pasture. This rotation is the one *generally* adopted by our farmers. Sometimes a *portion* of the corn-land is seeded with wheat in the fall, making the breadth of land in oats the next spring that much the less. The potatoes, too, varying from one to twelve acres, or perhaps more, are frequently planted in the field where the corn was the preceding year, and then the land put down in wheat and grass, after the potatoes came off, with the other part of the field.

The crops for the market are principally wheat, corn, hay, oats and potatoes. Some few farmers graze, and almost every one, in order to have the straw and corn fodder used, keeps a few head of stock cattle over winter to fatten and sell; but, having a good turnpike from the settlement to the Washington Market, say eighteen miles, it has been found, with the price hay has commanded, more profitable to sell hay than to pasture cattle.

I spoke of getting the land up. A fact in this connection is important for those to know who are about to purchase a farm, which is, that there always exists in land a *tendency to return* to the *natural condition* of the soil. Land of first quality, if worked down or exhausted by cropping, tends to get better, and improves with rest: while land of second, third or fourth quality, raised to a high degree of fertility, *tends to go down again to its original condition*.

It may be safely stated, I think, that since the commencement of a systematic effort to improve the land, say twenty-five years ago, the annual amount of agricultural productions has increased in this neighborhood fully tenfold, and the yield of the improved land has increased in nearly the same proportion.

In the forthcoming Report of the Commissioner of Agriculture (for 1858) will be found an article on the agriculture of this neighborhood, by my brother-in-law, Wm. Henry Farquhar, in which I feel assured both thou and Thomas S. Pleasants will be interested.

As I write slowly and with difficulty, owing to a stiffness of the wrist, and, as about what I would have to say on soils, their composition, fertilization, &c., &c., is contained in two of my agricultural addresses which were published, I herewith send thee a copy of each. See page 8 of the address at Rockville, and pages 7, 8, 9 and 10 of the one at Leesburg. I may add to what is said at bottom of first column on page 9 of the Leesburg address, that all the eleven inorganic elements not usually existing in a soil are contained in Plaster of Paris, bones, common salt, epsom salts and ashes, and much benefit may be derived by experimenting with these, intelligently.

Thou art at liberty to use the contents of these pamphlets, and of this letter, as editorials, or in any way that would be most useful. I do not feel possessed of enough original information to write a formal essay upon the subject, not having been practically engaged in the pursuit for some years past, the farm being carried on by my son; but at the same time I would be glad to render that interest, and thy journal, every aid in my power.

In regard to labor, our settlement has long been favored with an industrious, efficient and reliable laboring population, principally the descendants of the slaves whom the Friends formerly owned and, from religious duty, liberated, and settled on small lots; and, having been taught how to do work, this knowledge has descended to their children.

Most farmers have one or two tenant houses, in which the hands live who have families, and are hired by the year, and the wives and children often afford extra help on the farm or in the family.

Some farmers let out fields to be cultivated, under their direction with respect to kind of crop and manure, on the shares, to very good satisfaction to both parties, the tenant being thus able to render the labor of his family directly available in making a living, by assisting him with his work.

Well, I have written thee a long letter, and although with feelings which would strongly incline me to interest thee, I fear I have succeeded in doing so to a very limited extent at most, or in adding to the information thou previously possessed. Therefore, using an expression which is very common under such circumstances in this neighborhood, thou must please accept the will for the deed.

Thy sincere friend,

BENJAMIN HALLOWELL.

FRANK G. RUFFIN, Richmond, Va.

Sandy Spring, Md., 1st Month, 6th, 1869.

THE BEST TEST of good farming is this—that every successive crop is better than the one which preceded it, and that the profits of the farm labor are annually increasing. A farmer who can realize these prospects is doing well. His land and his purse are improving. And he should never hazard this certainty, and the comforts which it confers, for wild experiments, or hazardous speculation.

What do You Think of Barley?

We solicited information on this question from our friend, Dr. G. W. Semple, now of Hampton, formerly of Williamsburg, and have the pleasure of laying his reply before our readers. We commend it to their careful consideration, and for these reasons:

There are certain districts of Virginia which are so much infested with wild onion as to interfere very seriously with the profit of the wheat crop. As that pest is more objected to by the millers than any other that wheat can have, the crop must either be sold subject to a heavy discount, or be kept, subject to all the risks of storage, until the early winter, when the onion can be blown out by the fan.

The best known plan of getting rid of onion is to take three successive crops of oats on land ploughed, if possible, before spring, the crop to be put in with the one horse plough; and the land will be benefitted and the crop increased by the process. But the oat crop is not a productive one in Virginia, nor profitable, further than as a cleaning fallow crop, preparatory for wheat, except in the vicinity of towns where sheaf oats are used as forage; and though we advocate its culture, yet, where a good substitute can be found, we think it advisable to adopt it. We see no reason why barley cannot be used as a substitute, especially on good land, nor why it should be more exhausting than oats.

In product per acre, and as food for horses, it is equal to corn; and in the market, where brewers keep up a fair demand for it, it sells for about seventy-five per cent. more. It has been supposed to be much more uncertain than oats; and some complain that the protracted heat of our summers prevents the proper filling of the grain.

But Dr. Semple's testimony, and we vouch his accuracy, is adverse to this opinion; nor do we see how the climate can be unfavorable, seeing that in Arabia and Spain it is a common product, and, in the former, the main grain fed to horses.

It is said in other countries to be adapted to all the lighter soils, and to good loams, but not to thrive on stiff, wet clays.

We will be much obliged to any of our friends to enlighten us and the Virginia public, especially the cismontane part of it, on this subject. We think some of our Gloucester subscribers can do that service; and will thank them if they will.

Messrs. Yuengling & Beyer, of Richmond, brewers, offered, some time ago, to furnish seed to all disposed to try barley, and to buy the product at market prices. We suppose they will do so now.—ED. SO. P. & F.

My Dear Sir,—I reply promptly to your first inquiry, and reserve the other matters for consideration and investigation.

My father cultivated barley for many years prior to 1829, and considered it more profitable at seventy cents than wheat at one dollar, being much more productive and adapted to a much greater variety of soils, as well as far more certain and regular in product. In 1829, he made a very large crop, about 2,700 bushels from eighty acres of land. The land was top-dressed with castor oil bean pumice. Between that and 1835, the land was greatly

improved by a second marling and other manures and clover. It was cultivated at least twice in wheat, and the largest crop was not more than twelve bushels to the acre. Barley then fell very suddenly in value. He sold about 1,500 bushels in Baltimore, which did not net him more than thirty cents a bushel. Corn, however, bore a good price, and he kept the balance and fed it to his teams, and I never saw animals kept in better condition than those fed on it. It was always soaked twenty-four hours before being used. It was given in the same manner as corn, and is certainly a better feed for horses. The straw also is a valuable forage—much superior to wheat or oat straw, and eaten with a better relish by horses. The barley he cultivated was the winter barley, and raised as a substitute for wheat, which, at the time he cultivated barley, was quite as uncertain a crop as it has been for the last few years.

In 1854, I sowed a lot of five acres of sandy land in four rowed spring barley. The lot had the year before been cultivated in corn and peas, and produced twenty-two barrels of corn. It produced one hundred and twenty-eight bushels of barley. No manure, except a light top-dressing of lime, was used. In 1855, a good stand of clover was cut, and in 1856, the lot was again cultivated in corn and peas, having a good dressing of compost of stable manure, marsh mud and lime, and produced thirty-six barrels of corn. In the fall, it was seeded in wheat with an application of one hundred pounds of guano to the acre, and produced just sixty bushels, which was very clean, and kept separate for seed. On equal land, it seems to me, it would be safe to calculate on at least twice as much barley as wheat. I sent my barley to Baltimore, but no market was found for it, and I used it for horse feed. Mr. Robert Hudgins got a few bushels of the seed, and seeded it on light sandy land, but it was seeded too late; and though it made good growth, failed to produce much seed. Mr. Thomas W. Lowry also seeded a few bushels on stiff land, with like result. Both crops were put in about the middle of April. It should have been stated that my crop was seeded about the 20th of February. There was some pretty hard frosty weather after it came up, which did not injure it. Oats invariably produce but light crops when seeded late, and barley is more injuriously affected by late seeding. You can cull out from this what you want, or use it as you wish.

Very truly yours, &c.,

G. WILLIAM SEMPLE.

Hampton, January 11, 1869.

About the Diseases and Purchase of Horses.

In publishing the article, to which we subscribe in the main, we reserve one or two points:

1st. We do not know how far it is possible to alter the present practice of buying horses. The scarcity of Veterinary Surgeons would seem to forbid any reliance on them as substitutes for the knowledge of the buyer.

2d. We are persuaded there is such a disease as sweeney, *i. e.*, the palsy and rapid shrinkage of a particular muscle of the shoulder; and equally are we convinced, by repeated observation and the testimony of others qualified to testify, that "wolf's teeth," as they are called, do frequently, but not always, produce weak eyes running on to total loss of sight in one or both eyes if the tooth or teeth be not removed.

3d. Whilst it is perfectly true that "hollow horn" is a symptom of disease which originated elsewhere, and most of the remedies practiced are mere ignorant barbarity, yet the horn does become involved, its inner substance inflamed, and often completely destroyed; and then it is necessary to discharge the resulting pus by an orifice which should be bored near the base of the horn. See "Southern Planter," January, 1852, pp. 5, 6, for a brief but able article on this subject, by the late Dr. Charles Minor, of Albemarle, a very able man, reporting the treatment and *post mortem* examination of a case of Hollow Horn, so called.—Ed. So. P. & F.

To the Editor of the Planter :

SIR,—If agreeable to you and the readers of your paper, I shall be happy to write you a few articles upon the horse, his diseases and their causes, and the popular errors entertained and practiced, or allowed to be practiced, upon the most useful of our domestic animals. It is an unfortunate truth that the majority of persons who have ever owned a horse imagine themselves able to prescribe for any disease with which the animal may be affected. The absurdity of this will appear on a moment's reflection. The physician, when called to a sick man, asks the sufferer concerning his feelings, and the answers he receives are his main guides as diagnosis—the pain felt here calls attention to the lungs, the pain felt there to the bowels, and so on; but the Veterinary Surgeon must rely upon observation alone. The anatomy of the horse is as complicated and delicate as that of man. He is subject to most of the diseases which affect humanity, (except those engendered by excesses, &c.,) and these diseases present themselves in all their varied forms. Take, for example, the air passages. We have laryngitis, bronchitis, and pneumonia, three distinct diseases, all involving in their primary stages only simple inflammation, may pass into effusion, hepatization, ulceration, &c., as well in the horse as in the man. How keen, then, should be the powers of observation—

how discriminating the judgment—to be able to determine the seat and progress of disease.

It is only my desire to suggest to your readers how absurd it is to suppose that the study and experience so needful to the physician can be dispensed with in the case of the Veterinary Surgeon, and to expose the erratic, absurd, and empiric acts of *quack horse doctors* and pretenders, who handle and administer drugs, and hack at living flesh without comprehending the parts they are interfering with, or having any knowledge of the medicines they venture to administer. There is no animal men pretend to know more about, and know less about, than the horse. Virginia stood pre-eminent as the nursery for thoroughbred horses; consequently, Virginians have inherited a passion for the noble animal which conduces so much to their pleasures and pastimes, yet, to me, it seems remarkable and inexplicable that when their most useful servant is stricken with disease they at once summon to their aid a conglomeration of imbecility. Uncle Ned, the coachman, or Uncle James, the hostler, or some stable-keeper or sweeper, is supposed to be the possessor of some secret panacea. He or they are ushered into the presence of the sick animal, with, perhaps, a host of advisers, whose opinions vary widely both as to the nature of the disease and remedy. After sundry elongation of faces, nods and winks, (supposed to be indicative of wisdom,) it is agreed upon as a case of botts.

Your readers will be surprised when I declare (and defy contradiction by competent authority) that, if present, in no case ever produced death, or even inconvenienced the animal. Some writers argue that they prove of service to the animal, aiding the cuticular coat in the trituration of the food. (But more of this anon.) Having agreed upon the cause, the order is to bleed. A knife is at once stuck into the horse's mouth and some nostrum given internally. The first with the absurd supposition that the botts leave the stomach to feed upon the blood; the second to expel the botts. Neither do they feed upon the stomach, as these wiseacres suppose. How many thousand horses have been sacrificed at the shrine of ignorance? How many more are to follow in their wake? The profession of Veterinary Surgeon is thwarted on all sides by these ignoramuses.

I see evidences of most arrant quackery every day in this city. If malpractice were punishable here as in England, these loud-mouthed braggarts would be silenced by the hand of justice. I am surprised that an intelligent public are the willing dupes of such specious humbug, and at the same time unloose their purse-strings

to remunerate fraud. I would here caution the owners of animals against entrusting valuable life to such unmitigated ignorance. The horse suffering from disease is an object of commiseration at all times; more especially is he so from the inveterate siege the doctor lays against his life. A continuous onslaught of balls, drenching, purging, and bleeding is the routine. If the animal survives, the doctor congratulates himself upon a *wonderful cure and a fee for his skill*. If lame, a seton is put in the chest to cure foot lameness; or to cure broken wind, a ditto; ditto for pulmonary troubles; the same treatment for laminitis and noviculartheritis, (commonly called founder,) in goes the inevitable seton in rheumatism, sweeney, chest founder, &c. If ophtalmia, the empiric looks into the mouth for wolf teeth as the cause. In tetanus, where you always get protrusion of the membrane of the eye, (a premonitory symptom called by the ignorant hooks,) the protrusion of the membrane is pointed out as the seat of disease, and cut out. Much to the chagrin of the operator, however, the horse does not improve, and in the course of a few days dies. These fellows mistake symptoms for cause, and attack them vigorously, but fail in effecting a cure. The all healer, Time, accomplishes a cure, and the quack, robbing both Nature and the owner, (the former of credit, the latter of money,) largely increases his reputation with every horse *he fails to kill*. The majority of the diseases of the horse are traceable to man's inattention and stupidity. All intestinal troubles are caused by man's injudicious feeding. Too long abstinence from food, with stables badly ventilated and worse drained, are also sources of much evil. Even over exertion and consequent exhaustion, without proper stable management, is sure to produce disease. The horse is the medium of more humbug and fraud than any other animal, and is surrounded by *men who are given to sharp practice*, who palm off, by misrepresentation, an unsound animal upon a customer and flatter themselves they are *smart*. If a merchant were to pursue the same line of conduct, how long would he be patronized? Yet these men meet their victims with unblushing effrontery and ask further patronage. The rogues often associate themselves with a low horse doctor, who, through his supposed knowledge of the equine race, help to fleece the public.

The remedy for all these fraudulent vampires is, in all cases, to protect yourself with a written "warranty," or have the animal examined by a Veterinary Surgeon. The dealers will not submit a quadruped of known unsoundness to such a test, because, in case of rejection, the property is not only deteriorated, but the owner has

to pay for the process, which casts a taint upon his stables; whereas, should the examination be passed, the purchaser takes the horse and pays for the certificate, which assures him of its value. This precaution being taken before the bargain is concluded, always specify for a trial, which alone can inform the future master of matters most essential to his personal pleasure, but which no veterinary inspection could discover.

It is prudent to attend to these particulars, and it is folly to imagine a warranty can shelter the person who knowingly disregards the security which the certificate and trial alone can afford.

The customer is thus fenced in and protected on all sides. The conduct of the dealer should declare the personal opinion of the man who is best acquainted with the animal. The professional judgment being deliberately pronounced and duly certified, guards the points where a gentleman's knowledge may be deficient, while the trial permits the individual to ascertain such traits as mouth, temper, habits, step, spirit, and mode of going. After such qualities are approved, the horse may be safely accepted, and no warranty can be necessary if such directions are observed.

I will at some future time write you a series of articles upon "Popular Fallacies," viz., botts or grubbs, sweenie, shoulder and foot lameness, chest founder, founders, hooks, wolf teeth, shoeing, etc., etc. Hollow horn in cattle, by the way, is currently believed to be a disease, whereas it is merely a symptom. This being the case, why allow the absurd practice of boring a hole into the horn, and filling it with salt, vinegar, and the like. This is another vagary practiced by the doctors. What would a physician be thought of who would bore a hole into a patient's leg or arm, because the extremities were cold? The animal is so entirely given up into the hands of man, and is so submissive to his treatment, that the active supervision of its master is doubly necessary for its protection.

I am yours, very respectfully,

J. R. FREEMAN, V. S.

Veterinary Infirmary, cor. 14th & Ross streets, Richmond, Va., Nov. 1868.

AGRICULTURE is a science—which teaches the artist the best mode of improving and fitting up his laboratory—instructs him in the properties and economical use of his raw material—learns him how best to apply his power, and to profit by his agents—and it thereby enables him greatly to abridge his labor and multiply his products.

The Easiest Way to Make Corn.

Prepare the land well by deep ploughing and harrowing, as late before planting as can be reasonably done. If the land is wet and springy, throw it up in single beds five feet apart. When planting time arrives, open a furrow with a five-tooth harrow, the front tooth being out and a small shovel hoe in the centre-piece, but in rear of the other four teeth. Drill the corn from six to ten inches apart in this furrow made by the shovel, hoe according to the strength of the land, and with the same instrument (the shovel hoe being off) cover the corn, or cover it with a three-tooth harrow (the front tooth being out); this will be equal to what may be called crossing corn ground the first time. When the corn is about five inches high, give it one furrow with the five-tooth harrow, having the teeth longer and narrower than ordinarily made, (the front tooth out,) by making the horse walk on the centre of the row, and the two front teeth not so close together as to cover up the corn, or, if preferred, run one furrow on each side with a double shovel one-horse plough, which is a little more work. The second time run one furrow with a trowel hoe on each side, with a small mould-board to throw earth to the corn, or with a one-horse double shovel plough. The middle not yet broken does not affect the corn injuriously, as the roots have not extended to their distance. Then go over the crop one furrow at a time, making the dirt meet between the stalks, by the two first furrows with a Dagon, until the whole row is finished. If you wish the ground to be left more level, run one furrow with a five-tooth harrow in the middle of the rows. Thus it will be observed that a good crop of corn can be made with half the ploughing that was done in old times—this plan requiring only eight furrows, and, if necessity compels, you can dispense with the two trowel hoe furrows, but the crop will not be quite as good. The thinning and hilling of the corn with the hand hoe will not be as much work as the checking the land and replanting the corn; and it will not be absolutely necessary to hill the corn, if the ploughing has been well executed. An ox or a cow can make as much on this plan as a good horse on the old one of running from sixteen to twenty furrows to make a crop. I prefer a cow, as we can appropriate her to more uses than the ox. When the ground is very dry, plough every other row instead of every row at the last ploughing. This plan will answer for many other crops besides corn, with variations as to distance between the rows.

ARCHIBALD THWEATT,

San Marino P. O., Dinwiddie county, Va.

The Park, Dinwiddie, Va., January 5, 1869.

Thick vs. Thin Sowing.

In publishing the following extract we would like to call attention to one matter that we think of great importance. If you sow thin and don't work the grain the weeds have got you. But if you do work and weed as in England, then won't the rust get you? This is a matter that has never been experimented on, to our knowledge in this country. Yet it is well worth it. Would it not be well for the various Societies to offer premiums for the best experiments *de hoc*.—ED. SO. PLANTER & FARMER.

The question of Thick *versus* Thin Sowing still remains a debatable one. As the Season, however, for wheat sowing is now coming in, it may be useful to call the attention of our readers to an experiment made in France, where, as in England, the custom of thick sowing has been the rule time out of mind. M. Vilmorin gives the usual amount of seed wheat in France at three hectolitres ($8\frac{1}{2}$ bushels) per hectare, or rather more than three bushels per acre, which is about the average sown in this country; and he estimates the number of grains per square metre, or yard, in that quantity at 450. "It is evident," he says "that no one, in sowing so thickly thinks or expects that this number of seeds on the square yard should germinate, grow up, produce grain, and ripen so many plants of wheat: for experience proves that the richest and best manured soil would be insufficient to carry out such a production, which reckoning only one ear to the stem, and forty grains to the ear, would represent a return of no less than 120 hectolitres per hectare (or about 133 bushels per acre; but we know that many grains buried too deep do not vegetate, and that others near the surface are the prey of birds, field-mice and other causes of destruction; in fact, we sow too thick to have the plants thick *enough*."

But we set out with the intention of giving the results of the experiment of M. Vilmorin, and must now hasten to do so: The extent of land on which it was made consisted of five acres, of about 120 yards each. This was divided into five equal parts, numbered one to five.—In number 1, the rows are about 7 inches apart, and the seed in the rows at the same distance—there being therefore, 25 to the square yard.—In No. 2 the rows were the same distance from each other, but the seeds at about $6\frac{1}{2}$ inches, or say 33 to the square yard. In No. 3 the rows were preserved at the same distance, but the seeds were planted at $3\frac{1}{2}$ inches or 50 to the square yard. In No. 4 the rows are only $3\frac{1}{2}$ inches from each other, and the seeds are the same distance, giving 100 to the square yard. In No. 5 the rows were $3\frac{1}{2}$ inches apart, but the seeds only $1\frac{3}{4}$ inches, giving 200 to the square yard. We should

state that the soil was of a sandy character, and of an average degree of fertility, and had received a light manuring with horse dung. The following were the results.

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
No of grains per square yard.	25	33	50	100	200
Weight of Seed in grammes.	125	165	250	500	1,000
Gross produce in kilos.	119	117	98	107	99
Weight of grain in kilos.	18,100	17,700	16,700	13,800	12,300
Weight of grain per litre, in grammes.	760	748	742	710	712

These figures the author says, speak for themselves, for a glance at them shows that in proportion as the quantity of seed increases we find not only the quantity of grain produced, but also its specific weight decreases in regular proportion, or in other words, its quality. The quantity of straw in each does not much differ except in No. 3, which was lodged more than the others. The seed was Red Scotch. The little difference in the straw, as the experimenter observes, shows that a plant of wheat requires more from the land in forming and ripening the grain, than it does to develop itself from its germination to the period of flowering; and that where we plant ten seeds, we must not look for more than two or three to arrive at perfection. The writer adds that the ears were finer, longer, and contained more grains than the thin-sown parcels, and that the straw, while stronger, was neither too harsh nor bent, nor were there amongst them a greater number of backward than amongst the close-planted.

In Italy they grow wheat expressly for planting—the straw being the first and the grain only the secondary consideration. They there sow very thick to get the straw as white and fine as possible. As to the ears, the finest are not more than an inch and a half (five centimetres) long and most of them not more than half that length; but they use the grain for seed, if harvested well, and obtain good average crops from it.—*Mark Lane Express*.

“Labor relieves us of three great evils—indolence, vice and want.”

“Nothing is bestowed on man in this life, without great labor.”

Economy and Advantages of Cut Feed.

To the Editor.—As a reader of the *New York Tribune*, I have often been much amused at some of the statements and discussions which are made to take place at the meetings of the so called “American Institute *Farmer’s Club*.”

Its prominent members seem to be as ready at physic as agriculture and as good on law as religion, and on practical questions good on neither.

For instance, at their late meetings the “Agricultural Editor of the *New York Tribune*” stated that he doubted the economy of cutting hay and coarse fodder for fattening and working stock. Now, I find by a circular issued by a prominent New York firm, a certificate from this same gentlemen speaking in high praise of their patent fodder and hay cutter, which he then had in use, and which saved him more than enough fodder every year to pay its first cost.

It is not always that theory and practice coincide; but cutting food is happily one of the operations in which they both agree. Surely the gentleman above alluded to has never had charge of a working team fairly tried upon cut and uncut hay. In feeding our work horses we invariably cut all the hay which they eat with one of Wilson’s Telegraph cutters, into half-inch pieces, and the meal is thoroughly mixed up among the dampened hay. The horses are brought in at dark and the above feed given to them in box troughs—and they are done eating and laying down full one hour and a half before they would have been, had the feed been fed uncut.

I am a strong advocate for cut food for all kinds of stock, but not without good reason, and the experience of more than one year. Last season we cut all the hay, straw and corn fodder fed to forty head of stock, and are well satisfied that by so doing we were well repaid for our trouble three or four times over—although our experience with corn fodder is, that if fed without steaming it should never be less than from three-quarters to one inch long—for a large corn stalk cut up into half-inch pieces will turn on end in the animal’s mouth and wound his jaws; but cutting double the length avoids this difficulty.

As has already been remarked, it would surprise an English farmer to hear some of the discussions of this Club which are often retrograde rather than *progressive* in their tendency.

I consider cutting the food of our farm stock as one move in the course which sooner or latter must end in steaming “or in some way cooking” coarse provender. Cutting is not only a great saving

in the muscular strength of the animal, but it also enables us to use much which would otherwise go to waste. As it is usually fed, the stalks of our corn fodder are seldom consumed by our animals; but if cut and fed with their grain, all or nearly all will be consumed. Last winter in stall-feeding we mixed our cut corn fodder and hay together, in about equal quantities, and with it mixed the meal which is usually fed alone, and found that at the end of a week there was seldom a bushel of refuse corn fodder to be found in all of the twelve stables.

Our learned friends of the Club will probably try to convince us by an analysis of corn fodder, that it contains little or no nourishment; but if well taken care of, I believe that five tons of it are as good if not better than three of hay, and know from actual experiment that it will winter stock cattle quite as well.

Science is a good thing, and has no doubt been of great assistance to the practical farmer; but where one of your correspondents lately undertook to argue that, because analysis had shown that seventy-five per cent. of potatoes was water, four quarts of boiled potatoes contained only one quart of nutriment, he gave us an instance in which theory and practice did not agree. After several years experience, I am satisfied that for winter food, for horses only worked occasionally, two quarts of oats and three of raw small potatoes are better than four quarts of oats; and that horses if not at too severe work, will thrive better on part grain and part roots, I have tried too often to doubt, even when backed by a *scientific* analysis.

If the Farmers' Club would give us a little more *practice* and less theory—more agriculture and less law, phisic, and divinity, they would confer more benefit on the class they profess to instruct, viz: *practical farmers*.—J. D. ACKER, *Milford, Delaware, in the Practical Farmer*.

Answers to Correspondents.

TIME TO SOW CLOVER—PROPRIETY OF SPRING SEEDING OF SPEAR GRASSES—MANURING CORN IN THE HILL.

Editors of Southern Planter and Farmer:

GENTLEMEN,—Will you permit a young and entirely inexperienced farmer to make some inquiries in regard to one or two matters of very great interest and importance to *him*, and, perhaps, to others who are so unfortunate as to be wanting in that practical experience so necessary for successful farming?

1st. I have a piece of wet land, partly low-grounds and partly

upland, which was cultivated in tobacco last year, and is now sown down in wheat. For reasons, which it is not necessary to state here, it was impossible to sow orchard grass over this piece of land at the time of seeding wheat, which, I am well aware, should have been done. I desire, however, to sow it down in clover and orchard grass this spring, unless it may be deemed altogether improper so to do. What I desire to know particularly is, what quantity of each seed should be sown to the acre, and in what proportions they should be mixed? I am well aware that clover sown during a snow, or freeze, or just before a rain, will generally sprout and vegetate, without being covered in the ground by the labor of the farmer; but in the case of orchard grass, *sown in the spring*, would it not be better and safer in every respect to cover them in, either by harrowing the land now in wheat, or by dragging a brush over it? Again: would it not be advisable to sow very early in the spring, or late in the winter, in order that the young grass may get a firm hold in the ground, so as the better to stand the heat and droughts of summer?

2d. What would you recommend, cheapness and all other things considered, as the best fertilizer for corn, to be applied in the hill? Last year I used Peruvian Guano, which, besides burning the corn, so pushed it that, long before the drought was over, the stalk had hardened, and it had pretty much exhausted itself. The consequence was, I made no corn; whereas, my neighbors, who used no guano or other fertilizer, made comparatively good crops on land no better than mine. Some parties in this section have used bone dust, as I understand, with good results. I know nothing of it myself, but would be glad to have the opinion of either of the Editors of the *Planter and Farmer*. Your Mr. Ruffin, I suppose, is as well prepared to answer the questions above propounded, or any others relating to agriculture in any of its branches, as any man in Virginia. His long experience in farming on an enlarged and scientific basis gives him a vantage ground, enjoyed by but few, if any, of the farmers in Virginia; and, consequently, his opinions are deemed justly valuable on all subjects relating to agriculture. For my own part, I would accept his opinions on any of the matters inquired of above as decisive.

Permit me, Messrs. Editors, to suggest, in conclusion, what I think would be a great improvement to your already valuable periodical. I mean a page, or a couple of pages, devoted to Answers to Correspondents. In my opinion, it would certainly add greatly to the interest and value of the *Planter and Farmer*, and although it

might impose increased labor upon its Editors, it would be an incalculable benefit to its numerous readers.

A YOUNG FARMER.

Campbell county, Va., January 13, 1869.

As to clover, the best time to seed *that* is from the first to the middle of March. As to orchard grass, we cannot say. We have never sowed it in the spring, and to a very limited extent anywhere, as our land is better adapted to Timothy. Either a very light harrow with wooden teeth, or a brush: or, what we prefer, a spring-tooth horse rake, will do to put it in, and will be a benefit to the wheat.

The spring seeding of spear grasses is not generally deemed good farming in our latitude, the heat of summer coming on too soon and before the grass has made deep roots, and being apt to parch the tender plant when the protecting crop of grain is removed. This is so generally received as the proper view, that we have never tried spring seeding of Timothy but once, and then it failed. In view of the risk, we would advise our correspondent not to sow orchard grass this spring; but to follow the present crop of wheat with another this fall, apply a full dressing of bone dust, or some ammoniated phosphate, taking care to get a genuine article, and seed down orchard grass upon the wheat immediately after the last harrowing or after, or with the drill, at the rate of two bushels per acre.

Or sow the clover seed this spring, and in 1870, fallow the clover for wheat, (in June or July, if possible,) and then sow the wheat and grass seed down.

We shall try and get, or give, suitable directions for manuring corn in the hill next month. Meanwhile, we invite communications on this head from experts.—Ed. So. P. & F.

Cheap Food a Necessity.

USE MORE VEGETABLES—LESS ANIMAL FOOD.

A great want in the economy of Southern living at the present period is a variety of cheap food. Pork or bacon, so universally used by all classes of our population, and so almost exclusively used by our poorer classes, was introduced by the first settlers of the country on account of the facility of rearing hogs on the then rich and extensive range, and has continued to be the staple food from habit, and especially from its little interference with the occupations of a planter's life. But since we are no longer to be planters, but farmers, seeking the comforts and decencies of life directly from the products of our farms, instead of purchasing them in a great measure, as heretofore, from the proceeds of our monied crops as planters, as we assume the habits and occupations of farmers, we will, of choice and from convenience, as well as from the difficulty of raising pork, (of which more hereafter,) introduce a more varied,

and healthful, and civilizing diet. In the meantime, it is thought that this, so desirable a revolution in our mode of living, may be anticipated by attracting public attention to the subject. It is at least thought to be of sufficient interest to occupy a place in the pages of an agricultural journal.

The rearing of pork, except in limited quantities and at a cost beyond its value in market, may, on account of thieving freedmen, be numbered among the things that were; so that there is a pressing occasion to provide right away other means of subsistence, to supply the place it has so long held on our tables. In this connection, the subject appeals to the benevolence of every man, especially in behalf of the class of honest freedmen, many of whom, often from an improvident and wasteful application of their means, live, they and their families, for successive months of the year on dry corn bread. But it also appeals to the personal interests of every industrious, providing citizen: for the best stored larder is ever liable to the depredations of the starvelings surrounding it; and hence the inducement to multiply the general sources of living from the motive that sailors throw a tub to the whale. We were taught this lesson as slaveholders, and it now more than then needs to be heeded. A lighter and varied diet might be introduced that would be both more plentiful and cheap, as, on the authority of physiologists, it would be more healthful. Furthermore, from the observation of philosophical inquiries into the causes of the distinguishing characteristics of the different classes of society, especially in European communities in which these characteristics are so marked, its tendency would be to the civilization and refinement of manners.

To show what may be done, on the score of cheapness, towards the accomplishment of the proposed object by the multiplication of milch cows, I quote from Johnson's *Elements of Agriculture* under the head of the relative proportions of food for man yielded by the same herbage in the form of beef and milk: "According to Sir John Sinclair," says the writer, "the same herbage which will add 112 pounds to the weight of an ox, will enable a cow to yield 450 wine gallons, or 3,600 pounds of milk * * * * that is to say, the same weight of herbage which will produce less than thirty pounds of dry human food in the form of beef, will yield 500 pounds in the form of milk." And fearing this statement of Sir John Sinclair is not to be relied on, the author gives another from Reidesel, a Continental authority, according to which the quantity of milk, though not so great, "contains still five times as much as is contained in the beef." I incline to believe that of vegetable

food the best substitute, in itself, for hog meat, is sorghum. This opinion is supported by the experience of the South during the war. Its cultivation at the close of the war was generally abandoned among other reasons, because of its supposed exhaustion of the soil. This evil, to say the least, was certainly exaggerated. 'Tis true no remunerating crop can be grown the year succeeding its cultivation. But this is owing to the undecayed condition of its roots, and the almost impossibility of breaking the sod on account of their strength and number. By the year after, these roots become decomposed, and because of their multitude and the advantage of a year's rest, by the testimony of my own experience, I incline to the opinion that the soil may be restored to its previous fertility.

Much might be hoped for from the more extensive and careful cultivation of garden vegetables. Perhaps not one man in a thousand in the South ever tasted of the palatable and nutritious dish, the navy bean, boiled in simple salt and water. These vegetables, many of them, might be used as ingredients in soups. Count Rumford recommends a soup as highly nutritious, made of equal parts of potatoes, peas and rice boiled for three hours.

Nor in the catalogue of new dishes ought the mushroom to be slighted, a dish so delicious as to be esteemed a delicacy on the tables of the rich. Lord Bacon, in his natural history, among several processes for growing the mushroom, which he enumerates, writes: "It is reported that the bark of white or red poplar, which are the moistest of trees, cut small and cast into furrows well dunged, will cause the ground to put forth mushrooms at all seasons of the year fit to be eaten. Some add to the mixture leaven of bread dissolved in water."

I might extend this catalogue of specific articles of food, the most of them within convenient reach, to an indefinite length. But I forbear. My purpose being merely to bring the subject to the attention of the intelligent readers of the *Planter and Farmer*, on the supposition that they, thinking, that by presenting it in another and better form, it may result in practical good. I am sensible that, so far as the above relates to the colored population in our midst, it is liable to be slightly regarded by the thoughtful observer of the negro character for the reason of the degree of civilization implied in its consummation, which, though not high, is yet not the lowest. We fully recognize the difficulty of bringing the negro to an abandonment of his accustomed ways. That the sharpest pinches of necessity cannot move him, through his own volition, to take one step in a systematic amelioration of his condition; nor

ought we to be surprised at this. But a few degrees removed from his savage stock, according to the history of other and superior races of mankind, his reason is still under the sway of his passions—a mere creature of instinct, without thought of the future—cutting down the tree to come at the fruit. And these attributes of barbarism are confirmed and illustrated in his daily life; nevertheless, there is a hope that his employers and others in relation to him might, by example and continued exhortation, force upon him, as it were, the varied means of subsistence indicated, and that custom rendering him sensible of new wants and desires, his mind may be awakened and his industry stimulated to seek their continued indulgence. And in this hope I conclude this undigested essay.

TULL.

Gestation—The Period Animals Carry Young.

In reply to a correspondent, we copy the following interesting article and carefully arranged table from Blain's Encyclopedia :

Table showing the Period of Reproduction and Gestation in Domestic Animals.

KINDS OF ANIMALS.	Proper Age for Reproduction.	Period of the power of Reproduction.	Number of Females for one Male.	Period of Gestation and Incubation.		
				Shortest Period.	Mean Period.	Longest Period.
Mare.....	4 years	YEARS. 10 to 12	.....	DAYS. 322	DAYS. 347	DAYS. 419
Stallion.....	5 "	12 to 15	20 to 30	.....	.....	.....
Cow.....	3 "	10 to 14	.....	240	283	321
Bull.....	3 "	8 to 10	30 to 40	.....	.....	.....
Ewe.....	2 "	6	.....	146	154	161
Tup.....	2 "	7	40 to 50	.....	.....	.....
Sow.....	1 "	6	.....	109	115	143
Boar.....	1 "	6	6 to 10	.....	.....	.....
She Goat.....	2 "	6	.....	150	156	163
He Goat.....	2 "	5	20 to 40	.....	.....	.....
She Ass.....	4 "	10 to 12	.....	365	380	391
He Ass.....	5 "	12 to 15	.....	.....	.....	.....
She Buffalo.....	.....	.....	.....	281	308	335
Bitch.....	2 "	8 to 9	.....	55	60	63
Dog.....	2 "	8 to 9	.....	.....	.....	.....
She Cat.....	1 "	5 to 6	.....	48	50	56
He Cat.....	1 "	9 to 10	5 to 6	.....	.....	.....
Doe Rabbit.....	6 mos.	5 to 6	.....	20	28	35
Buck Rabbit.....	6 "	5 to 6	30	.....	.....	.....
Cock.....	6 "	5 to 6	12 to 15	.....	.....	.....
Turkey, sitting) Hen {	.....	.....	.....	17	24	28
on the egg of) Duck {	.....	.....	.....	24	27	30
the) Turkey {	.....	.....	.....	24	26	30
Hen sitting on the) Duck {	.....	.....	.....	26	31	34
eggs of the) Hen {	.....	3 to 5	.....	19	21	24
Duck.....	.....	.....	.....	28	30	32
Goose.....	.....	.....	.....	27	30	33
Pigeon.....	.....	.....	.....	16	18	29

“According to the observations of M. Teissier, of Paris, in 582 mares, * * * * the shortest period was 287 days, and the

longest 419 days; making the extraordinary difference of 132 days, and of 89 days beyond the usual term of eleven months. The cow usually brings forth in about nine months, and the sheep in five. Swine usually farrow between the 120th and 140th day, being liable to variations, influenced, apparently, by their size and their particular breeds. In the bitch, on the contrary, be she as diminutive as a kitten, or as large as the boar-hound, pupping occurs on or about the 63d day. The cat produces either on the 55th or 56th day. The true causes which abridge or prolong more or less the period of gestation in the females of quadrupeds, and of the incubation of birds, are yet unknown to us.

“From some carefully collected and very extensive notes made by Lord Spencer on the period of gestation of 764 cows, it resulted that the shortest period of gestation when a live calf was produced was 220 days, and the longest 315 days; but he was not able to rear any calf produced at an earlier period than 242 days. From the result of his experiments, it appears that 314 cows calved before the 284th day, and 310 after the 285th day, so that the probable period of gestation ought to be considered 284 or 285 days. The experiments of M. Teissier on the gestation of cows are recorded to have given the following results:

“Twenty-one calved between 240th and 270th day, the mean time being $259\frac{1}{2}$; 544 calved between the 270th and 299th day, the mean time being 282; 10 calved between 299th and 321st day, the mean time being 303.

“In the most cases, therefore, between nine and ten months may be assumed as the usual period; though, with a bull calf the cow has generally been observed to go about forty-one weeks, and a few days less with a female. Any calf produced at an earlier period than 260 days must be considered decidedly premature, and any period of gestation exceeding 300 days must also be considered irregular; but in this latter case the health of the produce is not affected. I will conclude this article by the remarks of Mr. C. Hildard, of Northampton, who states that the period of gestation of a cow is 284 days, or, as it is said, nine calendar months and nine days; the ewe twenty weeks; the mare eleven months. The well bred cattle of the present time appear to me to bring forth twins more frequently than the cattle of fifty years ago. The males of all animals, hares excepted, are larger than the females. Castrated male cattle become larger beasts than entire males.”—*American Stock Journal*.

Chronic Rheumatism in Horses.

Chronic rheumatism is occasionally a sequel to the acute form; yet it may come on without any previous perceptible acute attack, and entirely independent of it. The principal difference between this and the acute disease lies in the less activity of the attack and inflammatory fever, and the indefinite duration of the symptoms; the lameness is not persistent, but goes off after exercise, and returns again while the animal is at rest.

As regards the Causes of this Malady.—It is known to be of hereditary origin; sometimes arising in a sort of spontaneous manner, without any assignable cause: it frequently follows hard driving, exposure, and chilling the surface with cold water.

Horses, after having been driven a long distance, sometimes come into the stable in a very exhausted state, and instead of rubbing them dry, clothing them with a warm blanket, and paying that attention to them which their circumstance demand, they are suffered to drink cold water, driven perhaps into a cold corner of a stable, neither wind-tight nor water-proof; the legs are sluiced with cold water to clear them of mud, and the knight of the stable, a humane man perhaps, out of charity for the poor horse, gives him a double allowance of food just at the very time when the digestive organs are unequal to the task. Next morning, on attempting to back the horse out, his fore, and sometimes the hind, limbs are as stiff as a poker. "My horse is foundered," exclaims the owner—a term very expressive of the ruined condition of the poor brute. The founder, or rheumatism, whichever the reader pleases to call it, may finally locate on the muscles of the shoulders and fore extremities, or it may run to the feet, and there spend its fury, in the form of laminitis—inflammation of the laminæ of the feet: this finally becomes chronic; produces *atrophy*—a wasting of the muscles. The horse is then said to be foundered in the chest. When the disease locates and remains within the horny covering of the foot during its several stages, and finally leaves the foot in a contracted, ruined condition, the horse is said to be foundered in the feet. We do not mean to give the reader an idea that all cases of laminitis arise in this way, for it is known to be the sequel, through a process termed *metastasis*, to diseases of the respiratory and other organs.

With regard to the treatment of chronic rheumatism, that which is known to be the sequel of the acute kind, without swelling, going off by exercise, and attended by a sort of chronic fever. This form is always benefitted by the warm bath, and if a steaming apparatus

he appeared to go too fast, members would remember that, to keep up with the mighty march of events, rapid movement is now necessary. To the old men, to whom the oak in the yard recalled the time when they could sit beneath its shade and count their hands at work in the field, if it makes them unhappy because of the change, he would say cut it down and move it out of the way. Prejudice has to be eradicated from the people—its walls to be battered down—and there is more of it in Virginia, said the speaker, than most of us dream of. Within twelve months past he had seen the finest agricultural implements at work on Virginia soil to be found in the world, and yet some farmers could not, owing to prejudice, be induced to travel two miles to see them operate. In conclusion, he pledged that he would do everything in his power to make the Society and the Fair a success, and hoped that official co-laborers would be selected who would give him energetic aid and support.

On motions severally made, the following gentlemen were elected Vice-Presidents of the Society:

James Lyons—1st <i>Vice-Pres't</i> ,	S. W. Ficklin—5th <i>Vice-Pres't</i> ,
Wm. T. Scott—2d “	Ed. Ruffin, Jr.—6th “
F. G. Ruffin—3d “	Lewis E. Harvie—7th “
R. B. Haxall—4th “	J. M. McCue—8th “

On motion of William T. Scott, of the county of Charlotte, the following gentlemen were elected as the Executive Committee:

Messrs. Richard Irby, W. C. Knight, R. H. Dulaney, R. W. N. Noland, F. N. Watkins, William Martin, R. E. Haskins, F. Stearns and W. T. Walker.

The report of the Secretary and Treasurer was presented and appropriately referred.

Mr. J. Bell Bigger nominated for the office of Secretary and Treasurer Mr. Charles B. Williams, who was unanimously elected.

Mr. Martin offered the following resolution:

Resolved, That a Federal tax upon agricultural products is unwise and unjust, and that the tax upon manufactured tobacco should be abolished.

Mr. Branch moved that the resolution be laid on the table, which was agreed to.

On motion of Mr. Lyons,

Resolved, That a committee of five be appointed by the President, to report at the next meeting of the Society what changes are necessary or expedient to be made in the Constitution.

The President appointed as said committee Messrs. Lyons, Harvie, Irby, Edmund Ruffin, Jr., and Watkins.

On motion of Mr. Noland,

Resolved, That the thanks of the Virginia State Agricultural Society be tendered to the Virginia Legislatures of 1865-'66 for the benefit done to agriculture by the amendment of the law of enclosures.

On motion of Mr. Lyons,

Resolved, That the action of the Executive Committee in purchasing the Fair Grounds of the Central Agricultural Society is hereby approved and ratified.

On motion of Mr. McCue,

Resolved, That the thanks of the Society be tendered to the Presidents of the several railroads, and to the proprietor of the Exchange Hotel, for courtesies extended.

On motion of Mr. Lyons,

Resolved, That the former owners of the property of the Central Agricultural Society be made honorary members of this Society.

Mr. Irby offered the following resolution, which was unanimously agreed to:

Resolved, That the thanks of this Society are hereby returned to Hon. Willoughby Newton, late President, for the able manner in which he has discharged the duties of the office he has held for the last three years, with so much honor to the Society and so much credit to himself.

That the Secretary transmit a copy of this resolution to Mr. Newton.

On motion of Mr. Lyons, the Society adjourned *sine die*.

J. BELL BIGGER, *Secretary*.

FAST CORN HUSKING.—Wm. S. Hastings, of Coleraine township, Lancaster co., during the past husking season commenced work at 6 o'clock in the morning and continued until 6 in the evening, during which time he husked 76 barrels, or 117 shocks. There were a number of persons present who witnessed the performance.—*Ex.*

A Michigan farmer has husked 100 bushels of corn in eight hours, and won \$25 premium.—*Exchange*.

If corn husking means what we in Virginia call corn shucking, it can't be done, gentlemen, at the rate you state. The half of it is more than an ordinary day's work.—Ed. So. P. & F.

Feeding of Stock.

With respect to the feeding and management of dairy stock, a most interesting and important branch of farm economy, it is essential that we should have correct notions, and correct notions would involve a very material change in the methods generally prevailing in New England practice. Though great improvement has been in this respect within the last quarter of a century, very much remains, and it will, probably, be many years before we arrive at perfection in our general system of low feeding and reach anything like the highest results. A vast number of experiments have been made to test the feeding value of various kinds of food, while chemical investigation has done much to throw light upon the constituents of feeding substances, and it is not too much to say that we have the materials on which to base a far more rational practice, but as yet the interest in adopting a more advanced and improved system of management is in this country confined to a few.

Chemical investigations of feeding substances are of great interest and of very considerable practical value; but the difficulties of availing ourselves immediately of all the advantages they are capable of affording us, arise from the fact that we have to deal with *living organisms*, that will often introduce a conflicting variety of circumstances to modify our deductions. If the chemist tells us that under certain circumstances a certain number of materials will combine and form a certain substance, he may be perfectly true so far as the results in the laboratory go, but we have in the barn a very different set of circumstances. We have "the living being with all its fine adjustments of nervous and muscular organization," and we cannot predicate with the same degree of certainty the effects which any particular combination of feeding substances will have. If it were not so, if practical results would always come out as we are led to think they ought to, the whole art of feeding would be reduced to a very simple set of rules, of easy application and of invariable results.

But we find in practice a great variety of "physiological peculiarities," which we have to consult in our animal. They have their "likes and dislikes," and over these we have comparatively little control. Even the food which at one time they relish may be turned from at another with positive dislike, and the results which one kind of food produces at one time may produce the very opposite results at another. And under the same circumstances of feeding, shelter and management, the yield of milk in the same cow will be all the time varying, and while one cow thrives on a particular

course of treatment another may not. Many of these points constantly coming up in practice are well calculated to puzzle even the most observant farmer. But there are others that we can more readily understand. We know that bad or stormy weather, the want of proper ventilation in the barn, the irritation of excessive heat and the attacks of insects in the field, the worrying by dogs, sudden thunder storms or other causes of excitement, will materially reduce the production of milk. We know, too, that it is not merely the kind of food but *the condition in which it is given* has a powerful influence upon the product of the cow, and so we have a variety of questions, upon the cooking and preparation of food, the mixing of varieties, and others of a practical character to consider. In fact, the whole subject of feeding is not without its difficulties, but fortunately many of them are of such a nature that we can reasonably hope to surmount them. On this point of the difficulties attending investigations into the nature and practical values of food for stock, and the circumstances which modify the milk-producing qualities of food, some very sensible views appeared recently in the journal of the Central Agricultural Society of Belgium, from the pen of its late able Secretary, M. H. le Docte, and the following is a translation from the original:

Every farmer knows that the milk of dairy cows is liable to remarkable phenomena, which occur frequently during different periods of the year. Thus it is not uncommon to see the milk of a farm increase or diminish according to the season, and without any apparent cause, always affecting the milking in a similar number of cows. After that, the milk is by-and-by of good quality, while a little later it has a mixed taste, and is soon spoilt, or liable to morbid changes. In one farm this substance is bitter, vitiated and incapable of coagulating; in a neighboring farm it is sweet, soft, rich in buttery and caceous substances, and agreeable to the taste. Here it is of a dull tint, gray or whitish; there it is strongly colored with blue, with red, or even with a shade of lead color; elsewhere quite the contrary is observed, and the milky secretion is seen to increase, diminish, or cease entirely. What is the cause of these changes? What mean the various peculiarities which we have just noticed.

It is well known that the nature and quantity of the food given to the cattle have great influence on the quality of the milk. If reason did not give the force of law to this observation, the facts that can every day be collected in the district of Herve, Dixmunde, Neufchatel, everywhere in short—where animals of the bovine species receive abundant nourishment—would soon establish the justice of

the principle. Starting from this line of consideration, several German, English and French writers have pretended that it is possible to classify the food given to cows, and afterwards to determine their value according to the quantity of milk, which they cause to be produced. They have thus admitted, in a general manner, that 100 pounds of good meadow (or English) hay well harvested are worth

- 200 lbs. potatoes,
- 460 lbs. beet root with leaves on,
- 550 lbs. Siberian cabbage,
- 250 lbs. beet roots without leaves,
- 250 lbs. carrots,
- 80 lbs. clover hay, or vetches.
- 50 lbs. oil cake,
- 250 lbs. pea straw and vetches,
- 300 lbs. barley or oat straw.
- 400 lbs. rye or wheat straw,
- 25 lbs. peas and beans or vetch seed,
- 50 lbs. oats,
- 500 lbs. green trefoil or vetches.

If these proportions are just and well established, which we will readily admit to a certain point, it is also right to say that there are certain inaccuracies which it will not be useless to mention. Thus is it not plain that the straw and hay grown on a rich and loamy soil is much more nourishing than that grown on exhausted ground? Does this not prove that there is a great difference between fresh straw and that which has been long thrashed—between the straw produced by cereals completely ripe, and that of cereals cut before maturity? between the produce mixed with bad herbs and that which has been kept in a proper state of cleanliness? It must be remarked that each kind of food exercises a different action, according to the nature of the animals which consume it. One likes *straw*, another prefers *hay*; one fancies English hay rather than clover, while another thrives better in a pasture than in the stall. The nutritive power of the food, moreover, is influenced by the state of the temperature. The nourishment acts differently, according as the weather is dry, dull or rainy—according as the animals are left at rest or used for hard work, and according as they are well or ill-treated; it is equally unquestionable that the milk is much more abundant in one season than in another, which must necessarily be attributed to the direct influences of the atmosphere.

This is not all—the dispositions materially affect the milk. Give

any horned animal new and particular food and you will immediately perceive a change in the flavor and color of the milk. This fact has been again recently established, by an experiment made at an institution for instruction in agriculture. Food consisting exclusively of spergula had been given to the cattle at this establishment; and this food, to which are attributed such precious properties for milk in nearly all the other districts of Belgium, had been almost forsaken by the animals; it is needless to add, that after that the milk suffered a considerable diminution, both in quantity and quality.

This example shows once more that the natural disposition of each animal acts for good or for evil upon the organs of digestion, and has consequently a direct influence upon the animal economy and upon the improvement or deterioration of the milk.—*Ruralist*.

Manual Labor School.

The idea of an agricultural school implies that the science of agriculture is taught. *Practical* farming should also be taught. This implies manual labor. Manual labor schools have been long regarded as an exploded humbug. Experience has shown that the associated labor of a number of boys during part of the day is not sufficiently remunerative to justify the outlay of capital and the employment of teachers necessary for the support of such an enterprise.

Still in the impoverished condition of our farming and planting population and amid the lamentable obstacles in the way of educating the present generation of boys every patriot asks, Is there no remedy? Cannot the boys in some measure educate themselves? Can they not earn a livelihood, while they go to school, or at least do much towards it?

It seems to me that many an earnest minded young man seeking an education might at least earn his board by laboring part of the day.

Suppose that he rises early, perform a few morning chores till breakfast (at sunrise), then spend the forenoon at his books till 12 o'clock; then dine and after dinner labor till night; then study till 9 or 10 o'clock. Also work every Saturday and during the entire summer vacation of 10 weeks which is the most important part of the cropping season. Why may not an industrious boy 16 or 18 years old earn his board in this way?

Will such a system detract too much from the hours of study? I think not. I have seen boys on this plan learn quite as rapidly as those who pay their way entirely. Success in study

depends on a "willing mind." I do not believe that the mental vigor is at all impaired by the labor mentioned, but rather strengthened. It would be well if every growing boy, at school or away, could be required to labor a few hours every day, in the open air.

From a limited experience I would deem it necessary for a boy to pay his tuition fees at least; for he certainly cannot earn board and tuition both. *Such fees are from the nature of the case high and out of the reach of many who greatly desire to be educated, ranging from \$200 to \$372 a year in schools of a high grade. Now suppose the boy to pay from \$60 to \$100 a year tuition and work for the remainder; cannot teachers afford to make the arrangement? True it is more than the boy can make at home. He cannot save enough in one year at home to pay his way at school the next, getting the use of his father's land and tools. Still in a well regulated household, with a little farm attached to the school, it seems that a few such boys might be profitably employed. Will not some of our schools make the experiment?

I do not propose that our schools be converted into "manual labor" schools, but rather that a manual labor feature be engrafted on them, for such a proportion of the boys as *need* the help of the system or can be employ'd with profit. Some who have ample means might also very properly desire their boys to be taught practical farming. Some may object that it is not proper to engraft this system on a regular boarding school. For those who labor would be looked down on as an inferior caste and their position would be uncomfortable unless all are subjected to the same rule. In practice this objection has no force I think, for boys are *great levelers*. The idea of caste originates with *older*, I cannot say *wiser* heads. It is high time that old and young had learned the *dignity of manual labor*. The disposition and character of a boy alone regulates his standing among his schoolmates.

'Tis no uncommon thing for other boys to take a turn at labor sometimes for sport, sometimes for pay by the hour or by the job, and sometimes to secure an extra holyday for a favorite in the manual labor department. If the head of the school is discreet there will arise no difficulty about caste.

There are, however, practical difficulties to be encountered. One arises from the difficulty in selecting suitable boys. The teacher may do his best and he is in danger of being mistaken in his material; E. G. one boy who has lived on ashcake at home, imagines, by some strange hallucination, that he ought to live on poundcake at school; or another who has read of Ben Franklin, becomes

suddenly fired with the idea of being a "selfmade man", obtains a place in the manual labor department and goes to work with great promise, but when the heat and burden of the day comes, his visions of selfmade greatness are dissipated like the morning dew, and there are ten chances to one that his place will be vacant some morning and when you hear of him again, you can be amused as well as offended with the stories of hardships and persecutions with which he satisfies the queries of a fond father, and arouses the indignation of a sympathising mother; or, again, some parent or guardian, who has been wholly unable to persuade an idle boy to earn his salt or learn a book at home, sends you his boy with instructions to use just "*a little mild authority*," at times. He counts largely on your teaching him industrious habits in a very short time. Deliver me from all such!

Another difficulty is found in the profitable use and training of unskilled labor. Boys have but little skill and less judgment.

Another source of difficulty lies in the oversight, control and discipline of this labor, even when the boys are inclined to do well.

The sovereign remedy for the most of these practical difficulties is to require partial fees, paid invariably in advance. None but teachers know how much advance payments simplify the whole question of discipline.

I would, therefore, propose that every school take a limited number of select and deserving youths on this plan, charge partial fees, and require partial labor to pay the rest. In this way many a noble youth may be educated, at least without loss to the teacher, and a great favor will be done. The boy will learn habits of industry and self-reliance, which is the foundation of all true independence, and at the same time learn the details of practical farming better than he could have done at home.

Who will experiment in this direction?

A TEACHER.

Which of the two will be able, with the greatest security, to confide in his own powers in a moment of adversity—he who has indulged his mind and pampered his body in many luxuries—or he who, contented with a little, and provident for the future, shall like a wise man, prepare in the time of peace for war?

Every man, in his prosperity, should make provisions to meet adversity.



Horticultural Department.

JOHN M. ALLEN, - - - - -

EDITOR.

Fruit Growing and Trucking in Virginia.

We clip the following from the Norfolk Journal.

OUR FRUIT AND TRUCKING FARMS.—We have been favored by the secretary of our Pomological Society with the following exhibit of the various productions of the fruit and trucking farms in the neighborhood of our city during the past year which have been sent from this port to the northern market: 1,000,000 baskets strawberries; 50,000 barrels potatoes; 40,000 barrels peas; 10,000 barrels snaps; 650,000 heads cabbage. 20,000 barrels cucumbers; 160,000 boxes tomatoes; 5,000 barrels squashes; 2,000 barrels beets; 40,000 bunches radishes; 100,000 cantelopes; 50,000 watermelons. The estimated value received, for the above is \$1,043,200. This calculation, it will be observed, does not include what has been received from the sale of apples, pears, plumbs, cherries, etc., which would probably amount to \$25,000 more.—*Norfolk Journal*.

We regret that the estimated average price of each article is not given, but the gross value shows that these were highly remunerative. The price of Strawberries for instance, may be safely estimated at 20 cents per basket (quart). Allowing 3,000 quarts per acre, we have an income of \$600, giving a net profit of at least \$400 per acre and proving beyond question that this branch of industry is profitable around Norfolk. Per contra, we make the following extract from a review of the year in Whitlock's Recorder published in New York: "Strawberries were abundant and late in the season sold at prices far too low to yield a profit to the grower. None but the largest and best commanded a good price during the entire season, which shows that our Strawberry growers must give more care to the selection of kinds, as well as to culture, or find that they are losing money."

It is just here we make a point for the benefit of our Northern Truckers—It is this, while culture and attention to varieties are always essential, still these will not avail them now. Care and

culture cannot compete with soil and climate. We can supply their markets two or three weeks earlier than they can, and of course we will get the higher prices and they must be content with the closing rates. Admitting New Jersey soil to be as well adapted as Virginia lands to the production of fruits and vegetables, New Jersey climate is not so favorable, and now that our people are alive to the value of these crops, Northern growers need not hope to compete with us. The better plan is for these gentlemen to come to our State, invest in our lands, which are very cheap, and push their business from a new base, where they can always be sure of receiving remunerative prices. 'Tis true that more Southern localities are earlier than ours, but then the distance is too great for us ever to fear competition in the Northern markets, and Virginia growers will always control the early markets in New York, Baltimore and Philadelphia.

Novelties.

As the spring approaches, the usual number of new vegetables, fruits, &c., &c., are advertised with recommendations, which, if they possess no other value, certainly sustain the reputation American venders have acquired as the princes of puffers. Could we believe one half (and have our faith confirmed by experience) that is said of the numerous new varieties of Potatoes, Tomatoes, Cucumbers, Melons, Strawberries, &c., horticulturists would certainly be the happiest of mortals. But, alas! "all is not gold that glitters," and we fear that the results of the year 1869 will, like those of former seasons, demonstrate the fact that while new things may be good, old ones are generally more trustworthy. We are not opposed to improvement, nor are we disposed to condemn anything because it is new, on the contrary, it gives us pleasure to chronicle recent improvements in the vegetable world, and we hope that those interested in horticulture will, as far as practicable, test all varieties of vegetables, fruits, and flowers which are introduced by parties having any claims to credence. This much is due to the producers, as well as to ourselves. But with the experiments of the past to guide us, we should be careful of investing in any of these novelties to any greater extent than is sufficient to give them a fair trial. This is the prudent course, even if able to do otherwise, poor as we are—any other course is miserable folly.

We are often asked why we do not aid more in introducing these novelties. Our reply is, that advertisers are sure to tell all that

can be said in favor of them while they are novelties. As soon as they cease to be that, or, in other words, as soon as we are able to do what our readers can, viz., test them, we hasten to give our experience. More than this ought not to be required, as we do not claim to be prophets.

In this connection our advice has been asked concerning the Early Rose Potato, which, according to advertisers, is remarkable for its earliness, good quality, and astonishing productiveness. As we have not tested it, all we can now say is, try it. It is highly recommended by responsible parties; but as every variety has its respective friends and opponents, experience alone can decide whether it is desirable in this section. At twelve dollars per bushel, its present price, we would advise careful handling.

Good rules to guide purchasers are these: Procure the Catalogue of some dealer in whose judgment, as well as integrity, you can rely, and select such varieties as he recommends, but touch lightly all articles you see introduced with the phrase "*said to be*" very early, very prolific, &c. Never purchase anything in the horticultural line from parties you do not know personally, without good references, else, in many cases, counterfeit, as well as worthless varieties, may fall into your hands.

Early Corn.

In "Old Virginia," "roasting ears" are still a *sine qua non* for the summer table, and few will have the hardihood to deny the justice of their title to popularity. No summer vegetable, with the possible exception of the Tomato, is so generally useful as green Corn. It is palatable and nutritive, and being easily grown, is within the reach of all. Heretofore, its culture has been mainly confined to the farm, and the table generally supplied from the firstlings of the field. This was very well as long as it lasted, but, unfortunately, that was not long, and roasting-ear season did not extend over a few weeks, owing to the fact that the corn crop was all planted at the same time and, consequently, matured about the same period.

Green corn should be cultivated as a garden crop, where with a little care in the selection of varieties and time of planting, a continuous supply may be had from the beginning of summer until frosts sets in.

We append a description of some of the earliest and best varieties, which mature in succession, and are well adapted to table use:

Adam's Extra Early.—Small ear, high flavor, juicy and prolific; matures in seven weeks from time of planting.

Tuscarora.—Large ear and grain, with little flavor, having rather a mealy taste, prolific, matures in eight weeks.

Large Sugar.—The best of the sweet corns, good size, fine flavor, yields well, matures in from eight to ten weeks.

Stowell's Evergreen.—Not so well flavored as the Large Sugar, but possesses this great advantage, that it is very slow in ripening, and can be used for a long time—while other varieties soon become too hard for use, this retains its juice and tenderness for several weeks; succeeds the Large Sugar in maturity.

A good plan is to plant some of each as early as the season will permit, and repeat the planting at intervals of a month which will insure a constant supply.

Navy Beans.

Editor Southern Planter and Farmer:

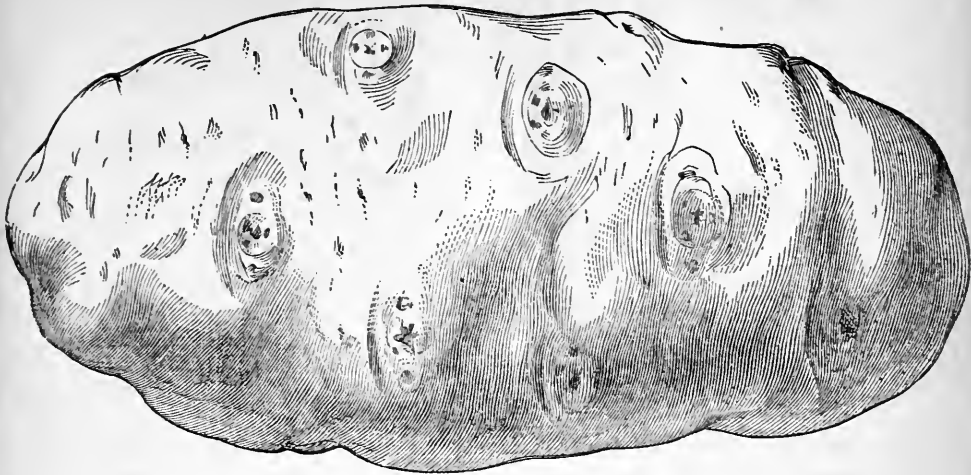
Will you be kind enough, in a future number of your valuable journal, to give some information on the mode of planting, culture and harvesting of the White Navy Bean?

A. J. H.

Rockbridge county, Virginia.

The Navy Bean is a bunch or dwarf bean, and should be cultivated like all others of that class. A sandy loam is best suited to them, but they will succeed in any light loose soil. The ground should be in good heart, but high fertilization is not desirable. Plant the same time as corn, in drills three and a half feet wide and three to four inches apart in the drills, covering them about two inches deep with light soil; cultivate with plough and hoe. When ripe, they may be mown with a scythe, or pulled up and flailed out, or better still, they may be hand-picked. When grown for sale as seed, they should always be gathered by hand. They are quite profitable. Fifty bushels per acre is a moderate yield, and two dollars per bushel below the average price, with a demand greater than the supply.

“The greatest dupes are those who exhaust an anxious existence in the disappointments and vexations of business, and live miserably and meanly, only to die magnificently rich.



The "Early Goodrich Potato."

Mr. Editor,—As there seems to be a general desire among farmers to diversify their crops so as to avoid the disastrous effects of the recent failures of the wheat crop, and as many have turned their attention to *Potatoes* as one of the best and most profitable crops for that purpose, I think a statement of my experience with one of the newer varieties may be acceptable to your readers.

I planted last spring a considerable crop of the "*Early Goodrich*," using for seed, potatoes grown on my farm the previous year from seed purchased in your city. I gave the land a moderate manuring only, of a well rotted compost stable and barn-yard manure, spread on broadcast and ploughed in, harrowed well and laid off in rows three feet apart, and scattered along in the drills Soluble Pacific Guano at the rate of 250 pounds per acre, with a light dressing of hog hair. (I think hog hair the *best* manure in the world for potatoes.) Planted *small whole* potatoes nine inches apart in the drills. I made no note of the date of planting, but it was at the same time that I sowed my early May peas, and the potatoes and peas were fit for the table at the same time. I gave good ordinary cultivation—no extra care or attention—and dug, by actual measurement, 350 bushels per acre of good merchantable potatoes—realizing 70 bushels for one planted. I have cultivated the "*Early Goodrich*" for two years, and think it very well adapted to our climate and soil. It has improved with me in quality and yield instead of degenerating, as the Mercer and other old varieties have done. It is superior in quality to any I have ever cultivated, and for earliness, freedom from disease and keeping, fulfills

all that was promised for it by those who introduced it among us. If any of your readers want a first-rate early potato, they will find it in the "Goodrich," at least such is the experience of

Yours, respectfully, B. C. WATKINS.

Powhatan county, January 18, 1869.

We heartily endorse all our correspondent says as to the good qualities of the Early Goodrich, but would suggest that even better results might have been obtained if he had cut his potatoes instead of planting them whole.—ED. S. P. & F.

PROPAGATING VINES BY EYES.—When the proper time arrives for pruning, preserve the prunings by sticking them in the ground, or in a flower-pot filled with rather moist but not very wet soil. In January, or early in February, you may prepare the eyes by making on the back of the shoot, opposite the eye, a cut with a sharp knife, bringing the knife out almost three-quarters of an inch below the eye. The same proceeding is to be repeated, bringing the knife out above the eye, and you have an eye with a portion of wood above and below it, and slanting from the back to the side on which the eye is situated. The eyes, when prepared, are to be inserted in pots or pans filled to within an inch of the rim with turfy, light loam; the eyes being placed either horizontally or vertically, about an inch and a half apart, and covered with half an inch of fine soil. They should be placed in a house or frame where there is a hot-bed, in which they should be plunged; the temperature being not more than 90°, nor less than 75°. The top-heat may be from 60° to 65° at night, and 75° by day, and 80° or 85° with sun-heat. The soil ought to be kept moist, but not wet, until the eyes have begun to grow; then keep it moist, affording a light syringing morning and evening. When the eyes have pushed a few inches, they may be taken up carefully, and potted off singly; and if kept in a hot-bed, and a moist atmosphere is preserved for a time, they will grow freely. The young vines thus produced must be repotted as often as the pots become filled with roots. Give them their last shift about June.—*Journal Horticulture.*

A new system of rose culture is now being practiced in Europe, the principal points of which are to prune out all the old wood, to shorten the new wood a little, and peg it down flat to the earth. The rose is thus allowed to bloom only on the wood of last year's growth. The effect is very fine.—*Rural American.*

Very good, except the novelty part. We commenced this system fifteen years ago, and still continue it, with such varieties as are benefitted by it.—EDITOR So. P. & F.

A NEW FERTILIZER FOR GRAPES.—“The California Farmer” says, “Some two years since, we spoke of a system practiced by some scientific growers, of enriching their vineyards by cutting into fine bits the spring prunings, and ploughing in the same, thus returning the needed material for manuring the vine.

“We have seen this experiment carefully and successfully tried, and have seen its good results; which is the keeping the soil light and porous, and giving to the vineyard a wholesome look and a heavy crop.

“We hope those vine-growers that have been in the habit of burning up their grape-wood, or carting it off, will hereafter chop up the wood finely, and plough it in deeply, and they will find their vineyards very greatly benefitted thereby.”

“Mirabile dictu,” “Eureka,” etc., etc. Here we have been for years searching after fertilizers, when, if we had only known it, we might have chopped up our corn stalks, ploughed them in, and continued gathering good crops. So with our orchards, rose beds, &c., &c. The point of the joke is that the “Journal of Horticulture” copies it, without comment, apparently endorsing it. Pretty good for our Boston cotemporary.

Philadelphia Raspberry.

I would like to say a few words in defence of this berry, because I believe it possess in a high degree those qualities that are needed in a variety for general cultivation. I have seen it growing on *very* light land, unmanured, where it maintained its size and general character of fruit perfectly, and gave a very fine yield. I fruited it myself on very choice land and under the most favorable circumstances, giving it the very highest possible cultivation, using rotted manure plenteously when planting, and in the spring, before fruiting, covering the ground with it completely. The result was, not an overgrowth of canes, but a very great increase of fruit. I have seen it besides on different soils and in widely different locations, have made inquiry in different directions north, west and south, and have yet to learn of a single failure, either from disease or the extremes of heat and cold, or the peculiarities of any location, soil or climate. Thus, where most other red varieties fail, the Philadelphia is sure to succeed, and where they succeed it is equally sure to surpass them all in those two great requisites, *quantity* and *certainty* of fruit.

Those who go to encounter the extreme cold of Minnesota, the

bleak winds of the western prairies, or the burning sun of the southern climates, can take this variety with them as a constant friend that will always yield its supply of fruit for the comfort and sustenance of the family.

As to its quality, no one ever claimed that it equaled some of the delicate, high-flavored sorts that need to be shaded in summer and wrapped up in winter to produce their scanty crop, and which would exhaust even the resources of "Wall Street" in the unavailing effort to produce fruit enough to supply our people's need. But it is a question whether its flavor, or rather want of flavor, is any objection to it. The wisdom of the Creator is seen in his giving to every class of his "blessed fruits" a great variety of flavor, thus humoring the veriest whims of appetite; and the Philadelphia Raspberry finds appreciating tastes among thousands of consumers, and never disappoints their expectations.

Two gentlemen stepped into our office, a few days since, and, during the conversation, one of them spoke of seeing some Diana grapes that had been kept till the month of May, and he thought them better than when fresh, as they had lost in some measure their *musky* flavor. "But," interrupts the other, "*that is what I like, and my wife thinks the Diana far superior to the Delaware.*" Now, these persons are all intelligent in fruit, yet to one the Delaware is tame and insipid, and to another the Diana is rank and offensive; but neither of them would be "good horticulturists," if they should condemn or fail to recommend either of these grapes, however offensive to themselves, knowing as they do that they are favorites with many. This shows how absurd it is to suppose that all fruit must have the same high flavor to be valuable. What we want is *more* fruit, an abundance of it everywhere, so as to become a staple and universal article of diet; so plenty and so cheap that the poor, and the children of the poor, can gratify their desire and nature's demand for it. How many *children* are there in the country that would refuse a dish of Philadelphias, or, if allowed to go into the patch, would not help themselves liberally, and never once think that their goodness all lay in "sugar and cream?" The universal demand for fruit cannot all be met by the market-gardener, nor from *any other* source but the family garden, and to encourage *home fruit-growing* should be the aim of every "good horticulturist." The *best* fruit any man ever eats is that he raises himself in his own little yard or garden; and though he may be comparatively poor and unable to purchase costly adornments and surroundings for his family, yet in this, among the best of home comforts, he stands an

equal chance with the rich, and may "gather round him fruit and flower as fair as Eden had." But if in his first attempt his plants all winter kill or fail to produce fruit, he will be discouraged from any further experiment; and this cause has given a more severe check to general fruit-growing than any other, as a want of success will in any business. If, then, we would encourage fruit-growing, we must disseminate those varieties that will recompense, not disappoint, the hopes, that will strengthen, not weaken, the faith of the masses in the enterprise. And for this purpose, the Philadelphia is among the red raspberries what the Wilson is among strawberries—not by any means the best flavored of them all, but still of good quality, perfectly hardy, and a sure and great bearer. And I would cheerfully recommend it for family culture, even though hard-earned money may be paid for it, as it will always answer the expectations with a bountiful yield of really good fruit.—*The Horticulturist*.

Advantages of Keeping Hogs in Orchards.

Notwithstanding all the evident advantages of jarring the trees daily, and arresting the operations of insects, we still believe that the practice of allowing hogs and poultry the free run of the orchard will prove the simplest and most practical means for overcoming the insect attacks on fruit. Dr. Trimble, being once asked, "What is the easiest and best means for subduing the curculio?" replied, "*Hogs*." Well said. Now, let us look at a few instances of success in following out this treatment.

David E. Brown, one of the largest fruit-growers near Alton, South Illinois, has for about five years kept both hogs and sheep in his apple and peach orchards. His fruit is not infested by insects nearly as much as that of his neighbors, although he employs no other precaution whatever to guard against the depredations of fruit-boring insects. His peach trees are also free from borers, though he takes no pains to worm his trees. His hogs keep in good condition on the fallen fruit.

Mr. S. B. Johnson, of Alton, had, last year, (1868) the best crop of peaches out of forty orchards in that neighborhood. He attributes the largeness of his crop greatly to the fact that, in 1867, he allowed a gang of hogs the range of his peach orchard all through the months of May and June, until the end of summer.

The *Country Gentleman* says:

"We know a cultivator who had heavy crops of plums for seven-

teen years in succession—his swine for these seventeen years, without a season's interruption, being allowed the run of the yard."

At Duquoin, Illinois, Messrs. Winter Brothers have a peach orchard of nearly eighty acres. For the past five years they have allowed a large drove of hogs to pasture in this orchard, that pick up all the fallen fruit. The second year a small share of the fruit was stung, but for the past three years there has been no loss on this account. The experiment gives great promise of success. In the garden, where the hogs are excluded, there are a few peach trees, but these are badly stung.

All other peach crops about Duquoin, and at Centralia, had the fruit nearly all ruined by insects.

W. C. Flagz, of Moro, near Alton, has for five years tried the plan of allowing hogs the range of his apple orchard, and finds it very beneficial, by checking the depredations of fruit-boring insects.

An apple-grower in Southeast Michigan has for many years back allowed hogs the range of his apple orchard. His apples have been but little infested by the apple-worm, even in years when those of his neighbors were swarming with this insect.

Benjamin Bacon, of Niagara county, New York, has an apple orchard of about ten or twelve acres. Fourteen years ago he turned his hogs into it, and has continued this practice ever since. Before he allowed hogs the range of his orchard, his crop of apples was always a very poor one; since he commenced this system he has raised good ones; ten or twelve of his neighbors have followed his example with equally good results.

Jotham Bradbury, residing near Quincy, Illinois, has an old apple orchard, which many years ago used invariably to produce nothing but wormy and gnarly fruit. A few years ago he ploughed up this orchard, and seeded it to clover, by way of hog-pasture. As soon as the clover had got a sufficient start, he turned in a gang of hogs, and has allowed them the range of his orchard ever since. Two years after the land was ploughed, the apple trees produced a good crop of fair, smooth fruit, and have continued to bear well ever since.

The benefits of this practice may, in the case of beginners, not be so apparent and decided the first year; but, by faithfully following up for a series of years, there will be found such a direct advantage, as to lead to the adoption of the principle as a general rule. As fast as the wormy fruit falls, it is picked up by the hogs. The larvæ of the insect are prevented from going underground and producing a new brood to sting the fruit the next year.

The *American Entomologist* wisely says :

“There are three practical difficulties in the way of carrying out this system of subduing fruit-boring insects by hog-power: 1st. The necessity of having all the orchard land under a separate fence, which, of course, in many cases, involves a considerable extra outlay for fencing materials. 2d. The necessity of giving up a practice which is conceded by the most intelligent fruit-growers to be otherwise objectionable; namely, growing other crops, such as small grain, corn, or small fruits between the rows of trees in bearing fruit orchards. 3d. The necessity of giving up the modern fashionable theory of low-headed trees; for otherwise, if apple and peach trees are allowed to branch out like a currant bush from the very root, any hogs that range among them will manifestly be able to help themselves, not only to the wormy windfalls that lie on the ground, but also to the sound growing fruit upon all the lowermost boughs.

“It is important, when hogs are employed for the purpose of picking up fallen fruit, that they should be kept moderately hungry, and not be gorged every day with corn so as to make them too lazy for work.”

Intelligent fruit-growers are rapidly being convinced of that practical proverb, “*When fruit trees occupy the ground no other crop should.*”

They find that, with the changes of our climate, fruit-culture is not an easy task, but one demanding more skill and intelligence than ever.

Fruit is becoming scarcer and dearer yearly, and there is more demand for it. If fruit is worth anything, it is worth as much care as any other farm crop. Farmers can afford now-a-days to let their orchards lie unused, uncultivated; they can easily let their hogs have free range in them; they can afford to incur the expense of necessary fences to confine the swine from depredation, because the labors of the hog will cause a better return, in the increased yield of fruit, in the freedom from disease both in tree and fruit, and in the fact that they are a complete and permanent preventive against all further insect spoliation.

In the cultivation of plum or apricot trees, the fruit will repay ten times the cost of hogs, or such crops as the ground might otherwise have produced.

We shall yet see the time when the hog-pen in the orchard will be quite a common sight, and declared “*a paying thing.*”—*Horticulturist.*

Seed for Lawns.

This month is a good time for seeding down new lawns. Let the ground be first thoroughly prepared, that is, dug at least one foot—better to be eighteen inches—deep, and all of this depth to be of good rich loamy soil, not ten inches of poor clay or sand with two inches of top-dressing, but all the depth of good loam suitable for growing a heavy crop of corn or a bed of carrots; make the whole depth and quality of soil uniform, without regard to the rise and fall of the grades; in other words, do not form the soil in one place fourteen inches deep and in another ten, and then calling it an average of one foot; because the lawn hereafter will tell of your work by its exhibit of rich green grass in the deep soil places and of yellow dried spots in the shallow ones; but make it all an even, regular depth, whether on a rising knoll or a low level grade. Rake and pulverize with the roller all the top surface as fine as an ash heap. When ready for sowing, procure for one acre—or in proportions according to the surface to be seeded—two bushels of Blue Grass, two bushels of Red Top, half a bushel of Creeping Bent, and one-eighth bushel of White Clover; mingle them well together, and then divide into three equal parts. Sow first one part; then go over the ground with a fine rake, say from north to south, raking the whole surface back and forth to lightly cover the seed; then sow another third portion of the seed, and repeat the raking cross-wise, or from east to west; then sow the last remaining portion of seed, and with a heavy roller, roll or press the whole surface, both for the purpose of cementing the seed in the soil for vegetating, and also to prevent measurably the wash liable to accrue from rains. We sometimes see advice of one bushel of seed to an acre; again, of two or three, with a sprinkling of rye, as they say, to shade the young grass—the adviser probably forgetting that the strong, rank roots of the rye do more injury by extraction of moisture and food from the roots than the benefit, if there is any, obtained from its shade. London, we believe, was in the practice of using from six to eight bushels of seed to the acre; Downing, from four to six; and our experience of twenty years over many and many an acre is, that if a good firm lawn is expected the first year, it is always unsafe to use less than four bushels, and that the addition of one or two bushels more well pays in the thick nest of grass readily grown and the lessening of labor in extracting weeds, that, where no grass is, will surely grow. A top-dressing of bone meal, ten bushels to the acre, with two bushels of salt, and one-half bushel of gypsum (plaster), will also always be found a profitable expenditure.—*Horticulturist*.

Household Department.

Domestic Poultry.

The fall has come and gone—old winter is upon us, with his icy hands and chilling breath—and as all animate nature require extra attention till the rigors of the season are passed, I resume the subject of “Domestic Poultry,” with the hope of increasing each farmer’s interest in the comfort of his feathered family, and insuring him greater profit and pleasure in rearing the young when gentle spring shall assume her reign.

Reader, are you a farmer, or gardener? And do you attempt, or hope, to rear your own poultry for the present year? If so, you should remember that your birds can no more enjoy health, without protection from the pelting rains, the drifting snows and piercing winds, than can your children. They need a sufficiency of sound, substantial food in the day, to keep them strong and vigorous; they need a sheltered ash-bank in which to dust themselves; they need clean, broad roosts on which they can rest and protect their feet from the cold, by covering them with their bodies; and they need a comfortable, dry, well-ventilated, yet warm, lodging room, where the chilling draughts of winter nights will not reach them. If you have made these preparations, you may look for a bountiful supply of eggs very soon, if you are not already getting them. If you have made no arrangements for their care and comfort, then do so at once, or get rid of the birds you have around you, and thus escape the annoyance of expecting spring eggs and chickens from hens that have become diseased and rendered almost barren by your own neglect.

In previous numbers of this journal I have given brief descriptions of a “hennery,” “sitting boxes,” the mode of hatching and rearing broods, a “coop” for the young chicks, some of the diseases which attack and destroy poultry, and my mode of treating those diseases. Would that I could say that my remedies were never-failing; but I cannot. If an ounce of prevention is worth a pound of cure, I can, however, say I have given that, as my readers will admit when they give it a fair trial. And that preventive is: Sound food, frequently changed; clean, fresh water; comfortable roosting places; clean nests, and a dry ash-bank to wallow in.

On many farms in Virginia the domestic poultry has been bred

"in and in," with no care for its comfort or health, till there is scarcely a sound bird in the barnyard. Where this is the case, the house-wife needs and must have a new stock for a fresh start. What breed it shall be is a matter of fancy with all. Some prefer the white face Black Spanish, because of their superior laying qualities. A more beautiful bird could not be desired; but the hen is a non-sitter, and the young chicks are delicate and hard to raise. Some prefer the Cochin China—a large bird of good laying qualities, but too indolent to provide for itself, or to protect its young. Others prefer the "*Brahma*," and this is decidedly my choice, after testing several varieties; but the difficulty in the way is, in getting them pure. After repeated efforts and failures, I succeeded last year in purchasing of a private gentleman in New York twenty odd of these birds, and I do not hesitate to say that they are the most beautiful fowls my eyes ever beheld. They do not seem to be affected by the winter, lay regularly at all seasons, and are as healthy, as thrifty, and as cheerful in cold weather as in spring time. So much am I pleased with my "*Brahma's*," after giving them a trial of summer, fall and winter, that I would not part with them for ten times their cost, if I believed I should not be able to replace them. They lay large eggs, sit well, are good, provident mothers; the young birds are fit for the pan and griddle at six weeks old, and the flesh of the *Brahma* is inferior to no other domestic bird that I have ever tried. For farm purposes, I feel quite sure they will speedily succeed all others, because of the many good qualities which I have enumerated. For winter layers, I doubt if they have their equals. Those in my yard have laid all winter thus far, and I am now sitting their eggs to have early spring chickens.

SPRING PREPARATIONS.

As every poulterer desires to have early chicks, every one should prepare for the sitting hens at once. Whitewash, cleanse, and purify your henneries, this month. Make down new nests; scald and smoke the old roost poles, or put in new ones of sassafras; thoroughly cleanse and fumigate your hatching boxes; prepare a new wash-bank, and see to it that the watering and feeding troughs are tight and sweet. Then commence a systematic examination of each hen. After being satisfied none of them are infested with vermin, examine their tongues and remove all indication of "*pips*"—a disease which proves fatal when neglected, but which yields readily to proper treatment. This being done, you have only to feed well to insure success.

Next month I propose calling attention to the various diseases of poultry, and giving such remedies as I have found efficacious.

Very many letters have reached me from various sections of the States, both from ladies and gentlemen, relative to poultry, and especially the "Brahma fowls." Such as required it have been answered. Others will be through the *Planter and Farmer* and the Postoffice. I could fill a volume with praises of the "Brahma," from poulterers in Europe and America, so highly are they esteemed. My great aim is to improve our stock of barn-yard fowls, and if I succeed in getting the farmers of Virginia to thinking on the subject, I shall be well repaid for my labor. I know, by experience, that poultry can be made profitable, and for that reason I have introduced the subject.

J. W. L.

Grove Cottage, near Richmond, P. O. Address 125, Richmond, Va.

About Painting, Papering, Etc.

Select paper with quiet tints, as being in better taste than gaudy colors. Some paper the ceilings also. For this a white or nearly white watered paper should be used, with a broad and delicately colored border.

Side walls can be papered by women. Trim the unprinted edge from one side of the paper, cut into strips the right length, matching the figure as you cut, then lay one strip at a time on a long table, and with a good whitewash brush, or even a clothes brush, spread on the paste—common boiled flour paste, made rather thin, and perfectly smooth—then with your assistant, lift the strip to its place, and with cloths in your hand pat it thoroughly from the top downwards and the middle outwards. In putting on the second piece, lap its trimmed edge over the untrimmed edge of the first, and match the figure.

Do not begin in a corner, for these are seldom straight, but begin by a door, so that when you come around to the place of beginning, there will not be a strip of broken figure to close up with. In papering the corners of a room, always cut the paper instead of turning the corner whole, and then lap a little, so that the paper will go in smooth to any irregularities in the corner, and not bridge across, as it will do if put on whole.

If your house is nice, and you wish to repaint within doors, do not fail to get the zinc paint for the last coat. It costs more, but is vastly more durable, has a beautiful polish, and is very easily

cleaned without soap. But if you are building a nice house, by all means have the wood work varnished, and dispense with paint entirely. Almost any wood is handsomer varnished than any paint can make it, and a simple damp cloth will then remove all dirt.

All the old varnished furniture, bedsteads, chairs, tables, etc., can be made to look almost like new, if well rubbed with turpentine and oil. If past such a remedy, buy a cup of varnish, get the loan of a brush, and varnish the furniture yourself. A nicely varnished table is handsomer to my taste without a spread than with one.

If new curtains are wanted for any part of the house, get buff chintz, and the size of the windows, run a flat rod into the lower hem, and nail the upper edge to a round rod, such as you can get at the stores arranged to draw up by a cord at the sides; or if you cannot do better, put a round rod at the bottom and roll up, tying with a cord and tassel thrown over the top. White curtains can be added, if wanted.

Carpets should be taken up at least once a year, thoroughly beaten with pliant whips, and all common ones should be turned the other side up. Good straw evenly laid down is the best to keep dust from wearing carpets. Carpets that are to be stretched much should be bound all around, and oil cloths should also be bound with carpet binding.

In purchasing a carpet, remember that large patterns are only suited to large rooms, and that a carpet with a small figure, covering nearly the whole surface, will last longest, especially if the carpet be three-ply. Let there be a harmony of colors between the carpet and wall paper. Select substantial colors as well as substantial cloth, don't get a green carpet, and then keep the room dark to protect it, but get one that loves the light. Cotton carpets or even linen are poor economy, but for honest wear give us the old-fashioned rag carpet yet.—*Ohio Farmer*.

GRASS LAWNS, newly made, must not be so closely mown as old turf; but mowing must be performed with regularity, or it is impossible to obtain a uniform velvety green surface. To mow closely a well established turf is to encourage the fine grasses and kill out the coarse kinds. Salt and plaster are good manures. Use at the rate of one bushel of plaster and three bushels of salt to the acre, and sow just before a rain.

“It is not enough to aim—you must hit.”

Carving and Helping at Table.

It is considered an accomplishment for a lady to know how to carve well at her own table. It is not proper to stand in carving. The carving knife should be sharp and thin.

To carve fowls, (which should always be laid with the breast uppermost,) place the fork in the breast, and take off the wings and legs without turning the fowl; then cut out the merry thought, cut slices from the breast, take out the collar bone, cut off the side pieces, and then cut the carcass in two. Divide the joints in the leg of a turkey.

In carving a surloin, cut thin slices from the side next to you, (it must be put on the dish with the tenderloin underneath,) then turn it, and cut from the tenderloin. Help the guest to both kinds.

In carving a leg of mutton, or a ham, begin by cutting across the middle to the bone. Cut a tongue across, and not lengthwise, and help from the middle part.

Carve a forequarter of lamb by separating the shoulder from the ribs, and then divide the ribs.

To carve a loin of veal, begin at the smaller end and separate the ribs. Help each one to a piece of kidney and its fat. Carve pork and mutton in the same way.

To carve a fillet of veal, begin at the top, and help to the stuffing with each slice. In a breast of veal, separate the breast and brisket, and then cut them up, asking which part is preferred.

In carving a pig, it is customary to divide it and take off the head before it comes to the table; as to many persons the head is revolting. Cut off the limbs and divide the ribs.

In carving venison, make a deep incision down to the bone to let out the juices, then turn the broad end toward you, cutting deep, in thin slices.

For a saddle of venison, cut from the tail toward the other end, on each side, in thin slices. Warm plates are very necessary with venison and mutton, and in winter are desirable for all meats.—*National Agriculturist.*

THE KITCHEN is more important than the parlor. It should be kept perfectly clean, well lighted, properly ventilated, and supplied with necessary conveniences. Dry wood and a brisk fire, and an abundant supply of soft water, will greatly facilitate the labor of housewife or servants.

Cooking Hams.

I have learned much in the half dozen years since I have assumed the responsibility of being my own housekeeper, as to the best mode of boiling a ham. I knew very well that it was spoiling a good ham ever to fry it when it can be broiled. But I found there were ways of boiling a whole ham so as to ruin it; and this is the way how I now boil it: If it be a Maryland or a Virginia ham, or any one rather old or hard, it should be soaked over night in plenty of water, then put into a suitable cooking pot of cold water, which should be raised to a gentle boil, or rather simmer, and this should be continued for fifteen minutes for every pound weight of the ham. Then take out, remove the skin, and dust over plentifully of bread crumbs and set in the oven to bake from fifteen to thirty minutes. A ham cooked in this way should be very tender, juicy and of fine flavor, provided it was originally good.

If this will assist any one in her knowledge how to improve upon the "old way" of preparing a whole ham for the table, I shall be satisfied. I know very well that if once tried it will be always tried.—*Germantown Telegraph.*

Household Recipes.

COFFEE CAKE.—One cup of butter, one of sour cream, one of coffee, five eggs, one cup of currants, one of stoned raisins, one teaspoonful cinnamon, one of allspice, one nutmeg, one teaspoonful soda; add flour to mix hard and bake slowly.

LOAF CAKE.—One cup of yeast; one cup of sugar; one cup of lard; one cup of milk; two eggs; stir stiff as you can and let it rise over night. In the morning add two cups sugar; two cups butter; one egg and a very little soda; one pound raisins.

SOUR MILK DOUGHNUTS.—Take two cups of sour milk, one teaspoonful of soda, two tablespoonfuls of cream, one cup of sugar, and one egg put into the mixture without beating; add flour enough for a stiff paste; salt and spice to taste.

SOUR MILK LOAF CAKE.—One pint of flour; one coffee cup of sugar; one coffee cup of sour milk; one teaspoonful soda dissolved in the milk and stirred to a foam; one egg; four spoonfuls melted butter; one teaspoonful cream tartar mixed with the flour; nutmeg and raisons as desired. This makes too good loaves.

Mechanic Arts.

How to Split Wood Easily.

A great many hard-working men, who have never been accustomed to commit their ideas to paper, understand that any kind of firewood, or timber that is being split into oven-wood, or riven into staves, or wagon spokes, will separate much more easily when split "slab fashion" than when separated in the direction from the heart toward the sap portion of the log or stick. There is a philosophical reason for this. When a stick is split "slab fashion," the parts are separated between the annual and the concentric circles of the tree, one of which is formed every growing season. The union between these annual layers, or rings of wood, is not so perfect as it is between the particles which form a ring or circle of the wood.

Inexperienced laborers and boys do not always understand how much advantage may be taken of their hard labor, when splitting wood, by understanding this fact. When a log is sawed into short cuts, for example, to be split into firewood, two iron wedges and a beetle would be necessary to open a cut through the heart. But by taking off thin slabs, most of the splitting may be done with only an axe.

Sugar maple is sometimes so difficult to split through the heart, that a laborer may drive in all his wedges and gluts without being able to open a log four feet long; whereas were the cut slabbed, the splitting could be performed with comparatively little labor. Then, after a log is split into slabs, the labor of splitting the slabs the other way will be comparatively light.—*Hearth and Home.*

PRESERVING TIMBER.—To builders, gardeners, and others who employ home-grown timber for fencing and other purposes, a correspondent in the *London Gardener's Chronicle* recommends a preventive of dry-rot, which he says has been thoroughly tested by experiment. It consists in soaking the timber for a short time in lime water. A pit or tank, or good-sized tank, according to the extent of requirement, will answer the purpose, the lime being added to the water in the proportion of eighty-eight grains to the gallon. Timber prepared in this way is said to stand the weather remarkably well.

THE SOUTHERN PLANTER AND FARMER.

RICHMOND, VIRGINIA, FEBRUARY, 1869.

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The Richmond Christian Advocate (weekly), and So. P. & F., for \$4 50 a year	
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The Cultivator and Country Gentleman (weekly), and So. P. & F., for 3 75 a year	

Value of the Shuck Crop.

We have now in full and practical operation in our city a branch of industry that is new, and yet exercising a very important influence upon agriculture, namely, the hickling of shucks for mattress filling.

This article was manufactured first in New Jersey by the Olcotts, who, perhaps, found a market in 1845 or 1846 for about twenty tons a year. From this point the demand steadily increased, and presently a New England firm, Boorham & Son, located with some kind of a machine in New Jersey as competitors of the Olcotts, but theirs was a very inferior article, and they never did much. Subsequently, the manufacture spread over the country, and became an important branch of production. Mr. F. O. Kittridge, in New England, took the lead in that section. But it was divided among many small producers in New Jersey, the State of New York, and most of the other States. In 1855, Mr. G. B. Stacy put up the first machine, run by power, in this State, three miles below Richmond. It was, however, only of sufficient capacity to supply his own wants as a manufacturer of mattresses for the trade of Richmond.

In 1859, a gentleman from Michigan came to this city, and put up a machine on which great calculations were based, in Taliferro's Old Mill, in Rocketts. A Mr. Sharp was associated with him in this enterprise, but like their successor, who purchased their machine and interest (Mr. Justis), they were not posted in the business, and, therefore, did not succeed. Mr. Stacy, however, continued his operations successfully, adding steam power and improved machinery progres-

sively, until the condition of the country in 1863 compelled a cessation of his operations. But at the North during the war the demands for hospital bedding stimulated the production to a wonderful extent, but it in no way contributed to the improvements of the machinery by which it was produced; and it remained for our own Mr. Stacy to push his experiments and improvements to the last result, which he has steadily done, until he has succeeded in producing a machine, for which he has applied for a patent, and which has given him the control of the market of the States. His machine not only strips the shucks from their butts and shreds them fine, but it effectually separates the butts and all short refuse from the prepared article as sent to market. It produces twelve tons every twenty-four hours, and the quality is admitted to be the best ever sent to market. Mr. Stacy admits that many of the points of importance in his machine were suggested by the observations he made of the operations of varied machines exhibited at Agricultural Fairs. And while on this subject, we may as well state that the firm of G. B. Stacy & Son are prepared to pay a handsome price for every pound of shucks that can be transported here. They have made a market for one of Virginia's products, and, as we understand, they are aiming to place them on the Northern market at a price that will effectually displace the Excelsior (a preparation of wood), produced in the Eastern States, and thus secure a permanent market for all that Virginia can grow.

Let it, then, be remembered that the old adage "not worth shucks" is obsolete. Shucks have a standard value henceforth, and Stacy & Son will buy all that can be produced in Virginia. And where persons cannot bale them, they will purchase them on the farm and have them baled at their expense. We deem this important to be known, first, that there is a market for all of Virginia's shucks, and next, that it is a market that tends to enhance the value of all other proreuder.

When it is remembered that the shucks of each barrel of corn weighs from forty-five to sixty pounds, and that the corn crop of Virginia is estimated at 3,698,000 barrels, and that the average value of the shucks is fifty cents per one hundred pounds on the plantations, it can be seen at once that the shuck crop of Virginia has become of considerable importance, and this new branch of industry is worthy of all the co-operation the planting community can give it.

At the rate of fifty pounds per barrel, and eighty cents per hundred, the present price, each acre will produce, at eight barrels per acre, four dollars, which, where the crop is economically worked, will be about the cost of cultivation. We think the present price will probably increase as time develops demand and competition, but we confess that, for the present, we do not wish to see the Messrs. Stacy impeded by higher prices, even if they could be obtained.

We ought to have said there is also a concern in Petersburg, conducted by Mr. W. S. Harrison, who is buying shucks for the same purpose, but we have no information as to his capacity, or the extent of his operations.

We know that Stacy & Son are giving direct employment to one hundred and fifty men in this branch of Virginia industry, and, perhaps, fifty or more indirectly.

The transportation paid on this Virginia product to the Northern markets during the last three months has exceeded \$4,000, which is another encourag-

ing consideration. It is one of the interworking wheels tending to give motion and power to the progressive development of old Virginia's resources.

Another consideration is that the waste produced in this manufacture is declared by the most practical paper makers the best paper material outside of rags known to the trade, and that the finest writing paper can be made from it. The quantity that can be thus furnished at a nominal price is a great premium in favor of another important Richmond manufactory.

The practical query now is, will Virginia planters avail themselves of this their advantage, and see that this improved machinery shall find a sufficient supply of raw material to keep it running, or shall the Stacy's be compelled to seek another born region to find their supply?

The shucks are baled as hay is, and weigh in bales from 250 to 350 pounds as in order.

A Great Difference.

A few days ago we went to New York. Whilst there we stepped into the office of an agricultural journal. It was in a part of the city where rents were very high. But the office was large and full of clerks and other agents for sending off the paper and receiving subscriptions. We came back home and walked into the office of the *Planter and Farmer*, and instead of the squad of clerks, &c., we found only—well, no matter. But we thought how much smarter the farmers of Virginia must be than the Yankees, who have to run by the ten thousand to agricultural papers to tell them how to farm. It is really a subject of congratulation that in Virginia farming comes by nature.

What is a Good Rotation for Lands in Middlesex County, and What Kind of "Patent Manure" is Best?

A subscriber in Middlesex county asks an answer to these two questions, and we answer:

First. The rotation depends so much on the character of the land, and the demand for the products, that the question can not be answered judiciously without a knowledge on these points, which has not been given us. One thing we venture now to say though, because it could not be stated too often, and that is, plant corn as seldom as possible, except on the richest alluvions. A great deal of error prevails on the subject of injury resulting from a repetition of small grain crops, but more injury comes from cultivating one crop of corn than from several successive crops of wheat, oats or rye. One other thing on this query. A very excellent farmer once told us that a division of a farm into fields was a great convenience; but that the idea of a fixed rotation was only suited to the ignorance of a man, who would be lost if he once quit the beaten track. And finally on this head: If the land be suitable for grass, make arrangements to graze it with suitable stock, of whatever kind may have most money in them in the special case, or to cut hay for market if that shall be preferred; or to do first one and then the other. The letter of our correspondent, Mr. Hallowell, may be re read with profit by the querist.

As to "patent manures," we can only refer our correspondent generally to the article which we published in the January number of this paper. We can only say generally that the best is that which contains ammonia and bone phos-

phate—not necessarily composed of bones, however. A mixture of these, which will give twenty-four pounds of ammonia and one hundred pounds of phosphate of lime per acre, is a good manure. As to whose is best, we trust our friend will excuse us from going into that matter. The utmost caution is requisite in selecting a good article.

Chemical Researches into the Composition of Tobacco.

Professor Mallet, of the University of Virginia, sends us the following communication. We earnestly commend it to the class appealed to, and will take great pleasure in publishing the results of the investigation. Few more important subjects can engage the attention of the planters, who, we are sure, will be much obliged to Professor Mallet for the aid he proffers, and is so well qualified to render.

UNIVERSITY OF VIRGINIA, *January 22d, 1869.*

To the Editor of the Southern Planter and Farmer :

SIR,—In the present condition of Virginia—just beginning; but, as we hope, really beginning to recover from the wounds inflicted by war and from the yet more deadly paralysis of the years which have followed—it is admitted on all hands that our industrial resources must be carefully husbanded, and that for the abundant but crude labor that we have lost we must substitute more skilful, more intelligent, and more economically directed labor in the future.

With limited means, both of labor and capital, we must endeavor to obtain the largest product which the best application of our industry and the judicious investment of our money and employment of our land are capable of yielding.

This is in a high degree true of agriculture. Our farmers cannot afford to cultivate the soil in a rough, imperfect way by “rule of thumb;” but must examine closely the conditions necessary to make every acre of ground produce, not only a crop, but the largest crop and the best crop which can possibly be obtained from it; and this with the least possible expenditure of labor and money.

In some particular directions there is great lack of such information as intelligent farmers, who wish to improve their methods of cultivation, now require, and in these directions a wide field lies open for scientific research that may be expected to furnish results of thoroughly practical value. I trust that the fine laboratory for agricultural and industrial chemistry of the University of Virginia, now nearly completed, may be made to aid in such useful work; but, in order that investigation in the laboratory may be made to assist the farmer, the farmer must be willing to perform a portion of the work himself, by careful observation and practical experiment in the open fields.

My object in troubling you with this letter is to appeal for aid in such investigations to the farmers of Virginia. Surely, there are intelligent men in all districts of the State, who will be willing to give a little time and attention in the course of their summer’s work to observing and setting down on paper such facts, bearing on particular branches of agriculture, as it may be desirable to ascertain, and who will agree to carry out, on a small scale, instructions or suggestions as to experiments with manures and the collection of specimens for chemical analyses.

My present aim is to make, during the coming summer, a careful chemical

examination of *Tobacco*, with special reference to the mineral matter which this crop removes from the soil, hoping thus to throw some more light than we as yet possess upon the proper composition of manures for this important plant. Recorded analyses of the ash of tobacco are so far few in number, by no means accordant in their results, and refer almost wholly to the plant as cultivated in foreign soils. It is extremely desirable that a proper study should now be made of a staple so prominent among the products of Virginia agriculture. Our present limited information points to the propriety of using in tobacco fertilizers materials of a costly kind, especially salts of potash, and hence it becomes a matter of obvious practical interest to ascertain in what quantity and in what form these materials may most economically be used to produce the best result.

I am already indebted to some farmers of the State for the promise of assistance in this investigation during the coming season. If any others, especially those living in the principal regions of tobacco culture, will kindly agree to help, I shall be glad to receive from each, through the Postoffice, a line stating the address to which may be sent a memorandum of the specimens and information required. I can safely promise to make no extravagant demand upon the time and attention of any one who may be so kind as to respond to this request, and trust that some practical good may come of the proposed work.

I am, sir, very respectfully,

Your obedient servant,

J. W. MALLET,

Professor of Industrial Chemistry, University of Virginia.

Scientific and Practical Departments of Collegiate Education.

We have received a little pamphlet, entitled "Plan for the Extension of the Scientific and Practical Departments of Washington College." The main points in this "plan," drawn up under his direction, are thus set forth by General Lee:

1st. The establishment of new Departments of Agriculture, of Commerce, and of Applied Chemistry.

2d. A more complete development of the Engineering Schools now in operation, so that to the courses in Civil and Mining Engineering shall be added a distinct course in Mechanical Engineering, to embrace, besides Machinery, the most important branches of Practical Mechanics.

3d. The opening of a farm and workshops in connection with the instruction in Agriculture, Industrial Mechanics and Practical Chemistry.

This plan is the most extensive and thorough we have yet seen, and proposes to give us a school equal to those great European institutions, which have given such an impulse to these most important branches of industry in France, Germany and England.

We hail with great pleasure this movement on the part of General Lee. The cause of education in the South already owes him much. His influence and example have contributed most largely to the rapid recuperation which has marked the progress of our educational interests. Whilst politicians both North and South have been devoting themselves to vain schemes of reconstruction, he, unbroken by misfortunes, unmoved by the temptation to spend in quiet ease the saddened remnant of an eventful life, has been earnestly

giving to his countrymen a lesson in practical reconstruction infinitely more instructive than all we have heard in the last few years about the "rights of the conquered."

He deserves especial gratitude for the broad and liberal views he has, from the first, taken in regard to the development of our system of education, for the great changes he has been and is working in the views of those controlling this system. Long and bitter has been the contest waged, by what are called the practical sciences, for recognition in our leading institutions of learning. Most grudgingly has Literature, from time to time in deference to public clamor, yielded anything to her more homely sisters. This has, in many instances, produced the opposite evil. The practical sciences, unable to force their way into our colleges, have oftentimes "set up for themselves." General Lee has wisely and fearlessly pointed to the true solution of combining them, so as to allow each its fullest scope.

The present step forward, which he takes, is in every way worthy of the man. No time could be more opportune. We have often urged through these pages the necessity for the recognition of Agriculture as a subject to be thoroughly taught, both practically and theoretically, in our schools. In the words of General Lee, "Agriculture is at present the most important interest of the Southern people, and must continue so for years to come. No effort, therefore, should be spared to advance it, and to extend to it all the advantages which science has bestowed upon manufactures. An Agricultural School, where scientific principles and processes may be applied and illustrated, will be of efficient service."

We have never been able to see why farmers should not have an opportunity of being trained *as such*; why young men, after leaving college, should have to enter upon the management of their farms, really far less fit to do so than many a youth who, debarred the advantage of a "liberal" education, had spent three years in a practical apprenticeship. What we want is practical and theoretical training combined, and this is the want that General Lee himself, formerly one of the largest farmers in the State, has appreciated and undertaken to supply.

This effort on his part deserves a hearty response from the farming community. As a people, we already owe him a mighty debt of gratitude. The quiet vigor, earnestness and love with which he has prosecuted his purposes for the public good since the war, have increased, if possible, the unbounded admiration and affection felt for him. Without a dollar asked or received from the State, whose brightest jewel he is to day, he has founded a seat of learning already yielding a vast influence throughout the South, and destined, by his energy and skill, to still greater eminence. He now proposes to give Virginia what she greatly needs—an Agricultural School. There can be no more fitting time than the present for such an undertaking. We can never hope to organize such a school under better auspices or with greater prospects of extended success and utility than under the direction of General Lee. He has our most earnest wishes, then, for speedy and complete success. Our people should heartily encourage an enterprise which will be of much valuable service in promoting the growth and improvement of our Agriculture.

Agricultural Fair in Winchester.

We regret to see, from an article in the *Winchester Times* of January 20th, that the Agricultural Society of the Lower Valley is not making much headway. Why so? We had been led to believe that the quantity of land sold there and the prices obtained indicated a greater degree of prosperity than was possessed by any other part of our unhappy State.

The business men there ought not to be behind none of their brethren of Staunton or Lexington; and we do not believe they will be when the question is properly presented to them.

They have in that Valley everything necessary to make a first rate Society—fine lands, brave men, and noble women,

Assuming to speak for the State Agricultural Society, we beg our friends there to encourage us by helping themselves. Gentlemen, put your shoulders to the wheel.

If you want to sell your lands, collect a crowd from contiguous Maryland and Pennsylvania to see your farms and products and population. If you want to work your lands, let all the makers of improved machinery exhibit to you at home a sample of their wares.

Editorial Courtesies.

The thanks of the Associate Editor are due and freely tendered for the handsome things said of him by various gentlemen of the press. He will try and deserve the praise so generously given in advance.

Defend the Weak Cattle.

Some farmers are not as care'ul as their true interest require them to be in separating weak stock from the strong and aggressive when the season of storms and feeding come round. In most herds embracing any considerable number, will be found some diminutive in size and timid in proportion to their physical weakness, which the more vigorous attack whenever a modest effort is made to share in the food supplied. They are hooked here and chased there by the strong, and should enlist the care and sympathy of their owner. It will pay well to provide a separate enclosure for such animals till sufficiently developed to hold their own, at feeding time, or, till they are rendered fit to be disposed of in some way or other to advantage. If left to shirk for themselves they will be likely to go under before spring, or should they winter through they will be in a condition so exhausted as to render them next to valueless for that season.—*Exchange*.

Warm Bed for Pigs.

If pigs are kept warm and dry during the winter they will do much better for it. In building a straw stack, it is very well to provide a shelter at one side or end of the stack around and over the pen, leaving a gap suitable for the pigs to pass in and out, and will make a delightful house for them, and they may sleep there warm and comfortably in the coldest weather.—*Exchange*.

Oh, yes! and take the mange.—ED. SO. P. & F.

Agricultural Commissioner of the Va. State Agricultural Society.

We deem it proper to insert the following resolution of the Executive Committee, appointing the Associate Editor of this paper to the office of its Commissioner. The office was established in the early stages of the Society, and conferred on the late Edmund Ruffin, whose labors in the discharge of the duties assumed stand recorded in the transactions of the Society, of which, unhappily, so few copies have survived the war. In coming after him, we feel as Mr. Jefferson said when a French courtier complimented him on filling Dr. Franklin's place: "I merely succeed him, sir. No one can fill his place." The office was important then. It is much more so now; for the State has to be reconstructed as much in its agricultural as in its financial and political condition. We beg everybody to read the resolutions, which set forth the things to be done, and show what assistance and co operation the Commissioner will need. When the spring opens, we hope to enter on our duties and to prosecute them with as much vigor as the encouragement we shall receive will justify. It was the original plan of the Society that all other Societies within the State, both Agricultural and Horticultural, should be affiliated with this as the centre of them all; and to this end, its officers were selected from every section. The time is now suitable for the prosecution of that plan, which, if carried out, must prove of great value in displaying and developing the resources of the State:

Resolved, That an Agricultural Commissioner be now chosen by the Executive Committee for service of eight months only from the first day of March, whose duties shall embrace the following general subjects, and whatever else may be necessary or incidental thereto, and the performance of so much of such service as the time and ability of the Commissioner and the means and the facilities afforded to him may allow. viz:

To visit such counties, agricultural districts, or particular localities, as may be deemed by the Commissioner most suitable to aid and to be aided by his services for the Society; to gather (either directly, or by and through any farmers or others aiding his inquiries.) useful agricultural information; to encourage and induce the establishment of county Agricultural Societies, auxiliary to the State Society, and formed and working upon a proper and uniform general plan; to conversational discussion with such Societies, or with other meetings of farmers, and to address such meetings in furtherance of his duties on any subjects designed to promote agricultural instruction or improvement; to endeavor to obtain agricultural reports of particular counties, or to collect facts and materials for future reports; to solicit and obtain new members and donations for the State Society; and to report to the Society, through the Executive Committee in general, whatever he may have done, and especially and particularly the useful agricultural facts and instruction, not generally understood or practiced, which he may have collected or received from other persons.

Resolved, That the compensation of the Commissioner, for the time of service stated, shall be the reimbursement of his daily traveling and other expenses, actually and necessarily incurred; and further, fifteen per cent. upon all new donations and subscriptions for new memberships paid to and accounted for by him.

RICHMOND, VA., *January 14, 1869.*

In conformity with the foregoing resolutions, Mr. F. G. Ruffin was this day chosen Agricultural Commissioner.

W. T. SUTHERLIN, *Pres. State Agricultural Society.*

J. BELL BIGGER, *Secretary.*

In noticing the handsome Catalogue of Messrs. Allison & Addison, we omitted at the same time to thank them (and we take occasion now to do so) for their kindness in lending us the cut used in illustration of the Goodrich Potato in the Horticultural Department this month.

Correspondence of Southern Planter and Farmer.

WEATHER AND CROP PROSPECTS IN MISSISSIPPI.

Editor Southern Planter and Farmer:

We have had a great deal of rain in the last eight or ten days, and on last Sunday, the 10th, it commenced snowing at nine o'clock. I was up frequently during the night, until two o'clock, and it was still snowing, and on Monday morning I measured it in several places, and it was nine inches, the heaviest fall of snow that I ever heard of in the State; and most of the old citizens say that it was the heaviest show that ever fell in Mississippi. I was in Vicksburg on Monday after the snow, and I heard a gentleman say that he had seen a dispatch from New Orleans, La., that the snow down there measured eight inches all over the city. Up to this time we have had a good deal of cold weather, some very cold. On Christmas day the thermometer stood at twenty-five degrees in the morning, and only thirty in the heat of the day, and then it was over the fire-place where there was fire all the time. The Mississippi river is rising rapidly now, and has been for the past ten days at the rate of twenty-two inches in twenty four hours, and the farmers on the river begin to think that she will be over the whole country in a short while; but it is so early that it would suit us better now to come over than it would in March, the usual time.

I am now living on Old river, four miles from where it empties into the Mississippi, and if the water does take a notion to come over, I will get the benefit of it as much, or more, than any plantation in the vicinity.

I will just give a small description of my place, and the number of hands I expect to work this year. I have four hundred acres of cleared land—all fine for cotton and corn, indeed, most anything else; but my team is scarce, only eleven mules to twenty-five hands. I want to work as much as I can, then rent out the balance. I have rented sixty acres at five dollars per acre, and I think pretty good rent for land that overflows, but if no overflow should come, the person that rents makes a good thing of it.

I want to put in cotton about two hundred acres, and corn about one hundred, and I want to plant peas and potatoes, not more than ten acres of each, and if the last mentioned turn out well, there will be a great many of them. I also want to plant about five or six acres in Pindars. Pindars do very well in these parts, only when they have to be dug; then comes the trouble, as there is no one in this vicinity that knows much about digging them.

I received the other day two fine Chester pigs from Pennsylvania, and the planters of this county are perfectly delighted with them. If the freight on them was not so high, a great many could be sold in the State of Mississippi. The pigs cost me twenty-eight dollars, and the Express charge on them to Vicksburg was thirty dollars and seventy-five cents. I would send and get another pair, but the charges are such that I will wait a while longer, and then the Express may conclude to take something less than Warren county and old Yazoo will give at present.

Respectfully yours,

JOHN MCKEE.

Old River Plantation, Warren co., Miss., Jan'y 15, 1869.

The matter of Express freight on live stock is one of vital importance to our people. The stock of cattle, hogs, sheep, &c., was pretty well killed out in the South during the war, and farmers find it necessary to send long distances for

improved stock of all kinds to breed from. We know that live stock requires attention, and the feeding, etc., while *in transitu*, is troublesome and expensive, but we are convinced that our Express companies charge entirely too much for the service they render. If they want to confer a public benefit, and at the same time render their business in the transportation of live stock more remunerative, let them reduce their rates. Just as cheap fares induce travel, so will a reduced tariff greatly increase their business.—Ed. So. P. & F.

CATTLE DISEASE IN YAZOO COUNTY, MISSISSIPPI.

MR. EDITOR,—*Dear Sir*: The great cattle disease, which has been so prevalent throughout the entire country for the past twelve months, has brought forth the ideas and opinions of many scientific and agricultural men, but none as yet have been able to make a proper diagnosis of the disease, or prescribe a cure. Some call it "Charbon," others an acute form of "Glanders." Now, I do not pretend to know the name or a cure for the disease, but I do know this: That, during the past summer, the epidemic raged most fearfully in this State, and especially in this vicinity. On all sides of my plantation mules, horses, hogs and cattle died at a fearful rate, and yet I escaped. I had as much, and probably more, stock of all kinds than many of my neighbors, and I had but one case during the entire summer (which died, of course, as I knew no remedy). When the epidemic was in full blast, I went among my neighbors and saw hundreds of cases (nearly all of which proved fatal). I inquired in regard to their feeding and general attention to stock, and I found I was the only one for miles around who gave stock *salt* at all times and kept it by them, and I at once settled upon the opinion that salt kept away the disease. My views were further strengthened by the fact that the case which I had (a fine Durham heifer) never went to the salt trough; and during the past fall, when the disease had entirely abated, I was short of salt and did not give it regularly. One of my mules was taken, and I gave it as much salt as it wished (with no other treatment) and it recovered in a few days. I give this to you as a matter of experience. Should any try it, and it prove with them as with me, I shall think that this hour spent in writing you is not altogether fruitless.

Sartalia, Yazoo county, Miss., Jan. 4, 1869.

J. M. BONNEY.

The disease above mentioned was described in a letter from Mr. John McKee, of Yazoo, Mississippi, published in the September number of last year.—Ed. So. P. & F.

FARMERS, GIVE YOUR EXPERIENCE WITH THE FERTILIZERS YOU HAVE TRIED.

MR. EDITOR,—* * * * Please continue the *Southern Planter and Farmer* to me. I consider it second to no agricultural paper in the United States, and could hardly get on without it. Can't you get some of your distinguished correspondents to give us their experience in fertilizers the past season through? I think it very important to the agricultural community. Let us hear what kinds they used, and how, and the results in detail. Encourage the honest manufacturer, and stamp the swindler with infamy. There is some on the market that is good, but much, very much, that is perfectly worthless, and is made and sold as a cheat and swindle, and known to be so when they sell it. Wishing you that success which you so much deserve,

I am very truly yours, &c.,

R. H. ALLEN.

Lunenburg, January 10, 1869.

BRIGHT TOBACCO FROM THE MOUNTAINS OF BUNCOMBE COUNTY, N. C.

Editor Southern Planter and Farmer:

DEAR SIR,—I send you a specimen of Tobacco, the production of the mountains of Western North Carolina, and cordially invite you to smoke a pipe *with Buncombe*.

Very respectfully,

Mrs. W. J. BROWN.

Cabin Home, December 18, 1868.

We acknowledge the courtesy extended to us by our friend, Mrs. Brown, and regret that we received the package too late in December to make the acknowledgment in January. Buncombe is GREAT in all that should constitute a county, and we shall think of her, and our good friend, many times when we take a whiff.—Ed. So. P. & F.

EXPERIMENTS WITH BITUMINOUS COAL ASHES.

The following extract from the *Courier des Etats Unis* of January 16, 1869, has been kindly sent us by an unknown friend, and we cheerfully give place to it.—Ed. So. P. & F.

“BITUMINOUS COAL ASHES.—It is generally thought in the country that the ashes of mineral coal are not only useless as a fertilizer and improver of the soil, but that, on the contrary, they are hurtful. Hence, we see that farmers reject these ashes, greatly to the detriment of agriculture, while quantities of them might be procured from the iron works with no other cost than that of gathering them.”

“It is, therefore, interesting to report an experiment undertaken by a correspondent of the *Journal de l'Agriculture*. He filled in the fall three flower pots with pure bituminous coal ashes without mixture of any kind, and sowed in the first wheat, in the second oats, and in the third some strawberry seed. These pots were buried in a bed in his garden and left to themselves.

“The germination took place successfully during the winter, and in March following the plants presented a fine appearance. In April, the wheat, oats, and strawberry plants were in fine growth. The wheat and oats ripened perfectly; the berries were large, clear, very well filled, and heavy. The wheat straw attained a height of more than fifty four inches; that of the oats forty-three inches. As to the strawberry plants they came on finely, and continued to grow well until October, when it became necessary to transplant them. Set out in the open ground, they are now the greenest, the strongest of all the seedlings.

“Thus it is seen that, without the addition of either soil or manure, coal ashes was sufficient in itself, according to this trial, to nourish and bring to maturity both wheat and oats, and to support the growth of strawberry plants during a year. Coal ashes, from its nature, should effect a division of soils, and be very useful in overcoming the stiffness of compact lands; it would, then, at the same time, act as a manure and an improver.

This, moreover, should be the case judging, not only by this experiment just described, but from analyses made by several chemists, among others Davy, who found that these ashes contained, in proportions varying with the localities whence the coals came, sulphates of potassa and lime, carbonate of lime, clay and silica.”

EXPERIMENT IN THE CULTIVATION OF CORN.

Mr. Editor,—You say “give us facts, not theories.” I suppose you would not object to a blending of the two, a theory practically illustrated, and brought to the test of experience. The acknowledged importance of the great American staple, Indian corn, precludes the necessity of apology for reporting any experience or observation which may possibly increase its production; and as the time is now at hand for preparing for this year’s crop, I take the liberty of reporting a plan of tillage which I pursued last year with very satisfactory results. I do this the more readily, it being my first effort at *high farming*.

I proposed to cultivate a certain piece of land in corn, which I had reason to believe was capable of producing something like a premium crop. It was an old blue grass sod of seven or eight years standing, which, from location, had received unusual additions to a stock of fertility, which was originally good. I had the land thoroughly ploughed in February to a depth of eight or nine inches, without subsoiling, and suffered it to remain until about the 1st of May, dressing it liberally, meantime, with farm per-manure, old ashes, &c. After the manure had been scattered, I had the land thoroughly and closely cross-ploughed with long, sharp bull-tongued ploughs, and then harrowed off smoothly. And now came the nice point—how should I plant it so as to develop the full productive capacity of the land? The customary mode of planting corn in this mountain district is to check it three and a half feet each way, leaving two stalks where the land is sufficiently level to admit of cross tillage. But I knew that would not give the full capacity for the want of stalks upon the land. I next considered the plan of the continuous drill, which might have given me stalks enough, but would have confined me to tillage on one side of the row of plants, thus leaving a certain parcel of land untilled by the plough—the spaces between the stalks. I determined to strike a compromise between the two modes, so as to retain the advantages of each, and to obviate their disadvantages, as far as could be done. I had the land checked by rows three and a half feet apart in one direction, and three feet in the other. I deposited the seed at the intersections of the rows, being careful to scatter it a little, so that the corn might be not strictly in hills, but more properly in bunches—the stalks from six to ten inches apart in the bunch—marking off the rows sufficiently to be conveniently ploughed in both directions. It was my intention to leave four stalks in each bunch, but finally determined to leave only three. From many of these bunches we gathered five or six good ears of corn, and from none of them less than three. I planted a small variety of corn, cultivated thoroughly with four ploughings and one hoeing, dressed it heavily with plaster and ashes, and realized the finest yield I ever made. It was judged that it would render one hundred bushels per acre, but by a measurement, which I regard as reasonably accurate, it yielded eighty five bushels to the acre. Of course, it could not be crowded to the same extent in any part of Eastern Virginia, but the climate and soil in this mountain section are such that the stalks may be safely crowded to a degree that is astonishing to eastern farmers. With best wishes for the success of your valuable journal,

I am yours, &c.,

H. M. FOWLKES.

Montgomery county, Va., January 20, 1869.

Messrs. Edward J. Evans & Co., of York, Pa., propose to club the *Planter and Farmer* with their Napoleon III. Strawberry. See their proposal in the advertising department.

Books, Reviews and Catalogues.

We have on our table the January number of *DEBOW'S REVIEW*, now edited by that accomplished writer and statist, William M. Burwell, late of Virginia; also the December number of the *NORTH BRITISH REVIEW*, from the Leonard Scott Publishing Company of New York, with the usual attractive table of contents. That entitled "Our Indian Railways," is alone worth the purchase-money of the number.

We have also the February number of *MAYNE REID'S MAGAZINE*, which we have had no time to look into.

We have also just received, and too late to examine it, we regret to say, the *ANNUAL REPORT OF THE DEPARTMENT OF AGRICULTURE FOR THE YEAR 1867*, from Col Horace Capron, the accomplished Commissioner of the Department. On a recent visit to the Capitol, we were pleased to find Col. Capron full of zeal and patriotic spirit, and hard at work fructifying and beautifying his department with as much energy as when years ago he had the Laurel Factory and Farm in full blast. And we saw enough on our brief visit to induce us to advise every farmer who visits Washington to call at the Department of Agriculture both for pleasure, profit and a cordial welcome from the Commissioner.

We have also received from the distinguished author, Prof. M. F. Maury, the *PRELIMINARY REPORT* of the important work he has undertaken—*THE PHYSICAL SURVEY OF VIRGINIA*. We give Com. Maury a hearty welcome, and earnestly ask for him the co-operation of all who wish or are willing to contribute to a systematic exposition of the physical resources of our State.

In the matter of Horticultural and Floral Catalogues we ought, in deference to the ladies, to give the first notice to *VICK'S ILLUSTRATED CATALOGUE AND FLORAL GUIDE FOR 1869*. It is a matter of course that Mr. Vick, who, in Rochester, hardly felt the war, should present a better gotten up Catalogue, both in style and variety of illustration and of plants offered for sale, than we can pretend to offer from our impoverished section of the Union; but, *all things considered*, we think our own citizens, Messrs. Allison & Addison, have shown as much enterprise and taste if they have not exhibited as much money. But we advise those who wish to make the comparison to send for both Catalogues and compare for themselves. For Mr. Vick's address, James Vick, Rochester, New York, enclosing ten cents, and for the other, address Allison & Addison, 1318-20 Cary street, Richmond, who sends theirs gratis.

We have also received *DREER'S GARDEN CALENDAR* from Philadelphia, and *WADE & ARMSTRONG'S AMATEURS GUIDE TO THE KITCHEN GARDEN*—a Descriptive Catalogue of Garden Seeds, &c., for 1869—from the same city.

And lastly, we have a plain, modest, unpretending Catalogue from Allan & Johnson of this city. As it is mainly from here that our people will get their seeds, and we are frequently asked which is the best firm to buy them from, Allison & Addison or Allan & Johnson, we think we may safely say, after full trial, as the Irish gentleman said on another occasion: "If there's any difference, they're both alike."

THE SOUTHERN PLANTER & FARMER,

DEVOTED TO

Agriculture, Horticulture and the Mining, Mechanic and Household Arts.

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

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

CH: B. WILLIAMS, EDITOR AND PROPRIETOR.
FRANK G. RUFFIN, Co-EDITOR.

New Series.

RICHMOND, VA., MARCH, 1869.

Vol. III---No. 3.

Bottom Lands—Their Condition and Improvements—Ditching and Diking.

Though I am not a subscriber at present to your valuable farm journal, yet, feeling as I do, a deep interest in its success and in the progress of agricultural knowledge it is your province to supply, I have thought to communicate a few topics of inquiry upon the condition and improvement of our bottom lands, hoping thereby to elicit from some of your correspondents an article upon this subject, which shall be more worthy of your valuable space. The fact, that, in this portion of the State, these lands, heretofore considered very valuable, have become almost profitless in consequence of frequent overflows, has suggested an inquiry into the causes and possible remedy.

Some old farmers say that the rains have become more frequent and abundant than they were many years ago, and that the destruction of our bottom lands by freshets is due to that cause. Though this may be true to a certain extent, yet we cannot think it the principal cause of the damage sustained; especially as we have not seen it stated as the result of scientific experiment that rains have become much more abundant in these latter years; and while it has not been our good fortune to travel much, yet the little that we have seen of bottom lands in the Northern States and other sections, and their

general good condition, would seem to indicate that the almost valueless condition of such lands with us, is due to other causes than excessive rains. Be the cause what it may, however, it is, nevertheless, a fact much to be regretted that most of our farmers have been compelled to give up their rich bottom lands of grazing, for which they are not well adapted on account of the difficulty in keeping them fenced, while others who persist in the cultivation of such lands, heretofore immensely profitable, are generally rewarded by an entire destruction of their crops, and by having the whole fallow soil washed away year after year.

This state of things we think is due to a combination of causes, many of which it will be in the power of the intelligent farmer ultimately to remedy.

Of course it would seem to be the natural result of clearing and draining the forest lands, that the water courses would thereby become more abundantly and more rapidly filled from a fall of rain, but might not this be remedied in a great measure by deep ploughing and subsoiling, and by having our hill sides well set in grass, which which would retain the water even more effectually than wooded land, and conduct it through the soil along its roots, as so many little veins, while at the same time it would hold the soil together and keep it from washing into the streams, to fill them up and contract their channels? Thus it is, we imagine, that most of our farmers and land owners, by that ruinous system of gutting their lands year by year, in order to get out of them all that was possible, and counting their yearly gain, not by the improved condition of their land nor by their net profits, but by the quantity of corn, wheat, tobacco, &c., that has been made without any reference to the number of acres cultivated and the consumption of material, have not only exhausted the up-lands, but thereby rendered the bottom lands otherwise inexhaustible, almost worthless for cultivation. They have decidedly killed the goose to get one golden egg, and left their children the heritage of her poor gutted, gullied carcass.

It is a notorious fact that our streams are filling up and becoming more contracted year by year, and the bottom lands, unless they are diked of the creeks widened, will become entirely useless for cultivation. Ditching and diking appear very expensive, but it seems to us that a portion of our money might be more profitably invested in that way than in many of the fertilizers now so abundantly and expensively used. And while on this subject allow us to suggest to your readers the propriety of having all ditches as straight as possible, especially when they carry much water, because it is very difficult to

turn a current of water out of its straight and natural course; and on this account it is much more difficult to dike a crooked stream, unless it be on a bank that is gradually convex, which is perhaps more easily diked than a straight bank, because the force of the current being always in the direction of a tangent to the arc of the dike, is continually spending its force against the undiked bank, and thus rendering the dike less liable to damage. It is generally useless to attempt to dike but one side of a stream, and as diking one side will of course, render the other side more subject to overflow it will often be found profitable, where the low grounds are broad, to cut a new channel nearer the hills, on the side to be left open, thus widening the land enclosed by the dike and at the same time be enabled to get a straight or convex bank upon which to erect the dike.

Ditching in order to be effectual should be continuous, for the whole length of the stream. It is almost impossible, even when one consents to make the necessary outlay, to induce his neighbors, above and below him, to do likewise, and as a consequence his own work is more or less profitless. Therefore unless the land owners along the whole route of a stream will consent to ditch, it seems that the intermediate land owner, is forced to the necessity either to dike his bottom lands or turn them out for pasturage and await a better day when they will either consent to do so, or when the uplands get so improved as to imbibe a larger portion of the water which falls upon them, by having become set in grass or more deeply ploughed and subsoiled where cultivated.

As the cultivation of such lands under the circumstances; is generally attended with loss of crops, even if it does not lead to the ultimate and utter destruction of the land from continual washings, it seems to us to be the better policy to desist from the cultivation of these lands, that the vegetation upon them may hold the soil together and at the same time gather material for new soil from the frequent overflows.

Owning as we do some rich bottom lands, both upon large and small streams, the question of how to preserve them and turn them to profit, is a question of peculiar interest to us, and we trust, that though you may not deem our common place suggestions as scarcely worthy of a place in you journalr, you may be compensated by an article from some one on this subject more instructive to your readers.

We look forward to the day when this subject of breakwaters, and systematic diking and draining, shall be more fully studied and

explained, both in our agricultural schools and in our farming journals, as of scarcely less importance to the interests of agriculture than the currents and trade-winds of the ocean to that of navigation; and if some one will devise a method to render our bottom lands as productive as they were even twenty years ago, by being less liable to overflow, we feel assured that he will be a greater benefactor to the farmer than he who shall discover the cheapest and best fertilizer—a question now discussed by almost every farmer in the land. The frequency and destructive character of the freshets are comparatively of so recent date as to have been attributed by many of our old weatherwise farmers to the cannonading during the war, which was supposed by them to have had some mysterious influence over the “waters above and the waters beneath the earth;” but, to the disappointment of many, our water-courses are even more precarious since the surrender at Appomattox Courthouse, and it turns out that that affair has no more settled the turbulent condition of our streams than it has the political status of the nigger.

In conclusion, allow me to request that, as we fear there may not be enough in this article even to excite a criticism from any of your readers, you will at least be good enough to give us what you know of the condition, cultivation and management of the bottom lands in Europe, where, we are sure, they shoot as many big guns as we do.

J. V. B.

Halifax county, Va., February 3d, 1869.

Being *in consimili casu*, with our correspondent, we having one hundred acres of alluvion on James river, we have looked at the European books to see their remedy; but have never found one. We shall, however, at the instance of our correspondent, renew the inquiry. It must be borne in mind, however, that the rain falls here are so much heavier than there, that they do not feel the same inconvenience—at least, not to the same extent. We shall be pleased to have the views of some other of our subscribers on this very important subject.—Ed. So. P. & F.

A CORRESPONDENT of the *Lamoille News Dealer* says he successfully defends his vine patch by laying boards between the rows in such a manner as to afford shelter to toads in the day time, and leave it undisturbed, so that they will make their home under it, which they will do in great numbers. At night they sally out and devour every bug, and grow as fat as aldermen. He says he has a dozen or more of these little philanthropists making their home under a single board not more than six feet long.—*Philadelphia Weekly Press*.

A Picture or Two—The Profit of Cattle in the Tobacco Regions, etc.

NO. I.

Some years ago, the writer had occasion to make an early start from his home in order to accomplish a long ride late in winter, say 18th of February, 185—. He passed the house of a neighbor just at sunrise; here he witnessed the following scene:

1st. A cow "on the lift."

2d. Two negro men in the act of lifting up the cow.

3d. The milk-maid, pail in hand, standing ready to draw the milk so soon as the cow was made to stand.

4th. The master of the premises, in half dress, calling out just as I turned the corner of his yard, "I have been expecting that." Query: If he expected the cow to be down, how could he expect to get milk from her?

NO. II.

Taking tea with Mr. ———, the owner of near two thousand acres of land—and much of it rich—late in winter; found it hard to suppress a smile. The light was dim, and Mr. ——— reached out a plate. I could not see anything *but the plate*. It contained a little pat of butter, white as snow, thick as a knife blade, and as large as a cup plate. His tone was polite, almost persuasive, "Won't you have some of this butter?"

NO. III.

A gentleman pays a visit to a house in winter, in which butter is scarce. The land-lady did up a little plate (all she had) so as to make it look respectable. The gentleman was very fond of butter, and helped himself very largely. A little son of the lady, also very fond of butter and expecting to "grease his bread," looked on in amazement and exclaimed, "Mother, he has taken all the butter?"

NO. IV.

A gentleman, rather verdant, dining with a friend—a wealthy farmer—said: "Mrs. ———, has not this milk rather a bluish caste?" The lady very politely replied: "I think, sir, it has rather an *azure tint*!"

The writer will hazard the opinion that in three-fourths of the families in the tobacco growing region of Virginia and North Carolina there is a stinted supply of milk and butter from 1st of January until the 1st of May every year.

I have also been told by tanners that they ordinarily "take in"

as many hides in spring, "voluntary surrenders," as they get in the fall from slaughtered beeves. "April is the month for cows to die."

Now, Messrs. Editors, I will leave the reader to draw the moral from all this.

I desire to present a few figures in connexion with this subject:

1st. The price of an ordinary scrub milk cow, fresh to the pail with her first calf, at three years old, would be eighteen dollars, or fifty cents, per month. Deduct from this the percentage of those that die from poverty, lice, bogs and ditches, and say does that pay?

2d. I have during the last ten years traded for, butchered, and weighed a good many, "yearlings?" They do not average above fifty pounds to the quarter at eighteen months old. Five quarters, fifty pounds to the quarter, is 250 pounds; this, at seven cents, is \$17.50, or a fraction under one dollar a month. Deduct one-fourth for those that die during the first spring, and we get seventy-five cents a month for feeding and grazing.

3d. I have made some experiments in raising calves on better treatment and more careful breeding, &c., &c. In 1865, I had a couple of calves dropped by two fine cows. I did not allow them to be beaten with the churn staff until they were old enough to support themselves on grass. They were wintered on grass sod with access to straw and chaff. Sold at eighteen months for \$20; *i. e.*, \$1.11 1-9 per month for feeding.

In 1866 I gave my calves a good chance. One I swapped (to a neighbor who wished to improve his stock) for a yearling. The yearling weighed thirty-five pounds to the quarter; 175 pounds at seven cents make \$12.25, or \$2 per month. For another, same age, I got \$14; \$2.33 per month. Another, killed at eighteen months, was worth \$25; paying \$1.33½ per month. Another heifer came to the pail at twenty-seven months. Another fell into a ditch and died.

1867. Encouraged by these results, I paid special attention to my calves this spring. One was so fine that I sold him at four months for \$20. Another I killed at six months, weighing about forty pounds, and worth \$14. One I sold at twelve months for \$16. Two I killed in fall of 1868—worth about \$25 apiece.

The conclusions from these experiments I shall briefly express:

1st. Fewer and better cattle; provision for the winds of March and the damps of April.

2d. More grass for summer; more hay for winter; more butter

for the table; more milk for the pigs; more manure for the lots—a long stride towards contentment and prosperity.

3d. Beware of the churn staff. The history of a calf's life beyond the reach of the city market for veals is this: A few drops of milk and a dry yard the first summer and fall; a shaky life on straw the first winter; a lean and lousy springtime; the beginning of better times after harvest.

Mind, I am writing entirely for those who cultivate a staple and are out of reach of a city market, and to these I say, that after many and careful experiments I am certain that the rule is, to do the best you can for all calves that you have; then select such as you wish to raise for stock, or for work, and kill the rest. A.

Corn Fertilizers.

Norfolk, Feb. 12, 1869.

COL. F. G. RUFFIN,

Dear Sir.—Yours of the — inst. to hand asking me to give my experience in the application of Fertilizers upon corn, which I proceed to do. In the year 1852, the commencement of my experiments with Peruvian Guano, upon corn, I applied it broadcast before breaking the land, 150 lbs. upon two acres, 200lbs, broadcast, upon two other acres adjoining, and ploughed both under with a two horse plough. I then applied 100 lbs. to the acre in the drill, after breaking the land, and before planting the corn upon two more acres along side the others; upon these six acres the ground paid a fair profit, less upon the two last than either of the others; but upon all six acres I noticed too much stalk with considerable firing. In June of the same year I applied immediately upon the corn row, after turning the dirt from the corn, 125 lbs. to the acre upon ten acres, just spreading the guano about 12 or 15 inches on the corn and covering with the plough and hoes, for the corn was so small that the plough could not turn the dirt to it without covering it up, this ten acres of land was a worn-out corner, that would not have produced 5 bushels of corn per acre without the guano, and upon this land I gathered more than thirty bushels of shelled corn. I found from this experiment, that the guano was taken up by the ear and not in the stalk, as in the other experiments. I afterward made many experiments with guano, and always found that the guano, applied just before turning the dirt to the corn and sowed

on as narrow a space as possible and just upon the corn, paid much better than any other application, one half the guano producing as good a crop as double the amount, applied before planting the corn. I have made by actual measurement 25 bushels shelled corn more than the same land produced the same year, by applying 100 lbs. Peruvian Guano as mentioned above. As to my experimenst with manipulated guanoes and manufactured manures, which have been many in the last 15 years, I have only to say, the money expended was all lost, except when ground bone or bone ash and Peruvian Guano were the only ingredients. I have also used, before the war, ground bone, and was satisfied, in order to make it pay well, there should be used from 400 to 600 lbs. to the acre. Since the war I have used small quantities of Peruvian Guano upon corn and wheat, tomatoes and cabbages, and while I believed I was paying for 20 or 30 lbs. of water in every bag, I found it far the cheapest article I purchased, and by using a small quantity more to the acre, the products of corn, tomatoes and cabbages were equal to any I ever raised from its use, and upon wheat I made but a poor crop, although the growth of straw was fine. I used stable manures by the side of it on land of the same quality upon which I put 100 lbs. Guano, and the manures made no more wheat than the Guano, so it was no fault of Guano.

I will here remark that from my experience in the use of Peruvian Guano for the last 22 years, I consider it the best and cheapest fertilizer that can be purchased, and when used upon limed land, several months after the lime had been applied, or used upon land where bone dust is applied, the land improves rapidly and even when neither of these articles have been used, if the Guano is applied at the rate of 2 or 300 lbs. and always ploughed in the ground with single ploughs, the lands improves as fast as from the use of domestic manures, and really costs less money, as the labor of making and hauling and spreading home made manures costs as much or more than the Guano.

From reports from others and from observation, I feel sure that Guano does not produce the same effect upon the stiff river lands as upon the lighter forest lands in Eastern Va., and now I close by advising our farmers to look well to what they buy in the market for fertilizers, for I have used many kinds, now largely sold without the slightest benefit.

Yours &c,

Experiments in Bee Hives.

A correspondent from somewhere sends us the following article on Bees and Honey. On that matter we confess our entire ignorance. Two things only do we know: the one that bees make honey, which is very sweet; the other that they sting sometimes, which is very unpleasant. It has struck us that, perhaps, our correspondent meant in a cheap and unpretending way to advertize his hives. If so, we head him off as best we may, by suppressing his name and residence and the name of his patent. If not, we at least give currency to his ideas for what they may be worth, and attract attention to a branch of rural economy which has been entirely too much neglected by more people in Virginia than ourselves.

“Sic nos non vobis —————.”

—Editor.

In 1860, I commenced my experiments in bee keeping. Satisfied that the securing of surplus honey depended much upon the capacity and arrangement of its surplus boxes for success, I made five hives, and introduced swarms into them. Each of the hives were so constructed as to receive boxes for surplus upon both sides and the top of the breeding and wintering apartment for the bees. The hives differed some in size, and in the number and size of the surplus boxes. The average capacity of the boxes was probably about seventy pounds.

In the course of the season I purchased and had placed a swarm in each hive. The first season I received enough to pay for my bees and the material for building, reckoning in the receipt the pay for one hive, and bees sold for \$15.

In 1861 and in 1862, I made some improvements, and procured a patent for the hive, under the name ——— Hives, in 1862, September 2d.

In this season I have, in the two seasons in which I have kept an account of all my hives, received an average surplus in the boxes of six and a half to two and a half pounds. The last account was in 1867.

The best in one of the ——— Hives in my apiary has been 103 pounds. Several have given from 90 to 100 pounds. Mr. House, of Hillsdale, New York, wrote the *Country Gentleman* that he had taken 137 pounds in this hive from one colony the first year.

In 1866, I built three hives with a central apartment for the breeding and wintering of the colony, in which either bars or moveable comb-frame may be used, with surplus box room upon the two sides and top of the central apartment of the hive of 125 pounds capacity in the aggregate, and placed a swarm in each. In 1867, when the colonies in my ——— Hives gave an average of 62½

pounds, the colonies in the new hives averaged 125 pounds, giving in the aggregate 500 pounds of surplus honey. In addition, two of the four gave two swarms each. One that gave no swarm gave 174 pounds surplus, requiring the removal of surplus boxes that were filled and substituting empty ones in their place of about 50 pounds aggregate capacity.

In 1868, our season was so poor that seventeen colonies, old and new, in the old-fashioned hives within eighty rods of my apiary, gave less than 100 pounds of surplus. In my apiary, four colonies in enlarged hives giving, one nearly 200 pounds box room, the other three 150 pounds box room each, gave, the largest, 147 pounds; the other three 105, 79 and 75 pounds.

The aggregate of my nineteen colonies was 947 pounds, an average of 52 11-16 pounds. These four that gave no swarm and gave the largest surplus were in the hives giving the greatest surplus box room. As a rule, the hives in review decreased in the amount of surplus given, as the surplus box room was diminished in amount.

These facts have led me to construct three sizes of the hive: 1. One with twenty boxes of 110 pounds surplus box capacity. 2. The medium size, twenty-seven boxes, of 150 pounds capacity. 3. The largest size, with thirty-six boxes, of 200 pounds capacity.

I draw a few conclusions from the foregoing facts in my experiments thus far:

1. The boxes for surplus for market are better not to exceed five or six pounds in size. They find a quicker sale, and at a little advance in price.

2. The boxes should be placed upon both sides and top of the wintering and breeding apartment of the colony. The queen deposits her brood in the commencement of the breeding season in or near the centre of the central comb in the hive. The surplus is stored in the top and sides of the centre combs and in the outside sheets of combs. This fact points to the top and sides of this apartment for placing the surplus boxes.

3. Neither the top or sides of the hive present all the room desirable for placing all the surplus boxes which would be best to use to secure the greatest amount from the colony.

4. It will give the greatest success in securing surplus honey to give sufficient room in the surplus boxes for all the labor of all the colony for all the season. Then the colony will not be apt to swarm, or lose time in preparation for swarming, or in delaying to enter an empty box substituted for a full one removed.

5. This will make it desirable to have room to place upon each hive boxes giving room for 200 pounds surplus, or at least 150 pounds.

6. It is important to have the surplus boxes brought into immediate connection with the central apartment, and have the passage to and from the boxes very free and unobstructed.

7. Bee keepers cannot afford to lose the labors of their colonies in preparation for swarming, sacrificing fifty pounds or more of surplus, when swarms, if needed, can be so easily increased to any desirable number artificially. The danger is of having too many colonies for the field for the best success of the keeper.

8. If natural swarms are preferred, after the heart of the honey season is past, the boxes can be removed, and the bees confined to their breeding apartments by the moveable partitions, and thus crowded, the bees will throw out a swarm in a few days.

9. Non-swarmer are greatly to be preferred for use. Mr. Quimby, in his first edition of his work, estimates the surplus given by them at five times the amount given by swarmer. In his second edition, he raises his estimate of the surplus of swarmer from one dollar to three dollars worth in a good season. Four ——— Hives gave me more than five times his estimate-amount for the non-swarmer in one season. Instead of five dollars' worth, reckoning it at twenty-five cents per pound, they gave me an average of more than twenty-five dollars' worth. So we may still reckon for them, instead of five dollars for one, twenty-five dollars for three—a little more than eight for one.

Mr. Langstroth says of the non-swarmer hives: "In such hives, very large harvests of honey are often obtained from strong stocks of bees;" but gives two objections to their use:

"1. It is evident, if the formation of new colonies were generally discouraged, the insect would soon be exterminated."

Answer: If, by artificial swarming, new colonies may be increased to any desired length in less time and with less trouble than to watch for and hive natural swarms when they issue. This fact fully answers the objection.

2. The second objection is: "To say nothing of its preventing the increase of stocks, bees usually work with diminished vigor, after they have been kept in a non-swarmer hive for several seasons."

Answer: This fact is true of all hives, when the bees have occupied them several years and the comb has become old, and very many of the cells filled with bee bread. As a remedy, we either

confine them to the central apartment and have a natural swarm issue; then place the new swarm in an empty hive, place it upon the old stand, and drive out all the bees from the old hive. They resort to the new swarm on the old stand. We then cut out all the worker brood and set up the comb on its edges in a box; place the box in communication with the new hive, and they mature the whole brood. We then have a strong stock of bees again prepared to give "very large harvests of honey." It is proper to add; the central apartment of the ——— Hive may be used either with bars or with moveable comb-frames, at the pleasure of the user. If comb-frames are used, they may be removed literally from either or both sides at pleasure, without any danger of crushing the bees or bruising the comb. All the advantages for artificial swarms, protection against enemies, raising, changing, or supplying queens, may be applied with at least as great convenience as in any other hive.

It will be seen that this hive gave surplus enough from four hives in one season to pay \$11.50 per hive, the medium-sized one \$5 for each swarm, \$10 for a right to use in one apiary, and leave a balance of \$49 clear gain. This is estimating the honey at twenty-five cents per pound. It was mostly from white clover, and sold for thirty-seven and a half and forty cents per pound.

Your readers may judge of the course most likely to secure the greatest profits.

Orchard Grass.

The want of time has prevented my complying earlier with the request to contribute to your valuable paper, and these hasty suggestions must be received with charity.

The greatest blunder committed by Eastern Virginia farmers is their neglecting to raise hay—any hay—many of them. To save fodder in the usual way, with hired labor, as a remunerating feed is *impossible*. The substitute is easy of access and ready to hand. Take, for example, an acre of land, the coming spring, that will produce three to four barrels of corn; plough it deep; manure it with good manure of any kind (except guano, so-called, and super-phosphates)—bones will do; then apply twenty bushels of ashes scraped from the farm houses, scatter with a shovel from the cart; if not enough to so scatter, cast them with the hand; let the land lie thus until you wish to seed *oats*; seed on it from three-quarters to one bushel oats (this quantity will shade the grass and not crowd),

putting them in nicely; then seed on the fresh surface one bushel of orchard grass, and one gallon of clover seed; pass over the surface with a light harrow or brush, and roll it with a roller or log of wood, and let it alone. If you can afford it, let the oats fall as an improver to both land and grass. After the oats are harvested, see that nothing grazes it (neither calf or pig, young grass is as easily injured as young corn) until after the first crop of hay has been saved.

The Result: The next spring or early summer, so soon as the orchard grass is in blossom (not brown or seeded), the clover will be ready also; cut all for hay, and then feed or put it away to use in place of fodder. You may safely expect 2,000 to 3,000 pounds of hay, worth at least \$20. Suffer nothing to graze it until 1st of December; then let your dairy cow run on it $1\frac{1}{2}$ hours each day in open weather until 15th March. This acre will supply one cow with food, and a family with milk, during the winter months, if not longer. It will supply the horses with more hay and grass in fall, winter, spring and summer, than any other grass yet introduced into Virginia. It is the only grass that grows with us all the year round, except only when the ground is frozen. It is not an exhauster to land as is Timothy. It will grow on any dry land, not excepting a sand bank. And here, permit me to suggest that the best grasses love a dry soil. We usually seek the bottoms and moist places to grow Timothy. Why? Because the grass is not well suited to our soil or climate. Nor are we the losers thereby, so long as Orchard Grass and Clover are accessible. The Orchard Grass will stand the invasions of broom-straw, if you will practice a little patience, and not suffer it to be grazed until it has formed a sod. Then you can't hurt it except with hogs, or the plough. If any farmers are usually scarce of fodder about 1st of June, or even a little sooner, let them try an acre lot, it will be just in time for your wants. If you want a lot, always green, for an idle horse to run in, this will supply it. Or green grass, in winter for your dairy cow, this is the only grass that will furnish it. Try it on a sand bank, if you can't do better. And if not next spring, try it next fall with wheat, only put three-quarters of a bushel of seed in fall, and the rest, one-quarter, in spring, followed by a roller.

JOHN WASHINGTON.

Spivey Hill, Caroline co., Va., Feb'y 3d, 1869.

Irish Potatoes from Virginia Seed.

We comply with pleasure with the request of our friend, Mr. Garnett, and call attention to his statement below. In doing so we ought also to state that he stands high as a gentleman of character and position; and he ought to be an experimenter, for he is a son of the late James M. Garnett, of Essex, one the best men of the old times, and a most inveterate experimenter himself. The common opinion has been adverse to Mr. Garnett on this subject; but we are not aware that it has ever been tested by experiment.—ED. SO. P. & F.

Editors Planter and Farmer:

GENTLEMEN,—I venture to address you on a subject of general interest to farmers and gardeners in this latitude, and hope, if you approve what I say, you will publish it and call attention to it. I assert, without fear of contradiction, that Irish potatoes, of all sorts raised at home, anywhere in Eastern Virginia, and kept in mound, in open air covered, as all farmers and gardeners here cover them, will come up better than those we buy from the North. I will furnish three dozen potatoes of the Michigan White Sprout, the Early Goodrich, and the Peach Blow to any address, if the *orderer* will pay express charges hence to his residence, and if he will plant them alongside of Northern raised potatoes of the same names and mine, and those raised here do not come up twenty per cent. better than the Northern raised I will send him at my own cost, without cost, a bushel of any kind I have. We have been buying Northern seed too long. Every farmer in Eastern Virginia can raise his own seed of all sorts, and he ought to do it. I raise Early York seed, despite the theory to the contrary. I have invariably found that seed raised at home come up better than any I can purchase. I can prove the above by the testimony of five or six gentlemen in this neighborhood, whose experience in the matter corresponds with mine, and we have tried it for more than ten years.

Respectfully,

THEODORE S. GARNETT.

Cedar Hill, near Junction, P. O. Hanover, Va., Feb'y 3, 1866.

At a meeting of the Northern Illinois Horticultural Society, D. B. Weir, of Lacon, said he had saved over a hundred trees, completely girdled by mice, by banking the snow around them, and when the soil had thawed, banking that a foot high about the trunks. If the wounds are too high to reach by banking, clay may be bound on.—*Rural American.*

Fecundity of Grade South Down Sheep.

The following from our friend, Mr. Chaffin, accords with our experience last winter. But to raise these lambs well, the ewes will need extra keep, say a half pint to a pint of clean (or seed) oats per day, beginning with the former quantity, unless the pasture is extra fine.—Ed. So. P. & F.

MR. EDITOR,—*Dear Sir*: Being a constant reader of your valuable journal, and thinking something about the fecundity of South Down Sheep may be of interest to you, I take pleasure in acquainting you with the following facts: I visited my flock on yesterday, and was pleased to find that twelve ewes had eighteen lambs. One had three, and four had two, each.

Yours, respectfully,

R. B. CHAFFIN.

Amelia county, Va., February 5, 1869.

Domestic Servants at the North.

The following from the *Philadelphia Press* ought to make our house keepers thank their good fortune, that since they are not in foreign parts, they are at least in a country where the labor of freedmen and freedwomen can be used. So much for the ladies. Let the men read and ponder what we insert from another column of the same paper on the growing importance of the wages class.

It will set them to thinking what universal suffrage may do thirty years hence or perhaps before that.—Eds. S. P. & F.

We of America, excepting of course the slave States in slave times, have always been peculiarly unfortunate in the matter of servants. Not that the stock of servants has ever been low. On the contrary, there has ever been a superabundance of the article. But good servants, it is now and has been, as far back as the memory of the oldest inhabitant reaches, almost an impossibility to get them. Ireland weekly pours upon our shores hundreds of poor, ignorant, men woman and children. The men ere long become street laborers; the women go into service, and the children—well, they run “around loose,” as newsboys, orange girls, or as members of whatever else of the many juvenile professions suit their fancy. The intelligence offices are overrun by women who wish to hire “out” as cooks, chambermaids, etc., seldom having the least idea as to how the work of the position they seek is done. They soon learn from their friends here before them that America being a free country, one woman is just as good as another, and that “Missus” does not in reality hire them—they hire her. This

influx of Irish women has driven off American help, and house-keepers are seldom able to obtain a servant of any other nationality. Bad as these "servants" are, the great reason that they are bad is found in their management by the "lady of the house." They are not made to understand that they are servants; they are treated too much as if their position was in all respects as high in the social scale as the lady's. They are threatened with dismissal but seldom discharges. This is all wrong. Servants and especially those from Ireland should be ruled with a rod of iron. Treat them kindly, of course, but compel them to do their work faithfully. Have it understood that dismissal will surely follow certain offences, and never break the rule. In fact, *govern your own house and do not allow your hired people to govern you*. This plan if followed out would soon teach the ignorant that they must learn, and prove to those who cannot or will not advance that they have mistaken their own vocation. The annexed, from *Tinsley's Magazine* (written by an American), is true every word. We could ourselves speak of the general excellence of English servants, having had ample time and opportunity to study them during a stay of several months in London:

One pregnant advantage that the English have is that their servants are their own countryfolk. A native born American servant is almost an impossibility. In old times we used to find them in some of the Eastern States, but they were chiefly farmers' daughters sent out as "helps" to neighbors, in order that they might learn house-keeping, and so fit themselves for becoming industrious wives. This is the reason why they were called "helps," and not servants; for being of the same social rank as their employers, there was nothing servile in their occupations. Naturally, the same term came in time to be applied to all servants; but it is now very seldom used. The servants in America then are all foreigners—Irish in the East, Germans in the West. English and Scotch servants are more scarce, and are always sure of commanding better places and higher wages. Germans are preferred to the Irish because they know more about domestic duties, and are generally neater in their appearance. The Irish go from the emigrant ships to the "intelligence offices, or servants agencies, and often they have places—that is to say, are hired—next day after they leave shipboard. Coming from homes destitute of every comfort—from straw thatched cabins where the only housekeeping consists in piling peat upon the fire—from hovels where all the meals are cooked in the same pot, and gaunt poverty casts its curse upon the scanty fare, they are

transferred in a moment from the horrors of the steerage to what seem to them palaces, and are transformed in a twinkling from emigrants to "culinary artists," or "first-class general servants." They have never had any money before, but they are too shrewd to squander their large wages. Their first thoughts are for their poor relatives in Ireland; their first savings are sent to bring these wretched sufferers to the promised land. These Irish servant-girls subscribe immense sums of money to the Roman Catholic Church for the support of priests and for charity. They have always a trifle left, too, for Fenianism or any other "ism" that assumes the garb of the champion of old Ireland. They soon learn their independence; their self-respect takes the form of unbridled insolence; they are, almost without exception, virtuous while in service, but they are very fond of drink; they assume unservant-like finery, despise those caps which English maids wear so jauntily, and make frequent drafts upon their mistresses' wardrobes. Cousins are always coming to see them; and as every Irishman is a cousin, a thief or a burglar often turns up in a well regulated household. Funerals are their delight; and as some Irish friend is always dying, and as they are invited to every wake, a considerable portion of their time is devoted to the dead rather than to the living. They domineer over the real mistress of the house, order her out of the kitchen, and give her the full benefit of a temper spoiled by early brutality. Regarded philosophically, they are excellent patriots, but regarded practically they are very bad servants, in every way inferior to those of England and Europe.



While we do not strictly endorse the method of calculation, nor accept as literally true the results arrived at by certain statisticians who aim to show the coming importance of the purely wages men in the country, there is, nevertheless, a plausibility about the exhibition which should not escape attention. Any argument built upon must have great weight, and its proximate effects prove almost the same as the reality. The classification of people adopted is into money men, middle men and wages men. In 1840, with a population of 17,000,000, these classes stood as follows;

<i>Classes.</i>	<i>Able men.</i>	<i>Population.</i>
Money men - - - - -	300,000	1,800,000
Middlemen - - - - -	1,600,000	9,600,000
Wages men - - - - -	950,000	5,600,000
Total - - - - -	2,850,000	17,000,000

The calculation for 1900 with a population of 84,000,000, gives the following :

<i>Classes.</i>		<i>Able men.</i>	<i>Population.</i>
Money men	. . . . .	700 000	4 200.00
Middlemen	. . . . .	3,750 000	22,500 000
Wages men	. . . . .	9,550,000	57,300,000
Total	. . . . .	14,000,000	84,000,000

Thus, in less than half a century, the purely laboring classes will vastly preponderate. The problem of their independency is fast rising into importance. The relationship that all these millions of men must then bear to all the millions of capital, which will then be in existence, will constitute the political economy and social science of the near future.

THE BEST GAIT a horse ever had for every day use, is a good walk. It is a gait not one in ten possesses. Colts are not trained to walk in all the Eastern States. Young America wants more speed. Kentucky has more good walking horses than any other State, for there horseback traveling has long been in fashion for men and women over a country where muddy roads at times render any other gait impossible, and so horses have been bred to the saddle, and trained to a walking gait. This is also the case in all the Western States, and perhaps might have been so in New England, when our grandmothers rode to meeting on a pillion behind our grandfathers; but one-horse wagons have put horseback riding out of fashion, and now a good walking horse is more rare, than one that can trot a mile in 2:40.—*Rural World*.

CHICAGO possesses the largest bakery in the world. In the months of October and November eight thousand nine hundred and ninety-nine barrels of flour were converted into crackers in that establishment.

And this reminds us that when the Confederate war broke out there was not a hard-bread establishment in the city of Richmond. The Inspection laws of the State had been so rigidly enforced that there was no demand for the class of wheat—inferior—out of which crackers are made. So that kind of wheat went to swell the manufactories of Baltimore and New York. Shall our legislation be more enlightened under the new order of things?—Eds. P. & F.

Directions for Sprouting Sweet Potatoes.

In the first place, arrangement should be made early in the winter to have frames and covers made, and seed potatoes and all necessary material for the hot-beds, engaged in due time. The potatoes, when received, should be kept in a warm, dry room, until they are placed in the hot-bed, which must be warm, as they will not bear a lower temperature than forty degrees, without injury.

The location of the beds should be on dry ground, with a southern inclination, and convenient to pond or branch water. The best material for hot-bed is fresh horse-stable manure, that has not been rotted; and if mixed with one-fourth its bulk of either fresh leaves or straw, the heat would be more mild and durable and less liable to scald the potatoes.

About the first or second week in April, in this latitude, haul the materials for the bed, and mix them together in a ridge where the bed is to be made—and as soon as it is hot, shake it thoroughly, mixing the cold and hot, wet and dry portions together, forming a bed on the top of the ground, running east and west, which, when settled with fork, (not trampled,) should be fourteen inches high, more or less, as there is a greater or less proportion of manure used, and six inches wider on all sides than the frame to be placed over it.

Hot-bed frames should be made of two-inch oak plank, framed together at the ends, with keys to be taken apart and placed in the dry when not in use. They may be twenty feet or less in length, and for convenience should not exceed four feet in width. The front or south side should be eight inches high; the north from eight to twenty, according to the slope of the ground on which the bed stands, as the top of the frame should have a pitch of eight to twelve inches to receive the heat of the sun, and to shed off the rain freely.

Cover the beds four inches with mellow earth, on which set the frames, and proceed to lay the potatoes *two inches apart*, with the top end of the potato towards the north or upper side of the bed, and opposite the middle of the adjoining potato, placing the large ones at one end of the bed and the smaller ones at the other.

Cover the potatoes with three inches of good soil, that is free from fowl seeds and will not bake—top soil from the woods, and around old logs, would be preferable.

During the first ten days the beds should be carefully examined by running the hand down in the manure, and if it becomes so warm

as to feel unpleasant to the hand, there is danger of scalding the potatoes, and should be cooled by making holes through the bed and pouring water down the holes, being careful not to apply too much at a time.

Pulling the plants before all are of proper size is the cause of thousands being destroyed; and to avoid this, the bedding may be continued a week or ten days, that the plants may be pulled in succession.

The beds must be carefully covered at night, and in cold and wet weather; and be particular to uncover them every fair warm day, to toughen the plants and enure them to the open air.

Glass-covered hot-beds cause the plants to spring up tender and weak, and such plants do not grow when set out in hill, like those raised in open beds.

The best covers are made of *strong oiled muslin*, tacked on lath, so that they can be rolled up conveniently. These covers will admit the *light*, shed off the rain, and be cheaper in the end than other covering, and sufficiently warm except in extreme cold weather, when straw or some warm covering should be thrown over them.

The beds should be watered in the evening with a suitable watering-pot to keep the earth in a good growing condition. If spring or well water is used, it should stand in the sun or be warmed before using.

After the plants are up they should, if the weather is warm, be kept tolerably moist, to encourage the growth of good, strong roots; and light, warm showers would be better than watering; but cold and heavy rains must be guarded against, as they would soak into the beds and ruin them. Ditches should be formed around the beds, and the earth thrown up to keep the water from running under and chilling them.

When the plants are three inches high and well rooted, they are ready to pull, which is performed by taking hold of the sprout with the *thumb* and *fore-finger* of one hand, while the potato is held *firmly in its place* with the other. Careless drawing by inexperienced persons frequently destroys half the profit of their beds.

When plants are to be sent a distance, they should be set in shallow boxes, with their roots in wet earth or moss; but they must not be packed in wet weather, *nor have their leaves wet*, or they will rot immediately. Plants may be taken off the bed and preserved in a cave or cellar for a week or more, with their roots packed in damp moss or earth, if not packed too close.

It is a common error to lay the potatoes too close; they should lay two inches apart, as I have stated. A bed four feet by twenty feet will hold two bushels of medium size potatoes. If potatoes are small, more—and if large, less room is required.

Want of time prevents any remarks at present on planting and cultivating, or of keeping sweet potatoes *the whole year round*, which I have done for several years past, and had them good; but perhaps at some future day I will communicate.—A. C. C., *Burlington county, N. J., in the Practical Farmer.*

The Cranberry in Johnson County, Tennessee.

The culture of the Cranberry has proved a success, and at present constitutes an object of prime importance in the United States. The experience of our most successful and scientific farmers in the North and Northwest, has given the most convincing proofs that it yields the most remunerating profits.

It is not, however, generally known to the public that Johnson, the extreme eastern county in the State of Tennessee, presents a most inviting field for the successful cultivation of this valuable fruit. It may be truly said that here is its natural home; for here it has grown spontaneously from time immemorial. It may be safely affirmed, that there are twenty thousand acres of wet, marshy land in this county, particularly suited to the cultivation of the Cranberry, and at many places on this land it annually grows, matures, and is gathered for use without the aid of cultivation. These lands are situated chiefly on Roane's, Little Doe, Laurel and Beaver Creeks, and their tributaries.

There is a portion of the county called Shady, or more anciently "The Glades," on the Sullivan county line, and composing the Eighth Civil District. This is much more elevated than any other portion of the county, and constitutes a beautiful basin amid the summits of the surrounding mountains. In this basin, on the headwaters of Beaver creek, there is a large body of level, wet and marshy land, containing, perhaps, five thousand acres, peculiarly adapted to the growth of the Cranberry. Many large springs, as well as smaller ones, rise out of the edges of the marsh, and with their abundant waters, spread out and overflow hundreds of acres to the depth of several inches; and although by reason of its great elevation, this is a cold region for this latitude, yet, owing to the constant supply from these springs, the water never freezes. The

grass grows all winter, and cattle feed and thrive as upon a good summer pasture. Farmers who live near the marsh never find it necessary to feed their cattle in winter. In past years, Cranberries, to the amount of twenty bushels or more, have been gathered from the marsh in one season, and many yet are annually gathered; though, owing to the depredations of swine, which root and destroy the vines, the crop is lighter than in former years. For the Cranberry culturist in this marsh lies a mine of wealth.

On the first visit to this country by the white man this marsh was the home of a settlement of beavers. Here, every facility being afforded for the purpose, they built their dams, and doubtless for many ages lived in a state of great peace and prosperity. It may well be imagined how happily they lived and luxuriated in these warm temperate waters, until, the tide of civilization having spread over their colony, man came and destroyed their little paradise of bliss.

Taylorville, the county-seat of Johnson county, is beautifully situated on a slight elevation, almost surrounded by a natural Cranberry marsh, comprising several hundred acres. Cranberries grow spontaneously within a few hundred yards of the Courthouse. It is true, much of this land is cultivated for other purposes, but without thorough draining, by ditching, it is too moist for most crops in the usual routine of farming, and particularly suits the Cranberry. The reader might be entertained by a particular account of many other interesting localities, but, perhaps, enough in this regard has been said to call public attention to a subject of much importance to the prosperity of the county.

For the information of those unacquainted with the yield and commercial value of the Cranberry, the writer will be permitted to make a remark or two. From an article in the Patent Office Report for the year 1857, Agricultural Department, page 238, we are informed that a gentleman in the State of Massachusetts raised from one-fourth of an acre 65 bushels of Cranberries, which would be at the rate of 260 bushels per acre. In the New York market, at the present time, Cranberries are quoted at \$17 per barrel, at which price 260 bushels, the produce of one acre, would be worth \$1,105. When put up in bushel boxes they are quoted at \$6.25 per box, at which price the produce of one acre, 260 bushels, would be worth \$1,625. These figures would indeed seem incredible were they not sustained by ripe experience and well authenticated facts.

The climate of Johnson county is, perhaps, about the same as that of the State of New Jersey. It is true, Johnson is situated

farther south than New Jersey, but its great elevation brings the former about on an equality in point of temperature with the latter. In the former, the thermometer scarcely ever rises above 86° in summer, and very seldom falls below zero in winter.

Two railroads are projected through this country, viz: The Mineral Home Railroad and the Norfolk and Great Western Railroad. Both are provided with large means for their construction, and no doubt both will ere long be completed. Taylorsville, the county-seat of Johnson county, is distant twenty-eight miles from the Virginia and Tennessee Railroad. These facts are given for the encouragement of those who may wish to make this county their home and engage in the cultivation of the Cranberry. A personal observation will convince all who may have doubts that what is here said is spoken in the spirit of truth and candor. If fortunes can be made anywhere in the Cranberry culture they can be made here.—CLIO, in the *Abingdon Virginian*.

CARE of DEXTER.—At six every morning Dexter has all the water he wants, and two quarts of oats. After eating he is “walked” for half an hour or more, then cleaned off, and at nine has two quarts more of oats. If no drive is on the card for afternoon, he is given a half to three quarters of an hour of gentle exercise. At o’clock he has oats again, limited to two quarts.

From three to four, he is driven twelve to fifteen miles: after which he is cleaned off and rubbed thoroughly dry.

He has a bare swallow of water on return from drive, but is allowed free access to his only feed of hay, of which he consumes from five to six pounds.

If the drive has been a particularly sharp one, he is treated, as soon as he gets in, to a quart or two of oatmeal-gruel; and when thoroughly cooled, has half a pail of water and three quarts of oats, two quarts of bran moistened with hot water.

Before any specially hard day’s work or trial of speed, his allowance of water is still more reduced.—*Rural World*.

THE *Vermont State Journal* says that Mr. Zalmon Pierce, of Calais, wintered two geese and a gander from which, the past season, he raised twenty-seven goslings. When fattened for market they weighed 278½ pounds, bringing \$55 66; seventeen pounds of feathers sold for \$21 25; total, \$76 90.

Don't Come to the City.

Stay away from the city, young man.

Why?

Because you are not wanted there. Too many young men already are there—too many struggling for the fortune that never comes, and acquiring, instead, tastes and habits which lead to perdition.

Are you a farmer's son?

Be a farmer's son—one of the bone and sinew of the land! Don't look enviously at that equipage as it rolls past, bearing the rich merchant to his three months' siesta at his "country seat." You are as independent as he, and far more happy. If he lives to see fifty, it will be a wonder, while it will be a wonder if you don't live to be seventy. If he has gold and soft raiment, you have more—you have that consciousness of ownership in the soil which makes you a very lord in the manor, and though that manor be but a few acres, it is enough for your happiness, if content, industry and intelligent use of time rule your ways.

Are you a young mechanic?

Remain in the neighborhood where you are known, and where your services are required; or if a broader field is necessary, don't come to the over-crowded city, but go to the west, where every energy, every talent, is in demand, and every man is reckoned at his true worth. Thousands of mechanics in the great cities struggle for years for a simple livelihood, and never hope to obtain a competence, because they see that it is of impossible acquisition. Can you, too, hazard that result to all your young energies and well-grounded ambition?

Are you a student?

Stay away from the city as from an evil genius! Here are libraries and societies and learned men, it is true; but these are hard to reach and enjoy; the learned men are busy and reserved; the societies are either very exclusive or very common; the libraries are of practically little value, save to mere readers. A small library in a country town, with the encouragement and aid which a studious young man always there receives from the ministers and doctors and lawyers, is far more sure of reward than any influence which the city can promise.

If the city is the place where men of talent rise to the surface, it is equally true that there men mediocrity go down; and also true that not one in a hundred is successful in obtaining just the

position for which he is fitted. Competition is so strong and persistent that few men, even among those who are deemed successful, but have changed their business or calling many times—compelled, as they have been to avert disasters by abandoning what at first seemed promising enterprises.

To come to the city is to encounter odds against your industry and ability which do not exist anywhere else—the odds of capital, of combinations, of aggregated numbers, of superior talent; while haunting your footsteps, and dogging your very shadow, are influences and temptations before which even the stoutest of principles quail. What are these influences? Let the records of ten thousand wrecked lives tell—wrecked, though clear of head and firm of heart, because the temper assumes so many shapes and forms that they grew weary of combatting him.

Stay in the country then! Grow, expand, flourish there, sure of becoming one of the leading men of the village, county town, or district, if you really have merit and worth. You might succeed in acquiring a competency after years of struggle in the city, but the odds are so heavily against such success, that it is painful to witness any attempt to achieve it.

Be content and happy in the country, always doing your best, and the result will prove the wisdom of your course.—*Bonham's Rural Messenger.*

On Cutting Food for Common Farm Stock.

LETTER FROM THOMAS J. EDGE, OF CHESTER COUNTY, PA.,

TO PASCHALL MORRIS:

The inquiry on the subject of “cut food for common farm stock,” was duly received, and I will endeavor to answer the questions in the order in which they are presented.

Understanding the question to apply to the kinds of provender usually fed on a farm, viz: hay, corn-fodder and straw, I will answer the query “Will it pay?” in the affirmative. Except for mixing hay for horses, I do not think there is much if any saving in cutting good hay; for any kind of stock at work it may be found profitable, because it enables them to fill themselves in much less time, and hence allows them more time for rest.

After considerable practical experience, I am satisfied that there is a saving of full *twenty per cent.* in cutting corn-fodder. Last winter having to buy all the hay consumed by twenty five head of

stock, I was desirous to make the best possible use of my corn fodder, and tried the experiment of feeding it in the usual way in the sheaf, and also after cutting. A yoke of oxen weighing ≈ 200 lbs. were taken for the experiment;—the intention was to carry them through the winter for spring work, without any material increase in weight. For the first thirty days they were fed corn fodder in the sheaf, and cleared the leaves and husks off four bundles every day, and had one quart of corn meal morning and evening for each ox. At the end of the month they had gained sixty-two pounds. During next thirty days they had the same amount of meal and as much cut fodder as they would eat up clean.

A trial proved that the eight sheaves would, on an average, make fourteen baskets of corn-fodder. During the thirty days they consumed 330 baskets of fodder, or an average of eleven per day. Their gain during this month was eighty-eight pounds.

From this it would seem that by cutting the fodder I saved three baskets in every fourteen or more than twenty per cent.

My experience during the present winter has fully confirmed the above experiment; and I am now even led to estimate the saving by cutting, somewhat higher than twenty per cent.

There asks whether cattle will eat the cut corn-fodder all up: This I must answer in the negative; the proportion which they leave depends upon several circumstances; first the size of the fodder; If it is from strong land and large stalks, I sometimes find them to leave one-fifth to one-eighth uneaten. The amount left also depends upon the care of the fodder in the field: if at husking time the ground is soft, the lower or larger end of the stalk is dirty, and is refused on this account, as well as from its being harder and more difficult to masticate. The amount not eaten will also depend upon the amount of other kinds of foods which may be given. If the cattle are fed hay and meal as well as fodder, they will leave more than when they are kept upon rough food alone.

The actual expense of cutting is very small, and as it is done at odd times, when the team and hands are at leisure, we do not usually take it into account, and may say that the twenty per cent. saved is "clear of all expenses."

Respectfully, thy friend,

E., in *Practical Farmer*.

Virginians, Make Your Own Sorghum.

I take advantage of a question asked through the columns of your enterprising paper, to speak what I know respecting the success of the cultivation of Sorghum cane in this State, and its products as a sugar plant. It is a question which well deserves the attention and thoughtful consideration of all classes, but more particularly the farmer. A glance at the unsettled state of affairs in the sugar Islands, (which are even in a worse condition than Louisiana,) and the decrease in the sugar crop of Louisiana, make it a matter of prime importance to Virginia farmers to know whether they can make the cultivation of sorghum cane profitable by making from it a good, palatable and marketable article of sugar and molasses. The estimated quantity of sugar consumed in the United States is about 822,000,000 pounds. Of this quantity in 1855 382,000,000 pounds, only, were produced in the United States—Louisiana at that time making 231,426,000 pounds. Under the present system of labor, and in consequence of a deterioration or defection in the seed, it has fallen off to 75,000,000 pounds. What the result of this state of facts must be is easily foretold. A large amount of capital will be sent, not only out of our State, but out of the United States for sugar and molasses. Now, we maintain that this immense revenue may not only be retained in our own State, but bring capital into it. The most important fact connected with this question has been most fully demonstrated, namely, that sorghum cane will grow most luxuriantly with a most abundant yield of saccharine matter, usually containing from fourteen to twenty-two per cent. of sugar, varying according to the character of soil and the fertilizers used. We must remember that it was a comparatively new crop in this country—the seed only having been distributed from the Patent Office a few years before the war—and we must make proper allowance for ignorance in its cultivation and want of due care in the selection of the seed. When we consider these things, we may safely and reasonably conclude that our soil and climate are adapted to its growth. Our climate in many respects is exactly what it requires, resembling that of China, a wet spring and low temperature, followed by a hot August and September. All have noticed that when the hot summer's sun has parched all else into the sere and yellow leaf, this plant alone seems nourished and invigorated by it. But we are met by objections which have force in them, and which, if true, would be fatal to the position we take, *i. e.*, that it is ruinously exhausting to the soil. The same might

be urged against any crop under which an improvident system of farming, particularly as against the great staple production of our State—tobacco. The waste lands in the first settled portions of Virginia smiled with an abundance, that made the heart of the pioneer to feel that the God of Israel was truly their God; yet, the continued cropping of tobacco has cursed them with the blight of the desert. Thus it would be with sorghum. One who has studied and analyzed this cane writes thus, after giving the analysis of the plant: "These ingredients are present in almost every soil in sufficient abundance, when they have not been removed by improvident cropping. As sugar is composed of elements derived entirely from the air, (carbon and water,) it is evident, as in the case of Louisiana cane, there would be no necessity for solution, if all that has been taken from the soil has been returned in trash. Practically, however, this cannot be effectually accomplished. The uncrystallizable portion of the piece contains salts, which are annually removed with the molasses that is marketed. These are chiefly phosphate of lime, potash and the carbonate of lime." We have fertilizers in our midst containing these ingredients and with a return of the crushed cane, in the shape of manure, and rotation of crops, we think this difficulty obviated. And so it is with every other crop. That taken from the soil must be restored by nature or artificial means. In our limestone regions the disintegration of the rocks will generally, with the ordinary fertilizers found on the farms, fully restore it, and in the other sections, gypsum may be used advantageously, or marl, which is clay and lime. Now we come to the question of real importance:

CAN SUGAR BE MADE FROM IT?

All have believed for a long while, and some have known the fact, that it could. It has been in common use in China, and in 1853, some was sent to California from China. But among us it was left for the enterprising people in the West to take the lead in this matter. A process was discovered by two farmers in Ohio for making sugar, beautiful and astounding in its simplicity, and admirably adapted to the wants of our people, because of its completeness and cheapness. There is in this city, and may be seen at the store of George D. Davis & Son, a small quantity of sugar made near Louisville, Ky., brought on by the agent of the Southern Sorgho Company, which is not inferior to any brown sugar we have ever seen. It has been mistaken by some of our sugar merchants for Demarara and New Orleans refined "C" sugar. It is of a

bright straw color, with about the body and quality of the sugar before mentioned. The process is so simple that any person of ordinary intelligence can operate it. No chemicals or foreign agency whatever are used throughout the entire process, and yet no trace of that disagreeable taste so familiar and unpalatable to those who have made the molasses by the ordinary mode. It is the yield, though, which will most astonish every one. There is not an acre of ground in the State which will not yield from 50 to 300 gallons of syrup. This, however, varies very greatly in different soils. Average corn land will produce generally, with careful selection of seed and proper preparation of the soil, from 125 to 150 gallons of syrup, and from one gallon of syrup made by this process you get from five to seven pounds of sugar, with a residuum of from three to five pounds of molasses. A gallon of syrup weighs eleven pounds, and hence there is only a loss of one pound in separating the molasses and sugar after granulation. In other words, an acre of land ought to produce from 750 to 1,000 pounds of sugar, and from 50 to 68 gallons of molasses. Our merchants say that this sugar would retail in this city at fifteen cents per pound, and the molasses at from eighty to ninety cents per gallon. The skimmings make a fine quality of vinegar. The seed or stalk will make a dye for dyeing red, purple and yellow, and extensively used in coloring silks. The cane leaf makes the finest of forage. The seed are not surpassed by either corn or oats as food for stock; will produce in distillation as much, if not more, whiskey per bushel than corn. The product of the seed per acre is from twenty to forty bushels.

The cost of the necessary machinery will not exceed the following estimate for a field of thirty acres:

Two self-skimming coagulators and furnaces,	-	-	-	\$ 90 00
One finishing pan and furnace,	-	-	-	65 00
An ordinary sorghum mill,	-	-	-	100 00
Contingent expenses for boxes, troughs, &c.,	-	-	-	75 00

This machinery should be under a shed, with room attached, which can be kept at a pleasant temperature, with a stove to assist in granulation. We do not add this in the above estimate, as most any farm with the ordinary out-houses will have such a room on it. An ordinary sorghum mill will do, though the aggregate loss with an inferior mill is very great. This estimate is made up from the prices furnished by the company at Louisville, and will probably exceed the cost, if purchased here. Here, then, within the reach of almost every farmer is an additional source of wealth and independence for a small outlay, which the first year's crop will return

with a handsome profit. The crop is less troublesome than tobacco, and under the present system of taxation will, at the end of the year, put more money into the farmer's pocket, and not interfere so materially with the cultivation of other crops. The farmer's clubs in the different counties of the State should take this matter into consideration at once, with a view to obtaining a patent right for this valuable discovery. The agent is in this city at present, with authority to dispose of it at such prices as will place it in the reach of every farmer in the State. In counties where no farmer's clubs exist, let some energetic man take hold of it as a public blessing in our prostrated condition. The gentleman who has charge of this right courts investigation, and to that end will pay the expenses of of a committee from this State to Louisville, to examine the process and machinery. The crop should be planted in May, and there is no time to lose in this matter. We believe there is money in it to the Virginia farmers, and the capitalist who will purchase the right for the State with the view to selling county right or farm rights.—*Lynchburg Republican.*

Keep a List.

- 1. Keep a list of your friends and let God be the first in the list, however long it may be.
 2. Keep a list of the gifts you get and let Christ, who is the unspeakable gift, be first.
 3. Keep a list of your mercies, and let pardon and life stand at the head.
 4. Keep a list of your joys, and let the joy unspeakable and full of glory be the first.
 5. Keep a list of your hopes, and let the hope of glory be foremost.
 6. Keep a list of your sorrows, and let sorrow for sin be first.
 7. Keep a list of your enemies, and put down the "old man" and the "old serpent" first, and pray for all the rest.
 8. Keep a list of your sins, and let the sin of unbelief be set down as the first and worst of all.—*Peoria (Ill.) Young Men's Christian Association.*
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AT THE late farmers' convention at Manchester, N. H., Colonel T. S. Lang, of North Vassalboro', the owner of the famous stallion, General Knox, stated that his horse had netted him sixty thousand dollars, and increased the value of the horse stock of Maine many hundred thousands.

Ploughing by Steam.

An exchange states that a mammoth steam plough has been built in Oroville, California. The huge machine has six driving wheels, each is furnished with cogs and a pinion connected with a main driving shaft by self-adjusting drums and pinions. It is about twenty feet long, and can turn within its own length. A movable pinion, with lever attached, enables the pilot to guide it by steam when in motion. The four forward wheels are connected together by a frame, upon which rests a universal pivot, and upon the latter rests the boiler, supported at the sides by projecting frame-work. The boiler retains an upright position while running on uneven or sideling ground. In the rear of the boiler are the engines, the pistons connected with the main shaft in the rear. The ploughs, thirty-nine in number, are attached to a revolving shaft, which gets in motion from the main driving shaft. Thirty-nine ploughs occupy a space of but twelve feet. There are raised or lowered at will by means of a segment at either end of the shaft. The whole weight is about eight tons. The engine has a fifty-horse power. The first test seems to have made a very favorable impression. Its ploughing was done handsomely and rapidly. The space, twelve feet wide, was left in the best condition possible for planting. It was thoroughly pulverized to the depth of six or eight inches, and turned over, and resembled ground that had been ploughed and run over by a cultivator. The universal expression from farmers present was that it performed its work well, but fears were entertained by some that the weight of the machine was too great for cultivated land. During the first test, however, it was running upon new ground, softened by recent rains so that a loaded wagon could not pass over it.—*New York Times*.

OWING to the rapid growth of the Peach tree, it would if left to itself eventually become straggling and awkward in shape and appearance. To prevent this, the tree should be headed in, and kept as low as possible; by so doing it will become symmetrical in shape, and at the same time be more convenient to the fruit gatherer, when the time comes to pick the fruit. It is claimed by those who have practiced this method of heading in, that it prolongs the life of the tree; that oftentimes the extreme ends of the peach tree do not ripen, therefore they are winter killed, and consequently would be better off than on the tree. If this practice of heading in is followed out, the trees are kept nearer the ground, and the fruit is less subject to injury by storms. The operation of heading in can be performed either in the spring or autumn, it being immaterial at which season of the year it is done.—*Rural American*.

Irish Potatoes and Tomatoes.

We are indebted to General William H. Richardson for several letters on the cultivation of Irish Potatoes and Tomatoes, from some of the most successful growers about Norfolk, where, as is well known, these two important esculents are very largely cultivated for the Northern markets, and we regret to say, to some extent for the supply of Richmond also.

Potatoes.—The ground having been deeply broken and thoroughly drained, harrow to put it in good order. Then run furrows at least six inches deep and four feet apart, and strew guano along the bottom at the rate of one peck to two hundred yards; then fill about two-thirds full with unfermented farm-yard manure made from horses, hogs, and cattle that have been well treated. Then drop the potatoes, cut into pieces containing two or more eyes, in the manure, about nine inches apart, with the skin up, and cover with the plough not more than from three to four inches deep. Two light furrows of a one-horse plough are best. As soon as the potatoes are beginning to come up, run four times between each row with a one-horse plough, throwing the dirt to the potatoes, and follow immediately with a light harrow, running on the top of each bed, taking care that the harrow teeth do not run deep enough to displace the manure. When the potatoes are about six or eight inches high, reverse this operation, by throwing the soil from them; and in three or four days give the last ploughing by running four times in each row, giving the dirt to them as in the first instance. If there be any oats or weeds growing amongst the potatoes which the plough has not destroyed, make small boys follow and pick them out, at the same time uncovering and straightening the weak plants that are sometimes buried by the plough. They should never be worked after the blossom has expanded. No hoe is ever used in the crop. They are harvested more expeditiously by the plough. The twentieth of February is considered early enough for planting in that climate; and no difference in size, or quality, or early maturity, has been perceived between plantings of the last of February and the last of March.

This is the plan recommended by Colonel Edward H. Herbert, the President of the Seaboard Agricultural Society.

The practice of Mr. Henry Irvin is slightly different. Guanoing at the rate of fifteen pounds to the hundred yards, he drops the cuttings on the guanoed furrow, and then follows with a slight dressing of horse manure, or a heavy dressing of half stable manure and half

woods litter, which has been mixed some months before. In covering he throws up "a good ridge" to protect them from the cold weather in March; and as soon as that month, or as he thinks the severe weather is over, he harrows down the ridges to let the sun have its full force on the potatoes, in which condition they remain till they are high enough to work.

This seems to be also essentially the practice of Colonel Thomas A. Hardy, who uses his oldest manure first, "putting the newest manure on the last planting to help the potatoes forward as fast as possible by means of the heat generated by the fermentation and decomposition."

"If the land is heavy the quantity of guano may be increased, provided the land is well drained, otherwise the crop will not mature so soon," says Mr. Irwin. But "guano alone will not answer for potatoes," says Colonel Hardy, "unless the land be very rich in organic matter and of a loose texture."

Seed potatoes raised in our climate in the fall will be two weeks later than good Northern Mercers; but they will keep better through the winter.

Tomatoes.—Sow the seed about the 20th of January, in a hot-bed, prepared as follows: Take the litter from the stable, composed of manure, stalks, leaves, &c., and put it at the bottom of the bed to the depth of five inches; on this put three inches of soil made of old horse manure and rich earth, thoroughly mixed and as fine as possible. Keep this bed warm; but after the plants have come up, take *great care* not to let the hot sun shine on them unless you give them plenty of fresh air at the same time by raising the sash. If you find the plants growing up very thin, they have too much heat, and must be aired. When the plants are from three to five inches high, which is early in March, they are transplanted into another bed, called "the transplanting bed," prepared as the first, only with less heating matter below and deeper soil on top. In this set the plants in rows six inches apart, and water them and stir the ground around them as you wish them to grow fast or not. The transplanting bed should be well warmed before setting the plants, and for several days must be kept warm, and the sun not allowed to shine on the plants. To keep it warm cover the sash and ends with straw or thick cotton. In very cold weather too much care cannot be taken to keep out the frost. If the mice trouble the plants, trap them. When all danger of frost is over—say 20th of April in Norfolk county—take up the plants, earth and all, and set them in the field, having the ground checked four feet each way, with a spade-

full of well-rotted horse manure under each plant. In the market gardens they are cultivated chiefly with the plough, the hoe being used to hill up. In case of drought they use the plough freely. They never support the vines with sticks. If the season is dry, guano alone will bring them; but for a certain crop, horse manure is the thing.

It will be seen that tomatoes thus raised are a difficult and expensive crop. It requires several seasons experience to grow them successfully, and this is the reason they pay so well. Very few attend to them properly. The above mode may do where they are raised on a large scale for market, but it will hardly do to pursue this plan in an ordinary kitchen garden, where most probably none but amateurs will take the time and trouble which are involved. Certainly no one should do it who is sure of an opportunity of buying the early plants, which, for a family of moderate size, will not cost more than from fifty cents to a dollar.

Tomatoes are very difficult to force, and it is not possible to bring them in more than three weeks before the regular time of ripening in the same quality of soil with ordinary garden culture; and the small volunteer is generally of better flavor than the monsters we so often see, which are nearly all pulp and no seed. Indeed, market gardeners have discarded these latter, and we rarely ever see them, except with those who like to make a dish. They are acid, hard to ripen properly and uniformly, apt to rot, and very troublesome to prepare for the table.

It is said that all sorts will bear better if shortened in the branches. It is possible they may, but very likely the vine will be exhausted more speedily.

BIG HEAD may be cured with very little trouble. A horse with the big head becomes stiff all over, and the large muscles leading from the eye to the nostril becomes perfectly rigid. Anoint those muscles well with the oil of cedar, and sear it in with a hot iron three or four times, with an intermission of six or seven days, but rub the oil on every day. Take a piece of poke root, about as large as a goose egg, put it in six quarts of water, and boil down to three quarts; drench the horse with one pint of it every other day as long as it lasts; fill the drenching bottle with a pint of fresh water after the poke tea has been put in it. This prescription has cured horses when they were so very stiff that they could scarcely step over a door-sill six inches high.

Are Onions Profitable?

A subscriber wishes to know how to make onions. For his benefit, and others like him, we re-publish from the Farmer of 1867, an article on that subject, which contains all that we could now say.

The greatest trouble about the crop is in keeping it clear of grass. That is absolutely necessary to a crop:

We think that they are, or at least, that with proper care and attention they may be made so.

There is a constant, large and increasing demand for this vegetable, both for Naval stores, and as an article of commerce, quite a large quantity of them being shipped annually to Cuba and other West India Island, so that there is no question as to the sale of them.

The crop is a very sure one, not having many enemies among the insects and being liable to very few diseases; the only question then is, whether the cost of production is, or is not, so great as to render them unprofitable. We think it can be demonstrated, that the cost of production, although heavy, is still very far under the market value of the crop, and sufficiently so as to render them valuable.

In order that we may arrive at correct conclusions on this subject, we will give somewhat in detail, a statement of the work that is necessary to be done, in preparing the soil, sowing the seed cultivating, securing and preparing for market the crop, and then our readers may test for themselves the correctness of the estimates we may make of the cost of production. The value of the crop, and the average yield per acre, are matters easily settled by official statistics.

When onions are grown as a field crop, the only profitable method of raising them is from seed. The cost of sets is too great to make them desirable outside of the Kitchen Garden. The varieties best adapted to field culture are the large red onion, known in various sections under different names, such as Wetherfich red, Large Globe red, and the Yellow Danvers, &c.; they are hardy, keep well and yield abundantly. The Silver Skin, the White Portugal and other white varieties, although commanding a higher price, do not yield near as well, are liable to mildew, and are better suited to the garden than the field. Onions will grow on almost any soil, provided it be rich, or if not naturally so, if it be made so by the addition of well rotted manure from the hog pen or barn yard. Very wet locations should be avoided, as also stony land. The preparation of the soil must be thorough as follows:—Gather off all

the stones, then haul on a heavy coat of manure, say sixty cart loads, (twenty bushels to the load) per acre, if the land be in tolerably good heart; but if very poor double that quantity will not be too much. Plough this in deep, and then add a top-dressing of ashes or bone dust, about two hundred bushels to the acre, harrowing and reharrowing the land until it is made perfectly level, and then run the roller over it to pulverize the smaller lumps; for the surface must be made level and smooth. It is customary after using the common harrow to drag a brush over the land and then with rakes to gather off the small stones. When the ground is thus prepared, the most expeditious way of sowing is with a machine made for this purpose, which describes two drills at once, twelve inches apart, and sows the seed. There are two kinds of these machines, one which sows the seed regularly along in the drills, the other sows it in hills six inches apart in the drills. Either of these answer very well, and both have their advocates; we are inclined to think the one which plants in hills the best, as it saves some labor in weeding. The cost of these machines is about seven dollars. They are drawn by the hand, and the seed is covered by a boy following with a common hand rake or hoe, or with a light roller. It should be sown as early in the spring as possible, and covered lightly. Four pounds of seed will sow an acre. As soon as the onions are up high enough to distinguish the rows, they should be hoed over lightly so as not to cover them with earth; in a few days they should be weeded carefully with the hand, and so on until the crop is matured, for if the weeds once gets the start the crop is lost. When the crop matures, about the middle of August, the tops will turn yellow and fall. The onions should then be pulled and scattered on the ground to dry. After leaving them in this way for three or four days, gather them in piles and let them remain ten or twelve days, then open the piles, turn them and let them remain two or three days, when if they are quite dry they are ready to be housed. If it is intended to keep them during the winter, let the tops remain on them (as they keep better and can be pulled off when prepared for market) and place them on a dry floor where they will not be exposed to very severe frosts; slight freezing will not injure them provided they are not disturbed while in that state. There is doubtless a great deal of labor and care required in the cultivation of onions; still we think they will repay it.

Let us estimate the actual cost of cultivating an acre of them, or five hundred bushels, which is the average yield per acre:

Plowing and harrowing—two days work with team,	-	\$ 5 00
Sixty loads manure and hauling at 50 cents,	- -	30 00
Two hundred bushels ashes at 15 cents	- - -	30 00
Raking and sowing—four days at \$1 00,	- - -	4 00
Four pounds seed at \$1 50,	- - -	6 00
Hoeing three times—two days each,	- - -	6 00
Weeding three times—five days each,	- - -	15 00
Gathering and curing—Fifteen days,	- - -	15 00
Housing,	- - -	10 00
		\$121 00

This a liberal not to say extravagant estimate. Now take a low average, viz: four hundred and fifty bushels, and take a very low price as an average also, viz: fifty cents per bushel and we have a gross income of \$225, or a net profit of \$104 per acre. But if we take what is a fairer average, viz: five hundred bushels at sixty cents, we have a profit of \$179.

We may remark that care should be taken in procuring seed; purchase only from trustworthy seedsmen, or you may lose the whole crop.

We think that this crop may be made doubly profitable by those farmers who have freedmen's families on their plantations, as much of the labor may be performed by boys and girls equally as well as by men, and at much less expense; the same ground may be cultivated in onions for many years with increasing success and proportionately less labor, as the weeds decrease in consequence of careful culture.

In the Northern States the Wethersfield Red is most generally cultivated on account of its hardiness. But in our climate the Yellow Danvers is also perfectly hardy, and is, we think, the best variety. It combines beauty of form and appearance with a mild and pleasant flavor. They command the best price in the market and we recommend that a large portion of every crop of onions be of this variety.

HIGH AIMS.—Aim at perfection in everything, though in most things it is unattainable. However, they who aim at it, and persevere, will come much nearer to it than those whose laziness and despondency make them give it up as unattainable.

“It should be our care not to lead a long, but rather a good life.”

Hay—Its Value as Food, Etc.

Agriculture being a progressive science, he that would understand it best, must be a constant practitioner of well matured plans, as well as a careful observer; noticing the results of application in practice, together with a close investigation of their merits in the research for knowledge adapted to it.

In a former article I stated that hay was the cheapest food obtained from the cultivated field. This is so, notwithstanding we frequently hear it does not pay to raise hay, &c.; that corn and other crops pay us a much larger return. Considering the advantages of this crop in all its bearings, I beg leave to differ with those who think thus, and in the way of illustration, I shall give some of my views, for the benefit of your readers and those who may differ with me.

It has been shown in my former articles that the cost of obtaining one and one half-tons of good meadow hay is \$4.12½ including land rent with its contingent labor paid for at a fair valuation, which estimate intelligent farmers will have no reason to doubt.

I propose in this article to briefly show that hay is the cheapest food obtained from the cultivated field, (as I have shown that it is the easiest and most speedily obtained by the aid of machinery) taking into the account its value for feeding purposes, the amount of nutrition it contains (compared with other crops) capable of making fat and giving strength and tone to the blood and muscular system of animals; estimating the cost, and comparing with it the cost of procuring the same amount in the next best crop, (the corn crop,) basing my calculations on the basis of an average crop of each.

In order to arrive at the correct estimate of cheapness, I bring the following table into requisition, to show the number of pounds of nutritious matter contained in one hundred pounds of each crop;

100 lbs. Meadow hay contains		50 lbs. of nutritious matter.	
“ “	Clover	“ “	55½ “ “
“ “	Corn	“ “	95 “ “
“ “	Wheat	“ “	95 “ “
“ “	Rye	“ “	90 “ “
“ “	Barley	“ “	82 “ “
“ “	Oats	“ “	70 “ “
“ “	Buckwheat	“ “	78 “ “

Thus maintaining that one and a half tons of hay is a good crop, forty bushels of corn per acre is also a good crop, and generally realized with proper cultivation.

Estimating one acre of corn to be produced at the following rates:

Ploughing per acre.	\$2 00
Marking and planting.....	75
Cultivating.....	2 25
Harvesting.....	2 00
Land Rent.....	3 00

Total cost

\$10 00

Thus from one acre of corn we obtain 2,128 pounds of nutrition, costing us \$10.00 per acre, including land rent. Whilst from one acre of meadow, yielding one and a half tons of hay, we have 1,500 pounds of nutritious food, costing us \$4.12½ including land rent.

It will be observed that we got one hundred pounds of nutrition in corn at a cost of forty-seven cents, whilst we got one hundred pounds of nutrition in hay at a cost of twenty-seven and a half cents. Which facts show conclusively, that our hay is the cheapest food obtained from the cultivated field, by nearly one half, and the easiest and most speedily obtained.

That it can be fed out at a less cost than any other feed, except, perhaps, corn in the crib, or other grain after it has been threshed and put into the bushel, no one has reason to doubt. For general feeding it is the best, having more medicinal virtue than any other, and is capable of imparting more pure, healthy vitality and sustenance for the blood, except, perhaps, to old work horses and stock that requires quick and speedy fattening, or in cases where severe labor has to be performed, or heavy, stimulating food is required. For horses, especially young ones, and colts, it is decidedly superior, as it does not fill the system with inflammatory humors, as does other grain. The flesh it creates is generally good, pure and lasting, and if there was more of it fed to our horses and other stock, and less heating grain, we should have better, stronger and healthier animals, less likely to engender disease, which is oftentimes the results of an injudicious use of corn.

As to production, I claim that it is the surest crop, when properly set, there being no crop that will as quickly restore, and impart fertility and tone to the soil for the successful production of other crops.

I would here remark, that it is too often the practice of farmers to farm their lands in corn and other crops entirely neglecting the grass crop, until their lands become filthy with weeds, and their fields fail to produce sufficient remuneration for their labors. Lands can thus be reduced and impoverished, until they will fail to produce even a good crop of grass, and frequently from such managed lands, farmers expect to realize a good meadow. In this they invariably get disappointed.

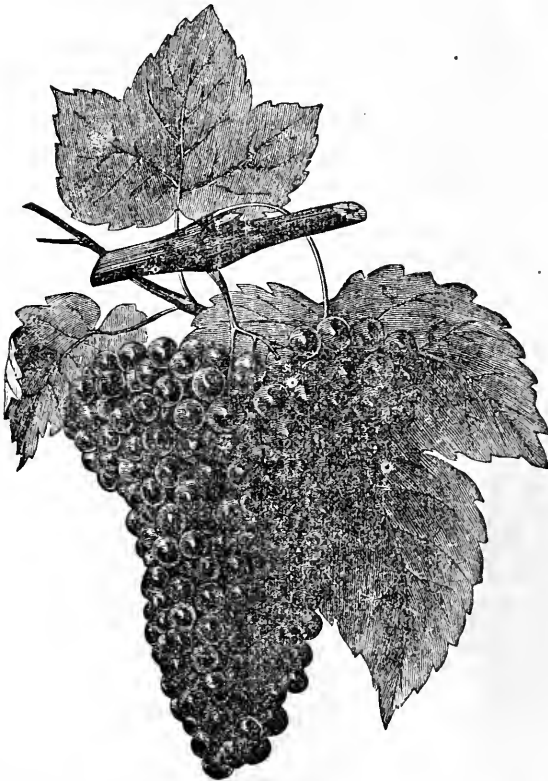
If, on the other hand, they would plough deeply, properly drain, seed their fields to grass in their turn, before they get much worn, and yet not otherwise abuse them, they would show their gladness from year to year, and stand the vicissitudes of the season.—HAY RAISER, in *Prairie Farmer*.



Horticultural Department.

JOHN M. ALLAN, - - - - -

EDITOR.



Virginia's Wine Grape.

The Norton (a cut of which appears in the present number) is steadily increasing in favor in all sections where the summer is long enough to mature its fruit. In the Western States, notwithstanding the strenuous efforts of the admirers of the Ives, Cynthiana and others, to claim superiority for their favorites, this wild Virginia

seedling still occupies the most prominent place in the list of red wine grapes. Here in its native State, where it attains an excellence that no other section has as yet given it, there is little prospect of a successful rival being found, and even the Middle States are beginning to find in it that desideratum they have long sought so earnestly, viz: a vigorous, hardy, healthy grape, capable of producing a *first-class* wine. Very heavy shipments of wood for propagation have been made from this point to New York during the past winter, showing a large increase in the demand in that section.

But as "every rose has its thorn," so the Norton has a single drawback. It is exceedingly difficult to propagate, and, consequently, the price of young vines is very high. The wood is so hard that it will not root at all from cuttings in the open air, nor can more than forty per cent. be realized from single eyes in propagating houses, even with the utmost skill and care. Layering is certain, but expensive. Heretofore we have grown them from single eye root grafts started in a propagating house, succeeding generally in getting eighty per cent. of good vines, but this method is too costly. We are now experimenting largely with root grafts in the open air, and if successful, shall feel that a great step has been accomplished towards putting this established favorite in the reach of all.

Nuts.

Our exchanges are urging upon their readers the importance of cultivating the various nuts indigenous to this continent. That this interest has heretofore been sadly neglected, indeed entirely overlooked, is certainly true, at least in the Southern States. Apart from the fact that there was in many sections, previous to the destruction of timber, consequent upon the late war, an abundant supply found growing in the forests, the main reason of this neglect was doubtless the length of time required to attain any profitable results. Since, however, so large an area of our forests have been destroyed, nut culture assumes a different phase. Fruit is no longer the only object to be attained; shade and timber are now to be sought for; and if, in securing these latter, we can combine profit from the fruit, it is deserving attention.

The Hickory, Black-Walnut, and Chestnut all make good timber and handsome trees, besides being quite profitable fruiters. The Walnuts averaging two dollars and the Chestnuts at least four dollars per bushel.

It seems slow work to plant a nut and wait for a crop, but it is a very cheap, and ultimately a very profitable, investment for a young man at twenty to plant a seed that will, at forty, and annually thereafter, yield him an income of at least one hundred per cent. upon his outlay, making a liberal allowance for the use of land, labor, &c., all of which may be counted as capital invested; those more advanced in years can, by this means, at little expense, leave a good inheritance to their successors.

Especially is this subject worthy the consideration of those located at points remote from or inaccessible to market, and who are consequently debarred from the culture of more perishable fruit. If any of our readers are engaged in nut culture, or have any experience upon the subject, we shall be glad to have them communicate the results of their experiments.

Melons.

This is a section which, if it does not "flow with milk and honey," certainly lacks not for Melons, Sweet Potatoes and Oysters, hence it may seem like carrying "coals to Newcastle" to say much on the subject of Melon culture. We will presume, therefore, that all of our readers know as well, perhaps better than we, how to grow them, and take up another branch of the subject, viz.: varieties.

Among the Muskmelons—Green Citron, Skillman's Netted, and Nutmeg have held their own as first-rate kinds. The only new variety of note the past season was the Hunter, which is not properly a new variety, having been in existence some years; but for the first time prominently introduced least season. We gave it a fair test, and found it to be worthy of the most extensive culture. It is large, finely flavored and very prolific, combining the sweetness of the Nutmeg with the size of the Cantaloupe. We cordially commend it.

The Jackson has so long stood at the head of the Watermelons in this part of the State, that one hardly dares to intimate that it may have a superior, nevertheless a formidable rival appeared last year in the person of "Joe Johnson," introduced by our friend, W. L. Cowardin, Esq. A large, round melon, with dark green, striped, thin rind, and of the very finest flavor. It was eagerly sought for the entire season in this market, and commanded fully one-third higher prices than any other variety. We feel confident that the "Joe Johnson" will be the melon in this section, and we see no reason why it should not be adapted to other localities. It is worthy of a fair trial everywhere.

Foliage Plants.

Those who have the time and the taste to decorate their yards and gardens will find a valuable addition to their collection in the recently introduced "Foliage Plants"—so called from the fact that beauty of foliage constitutes their charm; the bloom of all the varieties being quite insignificant. The richness and variety of coloring in the leaves, however, amply compensates for the want of flowers, and have the advantage of lasting all through the season without once presenting the unpleasant effect of a fading flower.

There are many varieties and of such varied hues as to permit their grouping in beds or borders with great effect. They have generally such outlandish names as would most break one's heart to remember, but their beauty and value are unquestionable, and we would advise all who can, to visit the green-houses of our city where they can be seen now in perfection.

Market Strawberries.

Wilson's Albany Seedling stands, by common consent, at the head of the list of market strawberries. It is unfortunate that it does so, very unfortunate, if we are going to be contented with fruit of such inferior quality. It has earliness, fruitfulness and firmness to recommend it, but whether it is best adapted to eating or making vinegar is a problem. We are inclined to think that outside of countries where sugar is a spontaneous production it is best adapted to the latter purpose. Market men say, we acknowledge this, but because it is early, prolific and stands transportation, therefore we grow it. But have the proper efforts been made to secure as early and firm a berry of better quality? We think not. New varieties are annually produced, but size seems to be the main element sought. This is very well for domestic purposes—size and flavor are most desirable in berries for home consumption—but for market purposes, earliness and firmness combined with a good yield are essential. Cannot some of our growers, by hybridizing, produce a variety which shall add good flavor to these necessary qualities? In this connection, we commend the Russell Prolific to the attention of dealers and amateurs as a first-class berry, superior to the Wilson in every respect, except earliness. A hybrid from it and the Early Scarlet, or some other early, good flavored berry, would probably supply the desideratum of a good early market fruit.

The Month.

Generally, in this latitude, the weather is sufficiently open during the present month to admit of a great deal of horticultural work; and while monthly calendars are not to our taste, nor, as a rule, very useful, still a synopsis of what may be done in these busy four weeks will, we hope, prove of some value.

The first work in point of importance, as well as time, is to exercise patience. Get ready to work the ground; but be careful not to do it until the soil is ready to be worked. Far better to plant late than plant in wet land. White waiting on soil and season, arrange your work in somewhat the following order:

The Orchard.—If young trees are to be planted, put your order in the nurseryman's hands at once, and if the trees arrive before you are ready, "heel them in," and have them at hand.

The Kitchen Garden.—Procure your seed immediately. Put manure on the ground, and plant as soon as the ground becomes warm. It is useless sowing in cold wet soils, as the seed not only will not grow without some warmth, but may rot.

The Flower Garden.—Plant hardy roses and shrubs, but wait until April to sow annuals and set out bedding plants.

If, by the first of April, you have accomplished one-half that you wished to have done, be satisfied, and congratulate yourself upon your progress. This much in general; for particulars, consult your seedsmen and nurserymen's catalogues.

Horticultural Exchanges.

THE HORTICULTURIST, HENRY T. WILLIAMS, EDITOR AND PROPRIETOR.—Accidentally, we failed to notice in our last issue the change in the proprietorship in this old horticultural favorite. We do not now regret the omission. For while the first number, under the new management, gave promise of great improvement both in mechanical and mental execution; the second not only fulfils the promise, but improves upon it. Mr. Williams evidently understands his work, and combines with the knowledge of the wants of the public the fullest capacity to satisfy them. We wish him all the success he and his magazine so richly merit.

THE GARDENER'S MONTHLY continues to come laden with good things, nothing useless, no long spun theories, but scientific, practical, plain, valuable truths and instructions.

THE JOURNAL OF HORTICULTURE drops in upon us semi-occasionally. Our recollection of it is that it was a very handsome book. If we saw it oftener, we might find something desirable in it.

Lawns.

BY H. W. SARGENT, ESQ., WODENETHE, N. Y.

I perfectly agree with your views in the December *Monthly*, about top-dressing lawns "with fine soil," as I think the constant top-dressing during the summer, by allowing the grass to fall is not sufficient in itself, without occasionally the heavier food, of the "fine soil," once in three or four years—applied during the winter. But in my neighborhood, and generally throughout the country, an application of soil, as a top-dressing, invariably brings in a great accession of that destructive weed, "The Summer or Crab Grass."

It seems so peculiarly congenial to our places, that I am afraid to use any fresh or even old soil, unless where it can be kept cleaned or weeded. The older our lawns the more completely (from July to 16th September) are they overrun with this pernicious weed.

For two years, while I was abroad, at the suggestion of Professor Gray, I did not cut my lawn after 1st of June until October, hoping to crowd it out, and I did to some considerable extent; but still last September I had six men for three or four weeks digging out what remained. Should I top-dress my lawn with "fine soil," I should have it as bad as it was three years ago, and yet I have sufficient fine soil from an old grape border to cover it half an inch thick, but I am afraid to use it, though my lawn requires it, and as the grass has very much run out, and though the lawn is very green, yet its verdure is principally from moss, veronica and other creeping weeds.

By far the cleanest and softest and greenest lawn in this or any other country is Mr. Hunnewell's, at Wellesley. Neither summer grass, dandelion, or any weeds are ever seen there, and yet his lawn is constantly top-dressed with soil, but soil that has been burnt.

Mr. Hunnewell is in the habit of getting out of a swamp vast quantities of muck, and stocking it in alternate layers with old brush—when quite dry—it is set on fire and damp brush kept constantly heaped upon it to dampen the flames; this is kept up for several weeks a smouldering fire. By the autumn it is turned over several times, and then spread upon his lawn. The seeds of all weeds are probably destroyed, and I am satisfied that where crab grass or summer grass prevails as it does in this State, the soil used as a top-dressing must be either burnt or else turned over so often as to vegetate and destroy all seeds.—*Gardener's Monthly*.

HOW TO RAISE SAGE.—Mrs. Sarah Ann Browning, Watertown, Washington county, Ohio: I see through the Club report that there is a man in Missouri who wishes to know how to raise sage. Years ago I had some experience in this plant. I heartily give him my experience. Twenty-two years ago I set out three sage roots on a loose sandy soil, thirteen miles from Little Rock, Arkansas. Every spring I took them up and split them as much as they could be split (which should never be omitted), and set them out again on the same ground as far as it would go, without ploughing any of the ground, merely digging a hole with the spade in rows about two feet apart one way and eighteen inches the other; every year putting in not less than one pint of hog's manure to the hill, which had been piled up in the fall and well rotted. Till the sixth year I manured with cow manure prepared the same way. That was an uncommon wet year, and I picked, I have forgotten just how much, but less than half glutted the market. I picked not less than 115 pounds that year, perhaps more. I thought there were fifty pounds wasted on account of sickness. That was my last year of raising sage; not because I did not find it profitable, for it was very profitable. I could earn \$1.25 a day by selling my sage for thirty-five cents per pound (as I did), and work eight hours a day in any ordinary season. After letting your sage leaves get their growth, pick by breaking off the little tender branches with the leaves on them. They should be picked while they are tender enough to rub up into powder when dry. By so doing you will have two or three, and sometimes four, new branches where you had one old one. Never allow your sage, if you can possibly help it, to start to seed, for if you do you will not get much sage. I have always heard it said that sage must be dried in the shade, but I was obliged to dry the most of mine in the sun. It looked very fair, and there were not any questions asked as to where it was dried. I did not perceive that it smelled or tasted any different from that dried in the shade. It must be stirred occasionally while drying.—*N. Y. Tribune.*

[This will do for those who want a permanent sage bed; but those who want a good annual crop, had better sow the seed every spring and transplant from seed bed as they do cabbage plants. The young plants spread rapidly into bushes, and may be cut down in September and October, precisely as cabbage is cut. This is more economical and profitable than keeping up old sage beds. EDITOR.]

HORSE-RADISH.—This is a very valuable plant; and yet its cultivation has been very much neglected. A few plants may be found about the garden of almost every old homestead, receiving no notice except when some of it is wanted for the table. It will grow in any good soil, but prefers one that is moist and rich. It is very easily propagated from pieces of roots, planted in rows, and covered five

or six inches deep. If the land has been well prepared, after the second year's growth it will be fit for use. The large, straight, smooth roots are more valuable for the market, as there is less waste in grating it. The time for using it is during the winter and early spring months; and it should be taken up in November, placed in the cellar, and covered with earth to keep it moist, and prevent it from shrivelling. It is said to possess healthful qualities, which, added to its agreeable flavor, when eaten in limited quantities with meats, all render it very desirable. Every owner of a garden should be sure and raise enough of it for family use.—*Journal Horticulture.*

SOME ROSE BUSH.—The Agricultural Editor of the *Augusta (Ga.) Chronicle and Sentinel* tell us the following:

For example, we stated that we could exhibit a *Rose Bush* twelve inches in diameter at the butt, seventy feet high, and extending, from the extreme of the branches on either side, sixty feet; and that this *Rose Bush* was a *Cloth of Gold*, growing in the open air. Now we re-state it, stick to it, and put it down in print, that we have such a *Cloth of Gold*; and that it is to be found and can be seen by all, trained upon the front wall of the east building of the *Augusta Factory*. We invite our horticultural friends to revisit us, and apply their own admeasurements, to this our *Rose Bush*, as well as to other things; and we promise, while enjoying their "*goodly companie*," to spare no pains to satisfy them on all points, including even our "*opinion of Rogers' Hybrid*."

TOMATO SUGAR.—*Mr. Joseph S. Williams, Cinnaminson, N. J.*, writes: "It is no uncommon yield to take 1,000 bushels of tomatoes from an acre, and 100 bushels will press 4,000 to 5,000 gallons of juice, which, if distilled after the proper ingredients are added, with due time to complete fermentation, from 500 to 700 gallons of proof spirits, which have, by liquor dealers not knowing the liquor, been pronounced new peach brandy, apple brandy, &c. I have made it an object to get the opinion both of the physician and liquor judges; and believe it to be a liquor which is healthy and medical, and can be manufactured at lower figures in larger quantities, and with tenfold the certainty of any other fruit spirits, and must in time be the great resource for obtaining alcoholic spirits, as there is no crop which will yield as many bushels per acre with same certainty, with as little expense.—*Gardener's Monthly.*

Osier Willows.

Recently a correspondent asked us about the culture of the basket-willow. A correspondent of the Country Gentlemen at Havanah N. Y., furnishes an answer to our correspondent's inquiries as follows;—"Large quantities of the basket-willow are-grown in this vicinity, especially on the marsh at the head of Seneca Lake. The demand for peeled willows is always brisk, but we understand that unpeeled willows do not find ready sale. Our experience is, however, that for all practical purposes baskets made of the unpeeled willow are altogether the best. In Scotland, some years ago, almost all the baskets used on the farms were made by the farm hands while sitting around the fire during the long winter evenings.

The peeling of the willows is performed by very cheap and simple machinery driven by a horse, so that the capital required in this department is not very great.

It is stated by most writers that osiers do not thrive well on peaty soil. If they are correct, there must be something wrong about my ideas of 'thriving;' for most of the osiers here are grown on soil which looks very much as if it were peaty, and we have a little patch of a few square rods which grows on a peat bed of greater depth than has yet been fathomed. They will not grow well in stagnant water, but they do best in moist ground. It is said that they will not do very well on very dry upland. I have seen a remarkable exception to this in willows grown on the farm of the Ag. College of Pennsylvania. There is no water on that farm, and except along a small strip it is found impossible to reach water by the ordinary process of well-digging—and yet willows thrive well there. There is a small collection of willows in the College Garden (*Salix vitellina*, *purpurea*, *viminialis*, *annuralis*, and some others) and they all seem to do well, our impression is that any good, rich soil, not covered with stagnant water will produce good crops of osiers. It has been found that the osier is much benefitted by thorough drainage as is any other plant.

Osiers are usually set out in rows two feet to thirty inches apart and the stools or cutting twelve inches apart in the rows. After a time the plants will be found to be too close and then every alternate plant should be grubbed up. This requires about twenty thousand cuttings to the acre. There are two methods of setting out osiers. One is to use cuttings twelve to sixteen inches in length, inserted in the ground vertically. The other is to use long poles buried in the trenches one or two inches deep. These poles send out

roots and throw up shoots from every part of their length, so that in a short time the young shoots form a perfect hedge.

Whatever may be said to the contrary, it is the opinion of our best growers that no plant is more benefitted by clean culture than the osier.

A Massachusetts correspondent of the *New England Farmer*, who has had large experience in the culture of the basket willow, writes: "The soil best adapted to the growth of European basket-willow has been generally supposed to be a heavy soil—nearly every wet plantation which has come within the range of my observation having been set on meadow land,—but from experiments made on a variety of soils, I am satisfied that this is a mistake. To my surprise I have found them to make a much better growth on a sand bank, than on a rich, wet meadow. They seem to make the best growth on a warm, rich sandy loam, where either corn or potatoes would grow luxuriantly. On such soil they sometimes make a growth of ten feet in one season and will make an averaged growth of six to eight feet; being very straight and slim, surpassing in quality anything I have ever seen imported. Our hot sun seems exactly adapted to its growth. During our hottest days in July, in a warm soil, they will make a growth of from three to four inches in twenty four hours, while in a wet day they grow not more than one-half an inch.

To prepare the soil for a plantation it should be ploughed and planted two years with some crop which requires the land to be well cultivated; and should also be made rich enough to produce not less than fifty bushels of Indian corn to the acre.

In transplanting the willows, tops are preferred to roots; twigs about one-half an inch in diameter should be selected and cut from twelve to fifteen inches in length. As early in April as the weather will permit the land should be well ploughed and furrowed three feet apart. In these furrows the cuttings should be set one foot from each other, not perpendicular, but on an angle of about forty-five degrees. The first year the land should be well cultivated. After this they require but very little attention, except harvesting the crop.

The first year's growth should not be cut, but after the second year's growth, sometime between October and March, they should be cut as near the ground as possible. This crop is worth but little, except to make cuttings for a new plantation; but after this, a valuable crop may be cut every year between December and March—February being the best month, if the weather is not too cold and

the snow is not too deep. No injury will occur to the roots if the crop is secured before the warm days in March start the circulation of sap. The canes should be bound in bundles of about fifty pounds each, and set in three or four inches of water. Some time in May it will be found the bark will peel off very easily. They should then be stripped and sent to market.—*Rural New Yorker*.

The Feeding Roots of Trees.

[We bespeak from our readers a careful perusal of the following article from the *Gardener's Monthly*. Mr. Meehan in this as in most matters pertaining to Horticulture, speaks from the book of nature; and while the position he assumes on this subject militates against all the teachings and practices of our forefathers, nevertheless, our daily observation and experience sustain his views, and prove our former ideas to have been erroneous. Better a thousand times sow the orchard down in grass than to be constantly tearing off the *fibrous feeding* roots with the plough.—ED.]

It is not without some pride that the Editor of the *Gardeners's Monthly* finds so many of his observations and opinions, which, on their first promulgation regarded as wild theories, finally come to be received as scientific truths. He owes his success in these matters to being in no haste to publish his views. In many cases he has spent several years in endeavoring to be *sure of his facts*, before uttering a word. These facts he prefers to gather with his own senses from the great book of nature, rather than to reading about them in the best libraries ever formed. There is no other way in which one can properly advocate a point, if he would not be at the mercy of every critic that chooses to object to him. The only inconvenience is, that pressing our views with the positiveness of one who knows he is right and believes in the value of what he teaches, we lay ourselves open to charges of vanity, perversity, or notoriety seeking. The following from *Colman's Rural World* is an "illustration:"

The *Gardener's Monthly* seems to wish to make itself notorious, by advocating the growing of fruit in grass, or having the roots very near the surface, and not to cultivate as we would a field of corn. We consider such advice and teachings a damage to fruit growing. It leads many, whom we think otherwise would cultivate and grow fruit, to meet with failure of time, and *faith* in fruit growing in many sections of our country. This new system of non-cultivation and pruning may answer very well for some limited lo-

calities, but for us, of the West, will not answer. To be successful—when our trees come into bearing—they need long roots, that go down into the damp clay, to keep life and vigor in them through our long summers of intense heat and dryness. A tree to acquire vigor, health and long life, should be *thoroughly* cultivated. How often do we see old and infirm orchards brought to renewed life—recuperated from almost barrenness to thrifty, productive orchards by plowing up the grass, manuring and *cultivating* the same.

Now we thank all who point out any errors we may start, as cordially as we value the commendation of admirers. Of course it is pleasant to have these objections made in a friendly spirit; but yet better have an error flayed out of the public body, even though a sugar pill would do as well, than have a festering sore remain.

Now in the extract we have above given, there is nothing much that we can say here without great repetition; of course our readers know that we don't care for the *grass* in an orchard. If this writer chooses to put enough compost on his fruit orchard annually to prevent a blade of grass from growing, we should say he did very well, much better than by letting the grass grow. The grass we have spoken about, is but a *means to an end*. If that end can be better accomplished by other means, so be it.

Now it is strange that this cry about the damage our views about fruit growing *would do* if adopted generally, should come from the West along with another cry that fruit growing *is now a failure*. President Brown, of the Illinois Horticultural Society, says in a recent speech, that Fruit-growers' Societies, originally instituted to tell us "what varieties to plant," now have a graver duty to tell us "how to grow fruit trees." He speaks of failures every where. So in the East, the advocates of deep rooting are every where admitting their failure; but we shall not enter into this matter here, our present object being to show where those who think as the writer of the extract above thinks are *radically* wrong.

Nearly twenty-five years ago, we found that the *root fibres* of trees were only *annual*—like the leaves, they died every year. In 1853 we published it as a fact; we have fought it through until we believe it is now accepted as *scientific truth*. They have the same relation to the main roots as the leaves have to the branches, except that while the leaves are the preparers of the food—the cooks,—the fibres are the providers—the husbandmen of the cooks. Just as the branches are of use only as supporters of the leaves, which, like the ancient rib of Adam, are formed by morphological laws out

of tree bodies; so the main roots are only of benefit in so far as they afford the material out of which fibres are formed, to hold the tree in position, and possibly, in a very small degree, to draw in moisture.

Remembering this, now take up very carefully a young tree, and we find that the fibres are nearly *all on the surface*, and that they decrease in number and importance with every inch of depth. In the largest trees scarcely a fibre will be found one foot from the top, large roots—tap roots—you may and will find, but no root that is of the slightest benefit to the *nutrition of the tree*. How then a tree can be benefitted by the destruction of this large army of agricultural laborers, toiling at the surface to maintain the growing nation thriving in its many industrial occupations above them we do not understand.

When we look back and see that it has already taken twenty years to have these simple truths generally recognized as correct, we hardly expect to live to see the credit awarded to us of being the founder of an entirely new system of fruit culture; but we do feel that after we are dead and gone, the new generation will wonder why the old one was so stupid as to cling to a system, which they continually acknowledged a failure; which took its rise from, and had no better authority than, the fables of Æsop; and which they were shown was clearly opposed to principles, the truth of which they could not dispute.

The Va. Horticultural and Pomological Society.

At a meeting of the Executive Committee of this Society held at its rooms on the evening of February 25th, the report of the Committee appointed to confer with the State Agricultural Society in reference to a union of the annual exhibitions of the two Societies, were read and approved and the plan of union as reported by the Committee was adopted.

By agreement of the Executive Committees of the two Societies; all that portion of the Annual exhibition of the Agricultural Society pertaining and appropriate to the Horticultural and Pomological is placed under the control and direction of the latter, subject to the rules and regulations governing the former Society.

The following gentlemen were appointed a committee to confer with a similar committee from the Agricultural Society, in regard to

a basis for permanent union, W. H. Haxall Esq. Dr. S. P. Moore, I. S. Tower.

Standing Committees of five were appointed on the following subjects, (the Chairman of each Committee to select the remaining members):

Fruits—Franklin Davis, Esq.

Flowers—Dr. J. T. Johnson.

Vegetables—Joseph R. Rennie, Esq.

Wines—Wm. H. Haxall, Esq.

Essays—Dr. S. P. Moore.

Horticultural Implement—I. S. Tower, Esq.

Statistics—Col. Wm. Allan.

Arrangements—Capt. Chas. H. Dimmock.

Premiums and Awards—Dr. S. P. Moore, and the Chairmen of the various Standing Committees.

After the appointment of canvasser, the Committee adjourned to meet on Thursday, March 18th, at which time the Committee on Premiums and Awards will report a schedule of Premiums for the Annual exhibition.

The duties that devolve upon this Society are of great general interest and utility. The collection and dissemination of information and statistics, the fostering all that pertains to the Horticultural and Pomological interests of the State, is an extensive and responsible work calling for the hearty support and co-operation of our entire people. We hope our readers will join money and labor in helping it forward. With the sympathy and assistance it deserves, the Society will doubtless make an exhibition worthy of our highest expectations.

The plan adopted by this Society, for the prosecution of its aims is a most excellent one. Each Standing Committee is responsible for the management and development of its particular branch, and we congratulate the Society upon having at the head of these Committees gentlemen so well qualified for the duties assigned them.

DURING the miocene period, as proved by Professor Heer, of Switzerland, there existed such an extensive flora in Spitzbergen, Iceland, and Greeland as leaves little doubt that forests then flourished, even to the very edge of the Polar Sea—containing such trees as are now characteristic of Austrian, American or Asiatic temperate latitudes.—*The Horticulturist.*

THE SOUTHERN PLANTER AND FARMER.

RICHMOND, VIRGINIA, MARCH, 1869.

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Editorial Department.

Fertilizers for Corn.

We promised in our last issue to say something in this number on the kind of bought fertilizers to be used for corn. We have solicited several parties who have used fertilizers on corn to give us their experience; but so far have only heard from one of them. We refer to his article and hope by April to have more reports and to be enabled to make some suggestions, which if adopted we are sure will be of ultimate, if not present value.

Lespidiza Striata Once More.

In January last the writer of this editorial stated that the above plant had been killed dead by the same frost that killed the crab amongst which a part of it grew.

On this 23d day of February, though the winter has been the mildest seen for many years, and the red and white clover have put out many leaves from old roots and many fresh seedling plants, and the spear grasses are showing many fresh blades, we see only a *very few* straggling plants on the plot of Lespidiza, and those so small that we cannot tell whether they be of that plant or of creeping yellow clover. Exit Lespidiza Striata.

Coleworts.

The time approaches for our experiment which we shall be very glad if some of our readers will try.

We have been a long time looking out for some hardy member of the Cabbage family that can stand our winters in the open field, that does not mind freezing and thawing. We need something of the kind to take the place of turnips, which, invaluable as they are in English Agriculture, are yet a very great humbug if cultivated for stock feed in the United States, more especially in Virginia at any time; but more particularly now.

Last December, a friend from the neighborhood of Petersburg told us that if the sprouts of cabbage stalks which had had their heads taken off in the winter, were permitted to seed, and those seed saved as cabbages are, that their plants would never head like a cabbage, but would undoubtedly make a colwort (or greens,) that would stand the hardest winter in the open air.

Mind now; if the sprout is taken off clipped, they sometimes call it, and set out, *that* will make a cabbage of the same sort with the parent stalk, at least so said our friend. But we repeat it, the sprout must not be taken from the stalk, but must be permitted to seed *on it*, and that seed it is said, makes the hardy colwort.

Will several persons please try it, and report results. If they establish the fact, they will have done a very useful thing.

Lice in Hen-Houses.

A good plan to get rid of these troublesome things is to take strips of sturgeon skin about six inches to a foot square and nail them up in different parts of the hen-house, and hang them also about on the roosts. We have tried this and find it effectual. We do not mean that it is a substitute for cleaning out the houses; sanitary considerations prescribe that. But the houses having been cleaned out, the use of these bits of skins, and not as abundantly as the directions require, kept the lice away effectually.

Acknowledgments for Seeds of Flowers and Vegetables.

We owe our thanks to Mr. Vick of Rochester for a large collection—forty seven papers, of the seed of rare and beautiful plants.

We also return our acknowledgments to Col. Capron, of the Department of Agriculture, for a collection of several varieties of choice vegetable seeds. The quantity sent is not large, but we are none the less obliged. The only wonder is, that with such numerous demands on him he was able to send us any.

Mill for Grinding Bones in Richmond.

We are glad to be able to state that we have at last a mill for grinding bones established in Richmond. The Messrs. McGruders, manipulators, have it in charge. We have not compared their prices with those of other Manufacturers. But we hope they will sell at as low rates as any others, and make a fair profit on the venture the basis of their prices rather than the rates of Manufacturers who consign the manures to this market.

The following letter is from one of the most judicious men we have ever known. In all our money transactions we have been in the habit of consulting him, and whenever practicable, of covering his investments. We advise every-

body to do likewise, certainly to the extent indicated in his letter. He modestly calls himself "an entered apprentice;" but a "bore broker" soon becomes a master workmen in whatever he undertakes.

ASTON PARK, *February 11, 1869.*

Wm. L. Hill, General Agent, Richmond Va.

DEAR SIR—I have yours of the 9th. inst., and owe you apology for not making this remittance sooner, find enclosed a check for my subscription to 1870. You need not give yourself any uneasiness about my discontinuance of the *Planter*, even if you were to treble the subscription, it is stored with information useful, interesting and valuable to the young farmer, to which fraternity I am but "an entered apprentice."

Yours Truly,

To Dealers and Manufacturers of Agricultural Implements.

We call the attention of all this class of our subscribers to the following letter from Colonel Capron, the Commissioner of Agriculture; and beg that they will respond to the invitation. The Department of Agriculture is now in its infancy; but under our grand consolidated Government, it can play a very important part in aiding and developing the Agricultural Industry of the country.

As the Industry of the South is destined for some time to come to consist more of its agriculture than of any other branch of national wealth, we shall hope to see that department the full recipient of Government bounty and protection.

DEPARTMENT OF AGRICULTURE, WASHINGTON, *Feb'y 9, 1869.*

C. B. Williams, Esq., Editor Southern Planter, Richmond, Va.:

SIR,—I desire to obtain either drawings or prints of cuts of ploughs and other agricultural implements and devices used in your vicinity, with reference to the preparation of an article on Southern Agricultural Implements. May I trouble you to obtain from manufacturers, dealers or others, such cuts or drawings, and also a description of them and an accurate idea of their special uses and comparative value? Suitable compensation will be awarded for the service, which I should be glad to have done at once. If you cannot readily obtain all you desire at once, please forward what is readily accessible without delay, and oblige,

Yours, respectfully,

HORACE CAPRON, *Commissioner.*

The Late Thomas Affleck, Esq.

It is with deep regret we chronicle the death of Thomas Affleck, Esq., of Brenham, Texas. For many years he was identified with the South in all her interests, but more especially with the cause of Agriculture. By his pen and practical experience he has rendered good service, and he leaves behind him a well deserved and honored name. The good and true men of advanced years are one by one departing. Let those of us who await the summons emulate their good deeds that, like them, we may be held in lasting remembrance.

Smoking and Chewing Tobacco.

We should be very ungrateful if we did not render our thanks to Mr. Geo. W. Gilliam, manufacturer, for a very fine sample of his celebrated Wine Sap brand of chewing tobacco. We call ourselves a judge of that article, and pronounce this superior.

We have also received from him a couple of bags of his Dead Shot Smoking Tobacco. This we shall reserve for our smoking friends, not being given to the use of the weed in that shape. It looks pretty well on the outside; but that may be owing to the fact that his likeness is on each package; though the likeness is a little flattered.

Answer to Inquiry About Mica (Isinglass).

I have your correspondent's inquiry in relation to Mica, its uses, value, &c. Mica, commonly called "Isinglass," is readily distinguished by its softness, and the ease with which it may be split into transparent scales, or laminae, of extreme tenuity. It has every shade of color, from perfectly colorless, thorough green, to jet black; the laminae reflect light very strongly, and usually present a pearly lustre. It is one of the constituents of granite, gneiss and Mica slate, and gives to the latter its laminated structure. As these rocks belong to what geologists classify as igneous and metamorphic, it follows that the occurrence of Mica is only possible in regions occupied by rocks of these two classes. The igneous and metamorphic regions of Virginia extend from the top of the Blue Ridge to the head of Tide, with here and there a superimposed mass of secondary rocks, such as the coal fields near Richmond, &c., covering a comparatively small area.

As usually seen in building granite, &c., the crystals of Mica are quite small; in certain localities, however, it occurs in separate masses imbedded in the rocks of from a few inches to two and three feet in diameter, and capable of being split into plates as highly polished and transparent as the cut-glass plates of a modern window.

This form of Mica is in demand for certain purposes in the arts. The crude blocks, just as they come from the bed, are bought by the pound. The present price is about fifty cents by the manufacturers of the plates, who split and cut them by machinery, and put them up into pound bundles for sale to consumers.

This mineral resists decomposition by atmospheric agencies, and is hence often abundant in soils formed from granite or other rocks containing it, in the form of small scales. It not unfrequently happens, however, that masses of various sizes are left imbedded in the clay, resulting from the decomposition of the associated feldspar, &c. Such Mica is more or less stained and otherwise injured, and is, therefore, of little or no value.

Yours truly,

W. GILHAM.

Proceedings of the Virginia State Agricultural Society.

THURSDAY—FIRST DAY.

Exchange Hotel, Richmond, February 18, 1869.

A meeting of the Executive Committee of the Virginia State Agricultural Society was held at the Exchange Hotel this evening at 7½ o'clock. Present: Messrs. W. T. Sutherland, President, Jas. Lyons, Lewis E. Harvie, F. N. Watkins, William Martin, A. H. Drewry, Slaughter W. Ficklin, Richard Irby, R. E. Haskins, R. B. Haxall, William C. Knight, F. G. Ruffin.

The Treasurer and Secretary submitted a report, which was referred to a committee composed of Colonel William C. Knight, Richard Irby and William Martin.

The Committee on the Fair Grounds submitted a verbal report, and on motion of F. G. Ruffin, Esq., the committee was continued, and was authorized to have a survey made and map of the grounds prepared.

The Committee of the Horticultural and Pomological Society reported a proposition for an exhibition in connection with the State Agricultural Society next fall. A committee, consisting of Messrs. L. E. Harvie, R. B. Haxall and S. W. Ficklin, was appointed, to whom the proposition was referred.

The resignation of William T. Scott, Esq., one of the Vice-Presidents, was received, and F. G. Ruffin, Esq., was elected in his stead.

On motion of F. N. Watkins, Esq., the second resolution in relation to the Agricultural Commissioner was amended so as to read, "that the travelling and other expenses of the Commissioner be refunded to him."

The resignation of the Treasurer and Secretary, Mr. Charles B. Williams, was received and accepted, and Mr. Egbert G. Leigh, formerly of Amelia, but now of Richmond, was unanimously elected in his stead.

The President was then authorized to arrange for an office for the use of the Society.

FRIDAY—SECOND DAY.

Richmond, February 19, 1869.

At a meeting of the Executive Committee of the State Agricul-

tural Society this day, in pursuance of adjournment, present: Sutherlin, Knight, Watkins, Harvie, Ficklin, Ruffin, Martin, Haxall and McCue:

The committee, to whom was referred the communication of the Horticultural and Pomological Society, made a report, which was accepted, approved, adopted, and is as follows:

RICHMOND, FEBRUARY, 1869.

To the Executive Committee State Agricultural Society:

GENTLEMEN,—At a meeting of the Executive Committee of the Virginia Horticultural and Pomological Society, held at their rooms on December 9th, 1868, it was

Resolved, That a committee of six be appointed to confer with the State Agricultural Society with regard to a union of the annual exhibitions, said committee to have discretionary powers to make and receive such propositions as may seem to them to be mutual interests of the Societies.

The Chair appointed the following committee: H. K. Ellyson, John M. Allan, William Gilham, W. H. Haxall, J. C. Shields and C. B. Williams.

In accordance with the foregoing resolution, we, the committee, propose to the Executive Committee of the State Agricultural Society that they combine the annual exhibitions of the Virginia Horticultural Society with theirs, and as a basis for this proposed combination, beg leave to submit the following propositions:

The State Agricultural Society to give the Executive Committee of the Horticultural and Pomological Society the control and direction of the portion of their exhibition pertaining and appropriate to the latter Society, subject to the "Rules and Regulations" of the Agricultural Society; the Executive Committee of the Horticultural and Pomological Society to be responsible for the management and development of the portion of the exhibition thus placed under their charge. The premium list for articles appertaining to this portion of the exhibition to be offered by the Executive Committee of the Horticultural and Pomological Society, the State Agricultural Society agreeing to assist in furnishing means for this purpose as far as practicable, in the event of a failure on the part of the Horticultural and Pomological Society to raise an adequate amount.

We submit these propositions as a basis for negotiations, and are desirous of forming a union upon these or any other terms that may be acceptable to the two Societies.

Respectfully,

On behalf of committee,

H. K. ELLYSON, *Chairman.*

The committee, to whom was referred the books, accounts and report of C. B. Williams, Esq., late Secretary and Treasurer, made a report, which was accepted, approved and adopted, and is as follows:

VIRGINIA STATE AGRICULTURAL SOCIETY

In account with CHARLES B. WILLIAMS, Treasurer.

1867.		RECEIPTS.	
Dec. 11—	By balance due the Society this day,		\$15 99
1868.			
Jan'y 7—	By cash received for January dividends on stocks, less 5 per cent tax,		1,145 25
Mar. 3—	By cash received of Lancaster & Co. for net proceeds, sales of Virginia Registered Stock sold, 6,100 at 42½c., 30,000 at 43c.,		
	Aggregate,	19,362 50	
	Less Lancaster & Co's charges,	227 45	19,135 05
Dec. 10—	By cash received for two Life Members and one Annual,		42 00
“ 14—	By cash received for one Life Member and one Annual,		22 00
“ 22—	By cash for Annual Members,		80 00
1869.			
Jan. 6—	By State interest of 15,650, less 5 per cent. tax,		297 36
“ 6—	By cash received for Annual Members (25), less commission \$5,		45 00
“ 11—	By interest allowed on deposit,		11 50
“ 13—	By cash received for two Life Memberships paid in,		40 00
“ 15—	By cash received of Thomas D. Neal for thirty-nine Annual Members,		78 00
“ 23—	By cash received for J. L. Carrington's note discounted, \$125, less \$1 29,		123 71
“ 23—	By cash received of Ledley & Hayward rent of Fair Grounds,		250 00
			\$21,292 85

DISBURSEMENTS.

1867.			
Dec. 21—	To cash paid Secretary on account of salary,		13 99
1868.			
Jan. 8—	To Cash paid balance of Secretary's salary to 1st instant,		69 34
Mar. 3—	To cash paid Wm. Shepperson for ditching at Fair Grounds,		3 00
“ 4—	To cash paid Johnson & Williams' fees for examination of title, and preparing papers for the purchase of Fair Grounds,		100 00
“ 4—	To cash paid for copies of two deeds in relation to the Fair Grounds' property, (see account of Johnson & Williams,)		1 25
	Carried forward,		187 58

Amount brought forward,	187 58	
“ 16—To cash paid Wm. H. Macfarland’s trustee for the purchase of Fair Grounds,	17,008 33	
“ 16—To cash paid for stamps for deeds, &c.,	18 00	
“ 16—To cash paid Notarial expenses of obtaining acknowledgment of James Lyons, including hire of horse,	2 00	
“ 18—To cash paid Clerk of Henrico fee and tax recording Deed to Fair Grounds,	3 25	
April 23—To cash paid for advertising for proposals		
“ 25 for fencing Fair Grounds, in three daily papers,	16 25	
May 2 “ 7—To cash paid John A. Glazebrook for furnishing materials, enclosing Fair Grounds, and other work,	1,007 15	
“ 14—To cash paid Viles & Whitaker for new roofing on main pavilion,	447 36	
“ 14—To cash paid J. T. Redd, county surveyor, for plat of ground,	12 00	
“ 14—To cash paid J. T. Redd for running line for fence,	4 00	
“ 20—To cash paid P. Bargamin for tin roofing, painting, &c.,	113 25	
Sept. 2—To cash paid W. Goddin commissions and advertising for effecting lease of Fair Grounds,	42 75	
Dec. 1—To cash paid Secretary’s salary from January 1st, 1868, to December 1st, 1868,	458 34	
1869.		
Jan. 2—To cash paid balance salary of Secretary for December, 1868,	41 67	
“ 15—To cash paid T. D. Neal commission on \$78 at 10 per cent.,	7 80	
“ 15—To cash paid T. D. Neal commission on eighty-seven Life Members,	174 00	
“ 23—To cash paid Ledley & Hayward in full,	842 27	21,286 00
Feb. 18—Balance due the Society,		\$6 85

BALANCE SHEET.

Lancaster and Co.,	6 85	
Contingent Fund,		7,823 96
Real Estate,	20,135 84	
Permanent Fund,		62,230 00
Virginia State Stock,	49,024 95	
Bills Payable,		116 40
Joseph L. Carrington,		125 00
Incidental Expenses,	1,127 72	
	<u>\$70,295 36</u>	<u>\$70,295 36</u>

The committee appointed to audit the accounts of Charles B. Williams, Secretary and Treasurer of the Virginia State Agricultural Society, have per

formed the duty, and report that the accounts have been properly kept and is sustained by correct vouchers, as will appear by the within statement. We find a balance due the Society of \$6 85 (six 85 100 dollars), and that there is a permanent investment of \$15,650 00 in Virginia Registered Stock of old issue, and \$2,800 of Virginia Registered Stock of new issue, which is of no value; and there is, subject to the contingent purposes of the Society, in the shape of funded interest bonds \$4,610. There is also a balance of retained interest in the hands of the State of about \$1,500, for which the Treasurer will procure a certificate if one can be had, and, if not, a statement of the precise amount which stands to the credit of the Society on this account.

W. C. KNIGHT,
For the Committee.

The committee appointed at the January meeting in regard to Sub-Committees made a report, which was accepted, approved and adopted, and is as follows :

The Committee on Sub Committees, appointed at the January meeting, recommend the adoption of the following resolutions, to-wit:

1. *Resolved*, That a committee of three (the chairman of said committee being one of the Executive Committee) be appointed for each Department of Exhibition at the Annual Fair, whose duties shall be to solicit articles of exhibition in said departments; to report to the April meeting such sub divisions in said departments as they may deem expedient; to recommend suitable persons, male and female, as judges in the award of Premiums in such sub-divisions and the amounts of Premiums, and to report rules and regulations for the management of their several departments and exhibitions therein.

2. That the following committees be appointed under the first resolution :

1. *On Agricultural Implements and Mechanical Productions, including Ploughing Match*—Messrs. W. C. Knight, R. Irby and A. H. Drewry.

2. *Experiments in Agriculture and Horticulture*—Messrs. R. W. N. Noland, John M. Allan and Jacob Fuller.

3. *On Cattle, including Hogs, Sheep*—Messrs. Joseph Cloyd, S. W. Ficklin and S. H. Bell.

4. *Horses, including Asses and Mules*—Messrs. R. B. Haxall, R. H. Dulany and Thomas W. Doswell.

5. *Poultry*—Messrs. John McCue and S. Bassett French.

6. *Household Manufactures, including Carpets, Hose, Bed Quilts, &c.*—Messrs. F. N. Watkins, R. P. Richardson and George B. Stacy.

7. *Agricultural Products*—Dr. R. E. Haskins, William Martin and John R. Edmunds.

8. *Essays and Publications*—Messrs. F. G. Ruffin, C. B. Williams and E. Ruffin, Jr.

9. *Manufactures—Department Other than Household*—Messrs. F. Stearns, J. R. Anderson and William E. Tanner.

10. *Dairy*—Messrs. William T. Walker, Peyton Johnston and Thomas Branch.

11. *Paintings and Works of Art*—Messrs. James Lyons, William H. Haxall and Thomas T. Giles.

12. *Addresses*—Messrs. William T. Sutherlin, James Lyons and R. B. Haxall.

13. *Miscellaneous Subjects not included in the Above*—Messrs. L. E. Harvie, J. C. Shields and John B. Baldwin.

On motion of Mr. Watkins,

Resolved, That the members of the Executive Committee be requested to correspond with, and file with the Secretary, names for suitable persons for judges in the several Departments at the Fair.

The committee also recommend the adoption of the following resolutions:

Resolved, That the President and Secretary be authorized to appoint local agents throughout the State to solicit members, allowing a commission of ten per cent., taking care to appoint only prompt and responsible persons, and furnishing them certificates, taking receipts therefor, and requiring monthly reports and settlements with said agents, and the members of the Executive Committee be requested to furnish names of local agents to the President and Secretary.

Resolved, That the Secretary open a correspondence and exchange of publications with such other Boards or Associations as will, in his judgment, aid this Society in its purposes and aims, and that he obtain from the Department of Agriculture a complete set of its annual reports, and furnish to the Department the organization of this Society.

Resolved, That a brief address be prepared by the President to the people of Virginia, male and female, requesting their prompt and zealous co-operation in the reconstruction of the Virginia State Agricultural Society by becoming members, giving notice of the Fair, and requesting our citizens to make an exhibition of the results of their skill, care and labor, not only on the farm, but in all the varied and useful departments of skill and industry, and to compete for premiums in accordance with the established rules of the Society.

Resolved, That a committee of two be appointed to report whether any and what measures, by legislation or otherwise, can be adopted to protect farmers against impostors in the purchase of commercial manures.

Resolved, That the President be authorized to appoint the several committees this day ordered, furnish their names to the Secretary, who is instructed to notify the several members of their appointment.

Resolved, That a committee of two, in connection with the President, be a committee of invitation to invite distinguished agriculturists to attend the annual Fair—*Committee*: Sutherlin, Haxall and F. G. Ruffin.

Resolved, That the Secretary be instructed to procure a copy of the transactions of the Virginia Agricultural Society.

Resolved, That the next regular meeting of the Executive Committee be held on Thursday, the 29th of April, in lieu of the May meeting.

Resolved, That the Secretary apply to the authorities of the various railroads and procure passes for the members of the Executive Committee, in pursuance with an agreement heretofore made with the President.

Resolved, That the President be requested to confer with the authorities of the various lines of public travel, and arrange with them on what terms members of the Society and articles for exhibition can be passed over their roads.

The following resolutions of thanks to Mr. Charles B. Williams, the retiring Secretary, was unanimously adopted:

Whereas, Charles B. Williams, Esq., has resigned his position as Secretary of the Virginia State Agricultural Society, a position he has so ably filled for many years; therefore, be it

Resolved, 1. That the committee, for itself and for the Society which it rep-

resents, takes this occasion to express to Mr. Williams their most sincere regret at sundering a connection which has been cemented by so many years of pleasant fellowship in the service of the Society.

2. That Mr. Williams carries with him into his retirement from the active duties of business our entire confidence in him as a faithful public officer and a gentleman of the old Virginia School.

3. That the gratitude of the Society is rightly due to Mr. Williams for his fidelity and tact in preserving the funds of the Society safely during the perilous times of the war, when so many persons and associations lost their all.

4. That these resolutions be spread on the Journal and published in the proceedings of the Society, and a copy be furnished to Mr. Williams.

5. That Mr. Williams be made an Honorary member of this Society.

Resolved, That the Secretary be authorized, from time to time, to furnish to the press information in reference to the proceedings of this committee.

Resolved, That the Executive Committee cordially invites all the manufacturers of the State to exhibit samples of their various wares at the annual exhibition of this Society.

Resolved, That the manufacturers of this and other States be invited to donate to the Society specimens of their manufacture to be offered by the Society as special premiums for such objects as may be deemed expedient.

Tuesday, the 2d day of November, 1869, was fixed as the first day of the Annual Fair of 1869.

The following resolution on immigration was offered by Colonel J. Marshall McCue :

Resolved, That with a view of extending the sanction of the State Agricultural Society, through its Executive Committee, to every project that has for its object the encouragement of immigration into Virginia, that a sub-committee be appointed to confer with the railroad and steamboat lines of the North to induce them to arrange such rates of reduced fare as will effect the end desired.

Committee: McCue, Imboden and Ficklin.

Resolved, That the Presidents of the Augusta County Fair, the Rockbridge Agricultural and Mechanical Society, the South-west Virginia Agricultural Society, Valley Agricultural Society at Winchester, the Virginia State Horticultural and Pomological Society, and of the Border Agricultural Society at Danville, be invited to attend the stated meetings of this committee, and to this end that the Society be directed to notify those gentlemen of said meetings, and that they be requested to co-operate with us in advancing the mutual interests of this and their Societies, and that the said Presidents be regarded as Honorary Members of this committee; and the Secretary is directed to communicate to them a copy of this resolution.

Resolved, That Colonel William Gilham, late Professor of Natural Philosophy and Chemistry at the Virginia Military Institute, be appointed the Chemist to the Executive Committee of the Virginia State Agricultural Society.

Resolved, That one day at each quarterly meeting of the Executive Committee shall be designated by the President for the purpose of colloquial discussion upon practical farming, planting and horticulture, and that the President be authorized to invite gentlemen of known skill, or high reputation, in those branches, to attend such meetings in person, or to send essays upon them as they may prefer.

Resolved, That the Secretary and Treasurer shall execute his official bond required by the constitution in the penalty of ten thousand dollars, and deposit the same with the President for safe keeping.

Resolved, That the Committee on the Fair Grounds be authorized to expend a sum not exceeding \$500 in repairs and improvements of the Grounds.

Resolved, That the Secretary, under the direction of the President, be authorized to borrow such sums of money as may be necessary to meet the current demands of the Society, and to this end he, under like direction, be authorized to hypothecate as collateral security the Funded Interest Bonds of the Society.

The Committee then adjourned to Thursday, the 29th of April.

E. G. LEIGH, *Secretary*.

THE SOUTHERN PLANTER & FARMER,

DEVOTED TO

Agriculture, Horticulture and the Mining, Mechanic and Household Arts.

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

CH: B. WILLIAMS, EDITOR AND PROPRIETOR.
FRANK G. RUFFIN, Co-EDITOR.

New Series.

RICHMOND, VA., APRIL, 1869.

Vol. III---No. 4.

Office of Physical Survey of the State, Virginia Military Institute.

I place at your disposal for publication the accompanying "abstract log" from Amelia, hoping it will encourage gentlemen in other parts of the State to follow so good an example.

This capital letter is a reply to the circular call expressed in the 6th, 7th and 8th paragraphs; and now in the course of distribution, and copies of which it will give me great pleasure to send to all who will apply for them :

6. "Let me, therefore, have such information as to the climate, soil and productions of your county, that a man of capital, being a stranger and desiring to establish himself among you, would like to have: such as the price of land and labor; the kind of timber and other growth; the cost of clearing and cultivation; the staple crops; their yield to the acre; their market value; your most profitable branches of industry; health and water; convenience to market, to church, to schools and to the post-office; and as a practical proof of what a man may do, cite by way of illustration, one or two of the most successful cases of farming or other industrial pursuits known in your county: such as the man among your acquaintance who, since the war, has prospered most according to his means—the particulars. It would be well, also, to mention one or two of your old citizens who began the world as a poor man and now is prospering, and whose example is worthy of imitation.

7. "Fancy, also, a stranger desirous of settling in your neighborhood: suppose him to be a young married man; that both he

and his wife are well up in the business of farming; of grape and fruit culture; of stock raising, or other special industries. Assume that they have a cash capital of some five hundred dollars in gold, and wish to purchase a farm of not less than forty acres. What would it cost? and what would be the usual terms of payment? what would it cost to build him a cabin—frame or log—with two rooms? ditto, the necessary outhouses and to fit them up? what would be the price of a horse or mule? a cow and a calf? a sow and pigs? half a dozen sheep? a sufficient stock of fowls? ditto, the necessary farming implements, including a cart or wagon and a wheelbarrow?

S. "What would be the price of fruit trees? vines and fruit plants? what breadth of land should be devoted to vegetables and to each of the agricultural staples? what the cost of seed? the yield per acre in kind and money? profits from the garden, dairy and poultry yard? &c."

Answers to these questions come in slowly. Some appear to think all that is necessary is to fill up the "*pro forma* estimate," which accompanies these questions, when the real object and aim of the circular is to enable me to present in the next Report—and especially for the European emigrant, who cannot afford first to come over and "prospect" for himself—just such information as gentlemen from the neighboring States are coming among us daily to seek, preparatory to "settling."

Considering we have no public lands to offer to the immigrant, and no encouragement to give save that which is offered by the physical geography of the State with the benignant bounties of nature and the generous hospitality of her people, I shall despair of rendering much service to the cause of *foreign* immigration, unless the experienced farmers of the State will second me heartily and come forward more readily to assist me with their practical information, which they alone possess concerning climate. Surely there may be one found in each county of the State willing to contribute his "mite" in the manner sought, and for a consummation so devoutly to be wished.

As a class, the emigrants from Germany and other parts of Northern Europe have most solid men among them. An average of \$500 in gold is quite as much as each able-bodied man brings with him. It is a point of ambition with him, an aspiration, a day-dream, to become a "landed proprietor." It would not argue wisdom to ignore this trait in his character. Therefore, taking one part of the State with another, a farm of about forty acres would, I imagine, be about as much as a young man and wife with \$500 in gold could at first afford to buy, stock and cultivate. Taxes are too

heavy and money too valuable for him to let any of his \$500 go for lands that are not required for immediate and actual use and cultivation. Nevertheless, I am told by some of my correspondents that no man, unless it be at trucking or grape culture, can get on in Virginia with forty acres; that he must have seventy-five or one hundred acres, and must bring with him at least \$1200 or \$1500 in cash. "Can't he hire himself out till he makes money enough to buy?" "No, my county has a superabundance of labor."

Those who talk in this way are clever men; their opinion is entitled to weight; it challenges respect; and I shall be happy to receive their replies to the above quoted paragraphs 6, 7 and 8, with their pro forma estimate of how and what an immigrant can do in their county with his \$1200 or \$1500, and seventy-five or one hundred acres of land.

I may have been mistaken in the belief, but I have the notion that the climates of Virginia are so benign, her soil so kind and generous, and nature within her borders so bountiful, that your young married man, even though he should be landed on our shores from shipwreck, and with nothing but the clothes on his back, yet BEING WELL UP TO HIS BUSINESS, industrious, sober and saving, could do well in any county in the State; and that, should he be so cast, he would, long before he attains the allotted "three-score and ten," find himself possessed of a genteel sufficiency, respected by his neighbors, and surrounded by troops of friends.

The object of the work I have in hand will be just as well subserved if those farmers who know better how to counsel a stranger than I will furnish me with the advice they would give to the supposed immigrant if he were to appear before them in propria persona, with his \$500, asking their advice. Would they advise him and his wife to hire themselves out, or rent, or "crop," or work on shares?

Again thanking my Amelia correspondent for his admirable "abstract," I refer to it as a sample of the information that is required from each one of the ninety and nine counties that are left to the State, to make my work complete. M. F. MAURY.

AMELIA COUNTY, VA., February, 1869.

M. F. MAURY, Esq., Virginia Military Institute:

Dear Sir,—I have received a copy of the Circular Letter of Inquiry which, with the view of obtaining materials for your second Preliminary Report, has been addressed to me. I shall endeavor

to answer your inquiries candidly, and hope that my effort to make the replies intelligible may not lead to prolixity.

The neighborhood to which my remarks will especially refer, is situated in the Northwestern portion of the county of Amelia, eight miles from the Courthouse; bounded on the north and east by the river Appomattox, and on the south by the Richmond and Danville railroad, and 26 miles distant from Richmond. Its railroad stations are the Court House, Chula, and Matoax, the crossing of the railroad over Appomattox river, which is navigable for batteaux from Farmville above, to Petersburg below. From different parts of the neighborhood the distance to these stations is five, seven, eight, six, four, three and two miles. Produce for the Richmond market is also sent down the Appomattox to Matoax station.

The staple crops are those of corn, wheat, tobacco and oats. The latter is used only for home consumption—as are fruits and vegetables.

According to the mode of cultivation, the yield per acre varies from 10 to 40 bushels of corn, 5 to 20 of wheat, 10 to 30 of oats, and 500 to 1500 lbs. of tobacco. The smaller figures will be obtained by the *scratching* system of cultivation generally pursued without manure or other fertilizers. The larger are assumed as the actual results of comparatively better culture, with a semi-liberal use of phosphatic manures.

This whole section of country has been subjected to a system of tillage which, perhaps, in a much shorter period of time, would beggar Great Britain. The soil, naturally of a generous character, has been in every way imposed upon, and thus with a continued draft upon it for more than half a century, during which nothing has been returned to it, it cannot now be profitably cultivated without the aid of resources necessary even at the present day to the English farmer. It responds promptly to judicious and liberal efforts at improvement, and during its progress to a high degree of fertility, handsomely remunerates the cost. Highly manured and highly cultivated in *every* respect as the land of England is, its production, I believe, would not be inferior. Such culture would require four or five times more capital than the amount invested by the original purchase. Yet it would pay.

Peaches, apples, pears, apricots, grapes, cherries, strawberries, and all the small fruits, with the attention elsewhere bestowed upon them, can be cultivated with facility and success; and there is no vegetable known in the temperate zone which cannot be grown in perfection here.

Of the grasses, clover seems to thrive best, and grows luxuriantly. Herds grass (red top) also succeeds well, and upon the dry, flat lands, timothy yields bountifully. In the cultivation of these grasses, good tillage here, as elsewhere, is essential to success.

The cultivation of tobacco, to which this county is well adapted, is generally supposed elsewhere to be exhaustive to the soil. It is known here not to be directly so, in any especial degree; and with the most successful farmers, it is the chief basis of an improved system of agriculture. It cannot be grown without better tillage than is ever thought of for other crops; and the profit of that tillage is immediate and large. A neighbor of mine, living upon fifty acres of land, sold his crop of tobacco last year for \$1,200. Another, who cultivated forty acres of tobacco upon highly improved land, sold the product for \$5,400. After charging this *one crop* with his whole agricultural cost for the year, it yet left a nett profit of \$3,400. Another, who conducted his operations with four laborers, occasionally hiring an extra hand or two, sold his tobacco crop for \$1,400, and having deviated from the routine cultivation of corn, upon exhausted land, *only* by using a ton of guano (costing \$90,) upon his field of twenty-five acres, made from it 650 bushels of corn.

The wheat crop has been, since the beginning of the war, a precarious one throughout Virginia. Last year it sadly failed here, as elsewhere, having been rusted by the excessive rains of May. But the year before, my next neighbor made 428 bushels upon twenty acres, and I, 500 bushels upon twenty-six acres. It sold at \$2.65 per bushel.

The highest yield of wheat per acre ever known in the county was 80 bushels! It has never been since even approached upon the two acres which produced at that rate. The *possibility* of a high yield is nevertheless exhibited by the exceptional example. Twenty-two bushels per acre is the largest yield I have known upon as large a field as 100 acres. Wheat sells *usually* for \$2.50 per bushel of 60 lbs.; corn, for \$1; oats for 75 cents; tobacco for \$12 per 100 lbs.

The climate is temperate, with occasional excesses in winter and summer, for short periods, of both extremes. It differs from that of Pennsylvania chiefly in the comparative duration of the seasons—winter being shorter, and summer longer. The ground is rarely covered with snow more than two weeks in the aggregate, and it occasionally happens that ice is not *thick* enough during the season to be harvested. This, however, is not usual. Generally, during two

or three short periods, ice can be gotten three or four inches thick. As early as the latter part of February, the winter is generally so broken as to admit of the seeding of oats; and by the first part of March, out-of-door work has made visible progress. Except where rains render the ground too wet for the plough, there is subsequently no interruption to its work until near the end of December. This month—December—is usually dry and pleasant, and during it much of the ploughing for the next year's crops is generally accomplished. During the whole year but very few days are lost to the laborer, for the wet ones of winter and spring are profitably devoted to the house management of his tobacco.

The sun does not shine upon a healthier land. No diseases are peculiar to it.

Springs of free-stone water abound, and never-failing wells of pure and delightful water can be had in any locality at an average depth of thirty feet. Brooks are abundant upon every hand. No country is better watered.

In its physical aspect the country is invariably undulating; no level surfaces of any extent being found in it. The acclivities are not great enough to interfere with cultivation, nor, with proper precaution, need any washing of the soil occur. It presents an endless variety of hill and dale, which, if brought to a high state of fertility and cultivation, would render it—with the richness and variety of its forest foliage—a land of great loveliness. The soil is a gray loam, resting uniformly upon a substratum of clay. Of the latter our best wheat lands seem to be entirely composed. They are of a stubborn character, but capable of great fertility. The gray lands are more easily improved, and are especially suited to the growth of corn, oats and tobacco.

From \$15 to \$25 per acre is the usual price of the *homestead* portion of an estate. This contains the residence, out-buildings, stables, &c., &c. Unimproved land, without any buildings, usually sells for \$10 and \$12 per acre. The usual terms of payment are one-third cash, and the remainder in one and two years. Sometimes one-quarter in cash is accepted, and the remainder required in one, two and three years. The universal desire is to sell a portion of the landed estate to respectable white men, and upon as liberal terms as the state of indebtedness will admit of.

A frame or log cabin of the plainest kind can be built for about \$75. Rude and temporary out-buildings, I suppose, for \$30. A horse can be purchased for about \$100; a cow and calf for \$20; a sow and pigs for \$10.

Corn is planted in April and May, the ploughing having been previously done, and gathered in November. Preparation for seeding wheat begins in August, and the wheat is seeded in October. The harvest is in June. Tobacco is planted in May and June, and housed in September and October. It may be sent to market before Christmas, but is profitably retained until the ensuing Spring. Put up in "shipping order"—a simple operation—it is usually sold in May or June. Or in "winter order," it may be sold in the previous December or January.

Churches of one denomination or another are usually found in every neighborhood. In this one, the Episcopal, Methodist and Baptist are represented. There is also a high classical school. A post-office is within two miles of its centre.

The forests are composed principally of pine, oak, hickory, tulip-poplar and maple trees. When not already pillaged for building purposes, they are rich in building materials.

A settler in the neighborhood had best get possession about the first of July. He can then complete his buildings at a favorable period of the year, and sow a crop of wheat for next year's reaping.

* * * * I hope that this, together with the account current, which has been carried out, may answer the purpose of your inquiries. With sentiments towards you of a higher character than mere respect, I am, sir,

Your obd't serv't,

Proforma Estimate of Outlay and Receipts of a young married man, establishing himself in the county of Amelia, upon a farm of forty acres, with a capital of \$500 in gold.

FIRST YEAR.

OUTLAY.	RECEIPTS, AFTER DEDUCTING ENOUGH FOR DOMESTIC USE
For purchase of 40 acres land, at \$10 per acre, *\$400—first payment, \$100 00	For 160 bushels corn, at 80 cents per bushel, \$128 00
For buildings, 75 00	For 80 bushels wheat, at \$2 50 per bushel, 200 00
For purchase of horse or mule \$100 cow and calf \$20, sow and pigs \$10, 130 00	For 30 bushels oats, at 62c. per bushel, 18 60
For purchase of ploughs, hoes, spades, single trees, harness, &c., 35 00	For 3,000 lbs, tobacco, at 10c. per lb., 300 00
Wagon, if single, 75 00	For proceeds of garden, dairy and poultry yard, 30 00
Seed wheat for 10 acres, at \$2 25, 10 bushels, 22 50	
Fertilizers for same, 70 00	
Proveder for horse for 12 months 70 bus. corn, 3000 weight oats, 78 00	
For seed oats, 10 bus. at 62c., 6 20	
Hire of extra labor, horse and man, 60 00	
Total outlay first year, in currency, \$651 70	Total receipts first year, in currency \$676 60

* Usual terms one-quarter cash, remainder in one, two and three years.

SECOND YEAR.

OUTLAY.	RECEIPTS, AFTER DEDUCTING ENOUGH FOR DOMESTIC USE.
For second payment on land, \$100 00	For 218 bushels corn, at 80 cents per bushel, \$174 40
For cultivating 10 acres corn: Labor not estimated—fertilizers, 45 00	For 20 bushels wheat at \$2.25 per bushel, 450 00
For cultivating 30 acres wheat and oats, manure, 140 00	For 20 bus. oats at 62 cents per bushel, 18 60
For cultivating 3 acres tobacco, manure, 30 00	For 300 lbs. tobacco at 10 cents per lb., 300 00
For extra labor, 60 00	For 15 lbs. wool at 30c. per lb., 4 50
For five sheep, 10 00	For proceeds of orchard, garden, dairy and poultry yard, 40 00
	For increase of live stock and poultry, 5 00
Total outlay second year, \$355 00	Total receipts for second year, \$991 50

THIRD YEAR.

OUTLAY.	RECEIPTS, AFTER DEDUCTING AS BEFORE.
For third payment on land, \$100 00	For 218 bushels wheat at \$2.25 per bushel, \$490 50
Farm expenses, extra labor, and fertilizers, &c., 300 00	For 218 bushels corn at 80 cts. per bushel, 174 40
For groceries, (sugar, tea and coffee.)*	For 30 bushels oats at 62 cts. per bushel, 18 60
	For 3000 lbs. tobacco at 10c. per lb., 300 00
	For 30 lbs. wool at 30c. per lb., 9 00
	For 800 lbs. bacon at 10c. per lb., 80 00
	For proceeds of orchard, garden, dairy and poultry yard, 50 00
	For increase of live stock and poultry, 50 00
Total outlay third year, \$400 00	Total receipts third year, \$1172 50

*Expenditures in these particulars are left to the inclinations of the settler. Very many of our people, for a year after the war period, dispensed with them entirely.

Extra labor only is estimated in the cost of cultivation. The settler is supposed to give his own labor, and to hire one man. As this will be a white man, I have no knowledge of his cost in food and wages.

N. B.—The lands in this neighborhood are generally of a gray loam, with a clay substratum. They respond promptly to improvement under any encouragement, and produce clover admirably. No industrious, economical farmer, who has enough to manure freely, and cultivate thoroughly, has failed to secure his independence. One such, who occupies a farm of fifty acres, made from his tobacco crop alone \$1200. His neighbor, upon thin land, by using a small quantity of guano, made a crop of 650 bushels of corn upon twenty-five acres. I made the year before 500 bushels of wheat from twenty-six acres, and my next neighbor sold the growth of forty acres of tobacco land for \$6,400.

If the settler can take possession on the first of July in any year, with the small additional capital required to sustain him for six months, and is able to purchase two horses, with a double wagon, his operations will be greatly facilitated. By beginning in July, he can have his buildings completed and a crop of wheat seeded. Wheat cannot be seeded earlier than the 20th of September, or later than October.

How to Manage Bones.

A correspondent of the *Journal of Agriculture* gives the following as his experience every year for the past ten years, that being as often as he could collect bones enough to fill a tub :

With a sledge hammer, break the bones into pieces of one, two or three inches ; take a hogshead tub, put in two or three inches of hard wood ashes, the same depth of bones, then ashes and bones until full ; pound or press solid as convenient ; fill with water or urine, all that it will absorb. If done in the spring or summer, by the following spring it will shovel out decomposed, the bones being as soft as chalk. Then add all your hen manure, shovel and rake it over once a week for three or four weeks before planting time ; by that time it will be finely powdered. Put about equal to a handful of compost into a hill, for corn, potatoes, squashes, melons, &c, when it will be found to forward the crops to a wonderful degree.—*Lawrence Journal*.

REMOVING OLD PUTTY.—Those who have plant houses, frames, &c., know how difficult it is to remove old putty from sashes without injuring the sash. I have seen it stated in some journal that it could be removed very easily by applying a hot iron to it. I tried the experiment a few days ago for the first time, and was quite surprised to find how easily the most indurate old putty could be cut out after being well warmed up by the application of a red hot iron. Try it.—*Gardeners Monthly*.

POTATOES should always be kept in the dark. Rural housekeepers do not need to be told this but many others who live in towns and cities should know that potatoes exposed to the light, for a day only, have their flavor injured, and the longer exposed the worse they are. Never use a greenish potato.—*American Agriculturist*.

Report on the Effects of Chesapeake Phosphate.

Messrs. Editors,—In the February number of the *Planter and Farmer* there is a call upon farmers to give their experience with fertilizers. I have had recently several letters of inquiry on this subject, and will answer them and your correspondent through your journal.

I have used Peruvian guano upon tobacco and wheat, and am confident it will not remunerate at its present price. Upon wheat it has only increased the quantity of straw; on tobacco, while it increased the quantity, yet the quality was inferior, being spongy and lacking oil. My land is not permanently improved by the Peruvian.

There is a fertilizer prepared by Messrs. Isaac Reynolds & Sons, of Baltimore, called "Chesapeake Phosphate," which having used, I can recommend both as a permanent improver of the soil, and one yielding a good profit from the outlay. Its cost is \$52.50 in Baltimore. On my tobacco I last year applied 200 lbs. per acre. It grew off rapidly, stood the drought without burning or firing, and made me a much better crop than that upon which the Peruvian was used. That on which the latter was used was badly burnt at bottom and fired somewhat. The permanency of this Phosphate is fully tested on a piece of land which was in tobacco last year, and last fall seeded in wheat. Two hundred pounds had been sown broadcast on the tobacco, and at the seeding time no fresh Phosphate was applied; yet the wheat is vigorous, and promises a very heavy yield. On my corn land wheat, the Phosphate being in places irregularly sown, the line is distinctly and plainly marked. It is so marked as to be perceptible from a great distance.

I believe the Chesapeake Phosphate to contain every ingredient necessary for the growth and maturity of a full crop of tobacco, wheat, corn and clover, and feel sure it will permanently improve the land. The reliability of the manufacturers of this Phosphate is a sufficient guarantee that there will be no deterioration in quality, but that it will be kept up to its present standard.

STERLING E. EDMUNDS.

Birchland, Halifax. Va.

Report of Experiment in Cultivating Tobacco.

Messrs. Editors,—I submit to your readers the following experiment with half an acre of land in tobacco:

On the 20th of March, 1863, it was fallowed with the Watt double plough to the depth of about ten inches, and followed with a

broad foot coulter with a pair of strong horses, cutting about six inches in the subsoil, (or clay rather, it being a piece of poor red stiff land,) and turning in at the same time about forty wagon loads of woods leaves. In a few days after I sowed broadcast two barrels best lime.

May 25th.—I gave the whole a light dressing with stable manure; then put in 332 lbs. Peruvian guano, 2 sacks Ground Alum salt, 2 sacks plaster, 1 bbl. flour of bone, ploughing and cross ploughing thoroughly with shovel ploughs, then hilled up and planted about 10th June, cultivating in the ordinary way; but hilling up very high. Topped to twelve leaves, priming high.

Result:—1,232 lbs. of ripe superior shipping tobacco, there being only about 300 lbs. lugs, and they almost as good as the leaf. I shall pursue the same course this year with my whole crop.

Will farmers give their experience with the several kinds of guano and fertilizers in the next number of the *Planter and Farmer*? This should be done by all means.

WM. M. BAYLEY.

Columbian Grove P. O., Lunenburg, Va.

Advice about Hogs.

FROM CHESTER COUNTY, PENNSYLVANIA.

Messrs. Editors,—Advice being the cheapest commodity I know of in this market, I will send a little to the Richmond market, and if it is of no use when it gets there, the consolation remains that there is but little capital lost. *Viz*: No animal deteriorates faster than swine. *The trough is a great element in the character of a hog*; he is amazingly like a dandy. To keep him in first rate trim, he soon eats his head off; yet, if he has to hunt his food, even with the slightest effort, he soon becomes too enterprising to be a fine specimen. As soon as a pig becomes enterprising, he ceases to be "a Chester County White." Dame Nature soon fits him to this *new order of things*; his nose lengthens, the disposition to use it also increases, his legs grow longer, his sides flatter, his hams lose their plumpness, and in one or two generations he is a match in a race for any ordinary dog. At least this is our experience.

If you want to keep up the breed of good hogs, keep no more than you can keep so lazy they will not grunt.

Yours,

J. D. E.

Chester county, Pa.

Mammoth or Sapling Clover.

LEXINGTON, VA., January 8, 1869.

Mr. BOLIVAR LEECH:

Dear Sir,—I write now to get you to favor us with a statement of the judgment you have formed in relation to the "Mammoth or Sapling Clover." You will remember that in a conversation with you in regard to the question underlying all successful agriculture, viz: the fertilization of the soil, you alluded to an experiment you had made in 1863, I think, with this clover. Will you give for the benefit of your brother farmers, the result of that experiment? Men engaged in the vocation to which you have turned your attention fail, most egregiously fail, in receiving and conferring the benefit that would flow from more frequent discussions amongst themselves of matters of interest in that vocation. It is with a hope I may be the means of arousing thought and stimulating some effort in this line, that I request this favor of you. Please give us in detail your observations and convictions in regard to the above named grass—what is its growth in rich soils; whether or not it attains to the enormous height claimed for it; is it adapted to thin land; what are its virtues as a fertilizer? &c. Tell us, in fine, all you have learned by experience with this plant, as well its objectionable as its commendable features. The agricultural mind is on the alert at present, and our people are anxious just now, as perhaps they never have been before, in regard to new varieties of seeds, especially of the grasses, the cereals, &c. A single word from a man raised and living among them, whom they know, upon whose sense and judgment they can rely, will weigh more with them than a whole volume from persons interested in that species of circular motion, so prevalent at the present day, and known by the very expressive soubriquet, *axe grinding*. Please comply, and much oblige,

Yours truly, JACOB FULLER.

Mr. JACOB FULLER:

Dear Sir,—You ask me for information respecting the "Mammoth" or "Sapling Clover," which I will attempt to give, so far as my experience will justify. This clover is remarkable, in the first place, for its growth—in rich soils, often attaining the mammoth height of six and seven feet. I have measured stalks in my field seven feet long, but the average would probably be about three feet. The stems are larger than other varieties, and for this reason would

be objected to by those who raise clover for hay. I have, however, mowed a quantity of it for hay, and my stock relish it and *eat it readily*.

AS A FERTILIZER,

its special value is in the quantity of foliage it affords, rendering it, for this purpose, superior to all other grasses. It is rather later starting in the spring than the common clover, and requires a longer time to mature; consequently but one crop can be made in a season—whether a forage, or as a seed crop.

AS A HAY CROP,

it should be cut about the time timothy ripens—therefore the two should be sown together for hay. If for seed, and it yields abundantly, it should be pastured until the first of June, to avoid the great bulk of foliage, which it would produce if permitted to grow from early spring. After the hay, or seed is removed, a new growth springs up, which affords excellent late pasture.

ITS CHARACTERISTICS.

It is hardy, stands drought better than the other varieties of clover, and will flourish vigorously on light, loamy soils; indeed, it has never failed to produce a most luxuriant crop on any soil on which I have yet tried it.

ANOTHER ADVANTAGE

it possesses over the common red clover is that it does not interfere with corn tillage and wheat harvest. It will stand very well until the grain is cut, and the seed will not mature before the middle or latter part of August. Thus you see that the soil is thoroughly protected by a close and heavy mat of rich vegetable matter, from the searching rays of the July and August suns. It appears to be well adapted to our soil and climate. Even on soils that will not pay for cropping, I have seen heavy swaths of hay cut.

I purchased a farm in 1866, which had been almost exhausted by constant cropping, on which I sowed the usual quantity of seed per acre. The clover took readily. I applied a half bushel of plaster to the acre, and waited anxiously for the result, not without apprehension that my labor and my money had gone for naught. But with the gentle showers and genial warmth of Spring appeared the tender leaves of the young clover. Rapidly it grew up like some "mammoth" weed, and soon the once barren hills "blossomed like the rose," and I was compensated a hundred fold for all the money and labor I had expended. Respectfully yours, &c.,

BOLIVAR LEECH.

The Future Supply and Price of Pork.

The *Prairie Farmer*, after stating how the hog crop has been reduced by the war and other later, but consequent causes, goes on to discuss the matter very sensibly, as will be seen. We commend the facts stated to careful consideration.

Hog raising, as we shall attempt to show at some future day, ought to be now a very important branch of the agriculture of Virginia :

This state of things continued for four years, during which time the number of hogs became very much reduced, notwithstanding their almost unparalleled fecundity. At the return of peace, a combination of circumstances served to keep up the price of pork. The consequence of this was, farmers found the easiest way of realizing money was to fatten what hogs they had, and send them forward to market. Indeed, the temptation to realize money in this way was so great that farmers reduced the number of their stock hogs to the least possible number consistent with keeping enough to breed from ; nor was there always foresight in this particular. The idea that pork might not be so high again, for many years, induced many farmers to sell the hogs that they should have kept to breed from, and left them to depend upon young and imperfect animals for an increase, or caused them to trust to luck to buy stock hogs to be fattened on their next crop of corn.

Nor is this, by any means, the worst feature of the case. We are told by parties, who are conversant with affairs at the Stock Yards, that by far the larger portion of the sows that have come in during the past few weeks are pregnant. Some of them are not very far advanced, but others of them are near the period of delivery. A practice like this is absolutely revolting ; and we are glad to hear that a bill has been introduced into the Legislature by Senator Dore, of this city, making it an offence at law, and providing a suitable punishment. It is a disgrace to our civilization that such a practice continues. The meat of such hogs is no more fit for human food than the carcasses of those swine into which the legions of devils went.

We have reached at length the legitimate result of this procedure. Notwithstanding the almost unprecedented high price for pork during the packing season that has about come to an end, the hog crop in the West has fallen short of former years fully half a million. The truth is, the country is literally drained of hogs. In those parts of the South where hogs were once so abundant, there

is now very great scarcity, notwithstanding the hog can live and do well there, when left to pick up his food during the entire year. The war left few of these immense droves, and most of these few, the farmers who were without the means to buy meat from abroad, were obliged to slaughter for immediate consumption. We saw, early last spring, two hundred thousand pounds of pork landed from the steamer we were on, at one town on the White river, in Arkansas. And here would seem to be the natural home of the hog—genial skies, abundant water, plenty of grass and cane-break, wild fruit and nuts of every description, and a soil that requires but to be tickled with a hoe, to produce an abundant harvest of corn, and other hog-fattening material. Indeed, we were told by a farmer here, that he found after a four years' absence from a deserted plantation, quite a number of hogs that had “survived the shock of war,” and had lived all this time in the secluded cane-break at some distance from the usual routes of travel.

In view of these facts, we think it requires no prophet to foretell that the high price of pork is to continue for several years longer at least. There is nothing that will check our foreign demand, while a very large amount will be required to supply the South. Great quantities, too, will be needed for the miners and railroad workers in the distant West.

It is true that hogs will multiply very fast when the circumstances for breeding are favorable. To breed good, thrifty animals, and to produce and raise large litters, we require old stock—sows three to five years old are the best for the purpose. Unfortunately, we have few of these excellent breeding sows in the country; they have been fattened and sent to market to secure the high prices which large hogs have lately commanded. We are left with only young, and consequently somewhat inferior stock to breed from. We cannot expect from them either so large litters, or pigs of so good quality as we could obtain from older animals.

Now it is obviously for the interest of farmers to devote more care and attention to the breeding of pigs during the next season. There is too little attention paid by farmers to this matter. A sow at pigging time, is often left without sufficient care, and the consequence is, the entire litter is lost. The farmer often seems to regard this as quite an unimportant matter, as he thinks it will require but a few months' time to raise another litter. Every farmer should also save a sufficient number of his best breeding sows every fall, even if the price of pork is higher than it promises to be the succeeding year. He should, in short, devote all the care to feeding hogs that

he now gives to breeding horses and horned cattle. A little of the zeal which poultry fanciers are showing just now, would do much to bring up the quality and number of hogs in the West. The hog crop has long been our most important crop in many localities, and we cannot afford to lose our ancient prestige in this respect.

Management of Breeding Sows.

The following directions are from the circular of a successful breeder, John Haight, Napierville, Ill. :

A sow should never have pigs before she is a year old. It is better if she is eighteen months old. If allowed to breed before she is a year old, she will have but few pigs and but little milk for them. An old sow, like an old cow, will give more milk than a young one. Hence it is that an old sow will have larger and better pigs than a young one, because they get a bounteous supply of that which is most natural to them to wit, the milk of their dam. As soon as it is ascertained, that a sow is in pig, which will be known between the 19th and 23rd days after taking the boar, she should be fed lightly, and allowed to have plenty of exercise. She should run to grass and the ground. A sow will run four months, less nine or ten days, from the time she takes the boar to her time of littering. Sows will vary a little. Old sows will run longer than young ones, and some breeds will run longer than others, but they will not in any instance vary a week. A sow should be put upon a floor in a dry and warm place to litter, with a very little cut straw or hay for a bed. A railing or board should be fixed against the sides of her pen around her nest about eight inches above the floor, and it should be jut out from the sides of the pen from eight to ten inches. When a sow lies down, if a pig or two happens to be under her, they will generally slide out and get crushed between the sow and the sides of the pen. If this railing is fixed about the nest, the sow's back, in lying down, will strike it and the pig or pigs in sliding from under her, instead of getting crushed between the sow and the sides of the pen, will escape injury by sliding under the railing.

A sow should be shut up three or four days before her time to have pigs, and fed on milk, and wheat or rye bran and midlings made into a thin slop, to bring her to her milk. If a sow has plenty of milk when she litters, her pigs will not be likely to get killed, because they will get all they want and lie down in a pile and

sleep, whereas if the sow is scant of milk the pigs will be hungry and will be scattered around her, constantly working at her, and are therefore quite likely to get killed. She should be kept up until her pigs can run smartly, say ten days or two weeks, but not longer. If confined too long and fed on strong feed, to wit: dry corn or meal, she will become ravenous and eat her pigs. They are not so likely to become so on slop feed. While closely confined they should be supplied with a plenty of fresh dirt daily. To counteract the effects of oleaginous food something of an alkaline or vegetable nature must be given them. A sow should always run to grass and the ground a week or two before having pigs. Grass will affect the milk of a sow the same as it will that of a cow, increase the quantity, and lessen its strength, which is very essential when the pigs are quite young. A sow should never be allowed to have pigs before April in the Spring, nor after October in the Fall, because cold weather is very injurious to young pigs.

A NOVEL METHOD OF CATCHING MICE.—A correspondent of the "Journal of Pharmacy" says: "Having on several occasions noticed mice in our seed barrels, I bethought be of some method how I might trap the little intruders, they having gained an entrance by eating through the chime. To kill them with a stick was impracticable, as the little fellows would invariably escape as soon as the lid was raised to any height. I then thought of saturating a piece of cotton with chloroform and throwing it in, then closing the lid. On raising it again in a few minutes, I would find that life had almost or quite departed. Having on one occasion left the piece of cotton in the barrel, on again returning, I found three mice with their heads in close contact with it, and dead. In the evening I saturated another piece, and placed it in the barrel, and on opening it the next morning to my surprise I found nine dead Mice."

A CEMENT WITHSTANDING HEAT AND MOISTURE BOTH.—Simply pure white lead, or zinc-white, ground in oil and used very thick is an excellent cement for mending broken crockery-ware: but take a very long time to harden sufficiently. The best plan is to place the mended object in some store-room, and not to look after it for several weeks or even months. After that time it will be found so firmly united that, if ever again broken, it will not part on the line of the former fracture.

Arithmetic in Farming.

The Register of Rural affairs says: "A free use of the multiplication table would enable farmers to act with more precision in many operations now conducted entirely by guesswork. We have frequent inquiries for example, as to the certain amount of special manures to be applied per acre for different crops; but the use being new, the application is made without any guide as to quantity, and too much is used in one case, and too little in another. One man injures his crop and wastes the material by overdosing; another uses too little, and does not witness any sensible effect. A little figuring would obviate these difficulties, and enable the farmer to calculate accurately beforehand just how much to apply. Suppose, for instance, that he proposes to use superphosphate at the rate of 500 pounds per acre in his turnip drills. Instead of trying at random, and coming out wrong, as he will be sure to do, let him bring his work down to figures, in the following manner: His drills, we will suppose, are 28 inches apart, amounting to 1120 rods in length on each acre, or at the rate of about seven ounces per rod. Or, to be more accurate, as well as take a more convenient length, the fertilizer should be strewed along the furrow at the rate of one ounce to two feet and two inches in length. Weigh out a small quantity in one ounce portions, and practice it a few minutes by strewing it along a furrow so that each ounce shall reach a measured length of two feet and two inches. A little practice will enable the operator to apply the fertilizers so that he can distribute the required quantity over the acre or field with much accuracy. If he wishes to use only half this quantity, or two hundred and fifty pounds per acre, strew it so that an ounce shall extend four feet and four inches, and he will accomplish the desired purpose.

If a fertilizer be applied in hills, as in a corn field, a similar mode of calculation may be readily adopted. Hills three feet and a half apart each way will be at the rate of about 3500 per acre, requiring about two ounces per hill, or if five hundred pounds of the fertilizer are used, one ounce for 250 pounds.

In sowing by hand at the rate of a bushel or 100 pounds per acre, the operator should only take the tenth of a pound for each handful, for if he covers a space five by ten feet at each throw, it will take nearly one thousand to go over the acre, as a little figuring will prove.

The same mode may be used to determine the amount of grass seed for each handful in sowing broadcast. Each throw will cover,

as before, from five to ten feet, and whatever quantity is used for an acre should therefore be divided up into about a thousand parts. A peck of clover seed, for example, weighs fifteen pounds, and to cover an acre each handful should be little less than the fourth of an ounce. The previous use of a pair of scales for weighing off a few of these portions would enable the operator to hit at once, with considerable accuracy, the right quantity, instead of being compelled to make random guesses for days or even years, before acquiring proper experience.

It is often regarded as an indication of shrewd guessing when the farmer brings his domestic animals through the winter on the exact supply of fodder which he has stored away for this purpose. Sometimes he may find towards spring that he has many tons of surplus, and perhaps, more frequently, that he has to purchase a considerable amount in order to "piece out" the winter supply.—Measuring, weighing and calculating, the work of a few minutes, will obviate much of this uncertainty. The farmer who frequently weighs a load of hay acquires sufficient experience in estimating, to determine very nearly, from a record of the size and number of the loads which he draws into the barn, the whole amount which he has on hand for winter. If he has neglected to do this, he may hit the amount nearly as well by measuring his bays and allowing an average of 500 cubic feet per ton of timothy, 600 feet if part clover, or 700 feet if all clover. He will thus be able to learn, very nearly, how much hay he has on hand. The next question is to know how much his animals will eat. If he has provided good racks, to prevent treading hay under foot and has given them fair shelter, he may adopt the following rule with a good deal of certainty: Determine the weight of his animals, and allow three per cent. of the weight of his horses for their daily food in hay, and two and a half per cent. for cattle. Multiply this daily allowance by the whole number of animals, and again by the number of days which he expects to give them dry food, and then compare it with the quantity on hand, and he may strike the balance, one way or the other, with considerable accuracy.

Every farmer should have a tape line, or other means for measuring his fields. If he has had much experience in pacing, he may make temporary measurements with some degree of accuracy, but he should correct such rough work with the tape line. A cord or garden line will do tolerably well to measure with, provided its length is frequently corrected by the use of an accurate ten foot pole, and taking care that it is not shortened afterwards by drag-

ging through wet grass, or lengthened by stretching, or by exposing to a hot sun on a dusty surface. Pieces of red yarn may be sown through it to mark rods and feet. Every field should be measured, so that the owner may know the number of acres, and a record should also be made of its length and breadth that the amount of land ploughed in a day may be readily reckoned, and the contents of each "land" definitely known. Among other advantages, this accuracy will enable the owner to determine easily acreable products under different modes of management, and to acquire a great deal of valuable information in a few years as to the most profitable way of raising heavy crops.

C. S. A.

Earth as a Disinfectant.

Porous earth acts on putrifying animal and decaying vegetable matters on the same principle as that on which the purifying powers of the charcoal depend. On account of their greater porosity and absorbing properties, wood and peat charcoal are superior to earth as disinfectants. However, dry earth is a very good absorber and destroyer of foul smells; and as it can be had anywhere at little cost, it deserves to be used extensively, especially in the country, for preventing nuisance and loss in fertilizing constituents, which is caused by the careless mode in which human excreta are usually disposed of. Earth impregnated therewith, like charcoal, has the power of purifying itself on exposure to the air; so that earth may be used over and over again, for the disinfecting of human excreta. It is, indeed, worthy of special notice that a mixture of earth with night-soil, after having been kept for some time under a shed, confined at one or more sides, and covered by a roof to exclude rain, and become dry, has its original disinfecting powers almost completely restored, and may be used again for absorbing and retaining the manuring elements of a fresh quantity of night-soil. Earth in this way may be used three or four times over for the disinfection of human excreta, and at the same time becomes a valuable vehicle for absorbing and concentrating all the fertilizing constituents which enter into the composition of liquid and solid excreta. Human urine contains ninety-one to ninety-four per cent. of water, and fæces not less than eighty to eighty-five per cent.; hence the practical difficulty of converting them into a dry and portable manure. Simple evaporation or artificial drying is impracticable; because in the first place, it creates an intolerable nui-

sance; and secondly, because it is attended with the decomposition and loss of the nitrogenous and most valuable manuring constituents. These practical difficulties, which are experienced in the conversion of night-soil into a portable manure, may be completely obviated, at all events in the country, by the free use of dry earth in the closets. If a sufficient quantity of earth is employed to absorb completely the mixture of the excreta, the contents of the closets can be removed periodically, say once a month, in the day time, with little or no inconvenience. They should be wheeled at once under a roofed shed, and spread out as much as the space admits, and left exposed to the drying influence of the air. According to the state of the weather, the mixture of night-soil and earth will become sufficiently dry in two or three months, when it may be used again in the closet like fresh soil, and the same process be repeated three or four times. During the drying in the shed no appreciable amount of fertilizing matter is lost, and as the earth after each removal from the closets becomes charged with an additional quantity of manuring matter, a very useful manure is finally produced with little trouble and at a mere trifling expense. In country places, where proper drainage is not provided, the nuisance of open closets may be best avoided by the use of the arrangements adopted in the so-called earth closets.—*Voelcker on Disinfectants.*

Rolling Wheat.

Alternate thawings and freezings is very destructive to wheat—especially is this the case in the late winter months. The ground “spews.” The roots of the wheat plant are left exposed to the influence of the air, without the protection of the earth. The ground assumes a honey comb appearance; and a small crop or total failure is the consequence, unless it receives attention.

The best treatment consists in rolling the land. Some of the roots will be destroyed even by this process, but the earth will be left compact, the roots imbedded in the soil, and a portion if not all of the crop saved. We have seen this tried and know whereof we speak.

The present winter appears to be very unusually hard on wheat. An immense area of land has been sown, and it is a matter of no small consequence to the farmer to protect his crop. Frequent rains and hard freezing have thus far (Jan. 4,) operated somewhat injuriously. In some localities in this State, the wheat is already greatly injured. Objections have been made against rolling wheat, that the team would destroy too much by tramping it in the ground;

that the ground might again "spew," and the time and labor be lost. These objections cannot be fairly set up against a prospect of saving so valuable a crop, by simply rolling the land.—*Colman's Rural World*.

Value of Lands.

The effect of the events of the last eight years upon the value of lands, is curious and interesting. The increase in New England is scarcely enough to counterbalance the influence of the appreciation of gold over currency. The West is increasing in value. Little Delaware, since slavery has gone by the board, has taken a big jump in land value; not but that land is low now, but it was very low in 1860.

Coming to the "seceded States," prices tumble. Virginia feels a reduction of 27 per cent.; while West Virginia puts on airs to the extent of 32 per cent. advance. Going South, we find Louisiana, with levees broken down, and plantations ravaged, loses 70 per cent. Study the table, which gives internal evidence of correctness:

STATES.	Increase per cent.	Decrease per cent.
Maine.....	19	—
New Hampshire.....	17	—
Vermont.....	17	—
Massachusetts.....	17	—
Rhode Island.....	18	—
Connecticut.....	20	—
New York.....	28	—
New Jersey.....	30	—
Pennsylvania.....	25	—
Delaware.....	65	—
Maryland.....	20	—
Virginia.....	—	27
North Carolina.....	—	50
South Carolina.....	—	60
Georgia.....	—	55
Florida.....	—	55
Alabama.....	—	60
Mississippi.....	—	66
Louisiana.....	—	70
Texas.....	—	28
Arkansas.....	—	55
Tennessee.....	—	18
West Virginia.....	32	—
Kentucky.....	10	—
Missouri.....	32	—
Illinois.....	42	—
Indiana.....	27	—
Ohio.....	32	—
Michigan.....	70	—
Wisconsin.....	50	—
Minnesota.....	100	—
Iowa.....	75	—
Kansas.....	150	—
Nebraska.....	175	—

—*Prairie Farmer*.

Do You Want to Buy Sheep?

If any explanation is needed for the publication of a letter which speaks in such flattering terms of us—the co-editor of the *Planter*—we say frankly that it has caused us no little pleasure. The articles our correspondent speaks of were laboriously prepared with an anxious desire to do something for the welfare of Virginia and under a conviction which has grown stronger and stronger every day that stock husbandry is more needed than any other branch of Agricultural industry to bring up the lee way we have lost not only during, *but since the war*. We confess to a feeling of mortification at seeing these articles fall, almost still born, from the press, which caused us not to *abruptly* discontinue, as a yankee would write it, but to discontinue abruptly the series of essays we had roughly mapped out as the complement of the whole subject. When not one convert appeared, we felt that there was no encouragement to preach longer.

But we have other less egotistical reasons for the publication of this letter. We wish to provoke discussion on this subject by the farmers of Virginia, and then provoke an interest which it has heretofore been difficult to excite. And we wish to exhibit the nucleus of a company which may combine to get sheep and make a start. We shall recur to the subject at an early day.

—

BERRY HILL, Mecklenburg Co., Virginia, near Townsville
P. O., North Carolina, *March 6, 1869.*

F. G. RUFFIN, Esq.—My dear sir: Please pardon the liberty, I, a perfect stranger to you, take in addressing you. I have read and re-read, with great pleasure and interest, your valuable article “What shall we do?” on the sheep question, published in the *Farmer and Planter*. I have also, on your recommendation, bought Mr. Randall’s “*Practical Shepherd*,” and have been repaid for its cost and perusal. I do not wish to flatter, but I take several *Farming Journals*, and in my humble opinion your article contains more of value to the *Virginia Farmer and Planter*, than all I have undertaken to read since the close of the war. I ought rather to say, since the surrender, for the war is still kept up by Messrs. Sumner, Wilson & Co., who get mad and stay mad when the fighting is over. I wish to profit by your advice. In your articles on sheep you kindly said that when parties got ready, you thought you could undertake to find a suitable agent to buy sheep, if they would give you timely notice. I have been trying to get some neighbors to join me. They will neither study the question, its advantages, or consent to go into it. I must go into it by myself, but I hope will be able to get others to join in for a sufficient number to reduce the expenses of getting them.

I shall want 300 ewes to start with. What sort? I assume any sort of

healthy sheep, rather than none. My wish is to get a high or good grade healthy Merino. I want to go principally for wool, and also to combine meat. I do not believe there are more than one-fourth of the sheep in this section, compared with the number before the war; the Planters having the idea, that they injure the land by grazing too closely. I too fell into the error, and have only been recently enlightened on the subject. I prefer Merino because they herd better in large numbers, require less care, and good workers, and everywhere better adapted to a large plantation such as mine is, and where it is somewhat remote from market, but whether low or high grade, can be rapidly brought up by pure blooded Merino Rams. Your suggestion that these be crossed with the South Down, according to Mr. Randall, would not be good policy. Page 124, he says, "all crosses with the different Down families, have uniformly proved failures," &c., "the crosses between the Merino and Down," says Mr. Randall, on page 125, "increase and improve the fleece of the latter, but it is held to detract from the value of the mutton;" in short, Mr. Randall giving excellent reasons therefor, concludes, that all crosses of the Merino, with the foregoing breeds, render the flesh, neither one thing or the other, "unimprovable breeds," "and unmanageable material aiming at middle results." So I shall, if I cannot get high or good grade Merino, get the coarse wool sheep, and aim to merge it into a high bred Merino and aim at the high result of wool, to the low result of meat. I do not know at what time you would propose to send after these sheep, but it will suit me and I should prefer to buy them after they are sheared, and do not care to get them before August or September next. Before the surrender I worked some 45 to 50 hands and have worked since 30 to 45. I am in a region where Tobacco is the principal staple. Satisfied that this crop does not and will not pay, I must turn my attention to something else. What shall I do? is answered by you. I have 800 acres of high land cleared, and some 320 Roanoke low grounds. My idea is to give up the never ceasing anxious and laborious Tobacco crop, to divide my highlands into four shifts, for the most part already set in clover, to have one in corn, two in wheat and oats, and two in clover and other grasses, combined with sheep raising, which will enable me to work my plantation with about one third the hands I now have to employ. I certainly shall improve the fertility of my lands and at least do as well as I have hitherto done. I thank you again for your valuable articles.

I know your time is much engaged, and while throwing out some reflections on the sheep subject and others, I do not wish to encroach

on your time, further than to beg the favor of you to inform me, whether you propose to send to Ohio, or elsewhere, for sheep for others, and when? Any information or advice you can give me, on the subject, will be thankfully read and highly appreciated. I will provide of course in due time to furnish my portion of the cost for the sheep I want &c., &c. With great respect, I remain, dear sir,

Yours, most truly, E. A. RAWLINGS.

A Home Made Fertilizer.

Mr. Editor,—Just before the beginning of the war, while I was farming on a small scale, I tested a combination of fertilizers, which gave most satisfactory results. The application was made to a corn crop in two consecutive years. During the second year it was also applied to a clover lot, with far greater benefit, than resulted from a mixture of ashes and plaster alone, applied on a portion of the same lot and in equal quantity.

The ingredients were ground bones, (raw bone phosphate), plaster, ashes and salt in the following proportions :

Finely ground Bones,	200 lbs.
Ground Plaster,	100 do
Leached Ashes,	350 do*
Common Salt	50 do
	700 lbs.
Total	

This mixture was applied to two acres, and dropped in the hill with the corn.

This compost contains not only all the mineral substances demanded by an ordinary grain crop, but the 200 lbs of bone dust contains at least 50 lbs. of organic material, which by its decay in the soil yields *ammonia* or some form of nitrogenized matter favorable to the rapid growth of the crop.

Let us now examine into the cost. The ashes may generally be collected on farms, and sheltered until wanted for use, at the cost of a little care and labor; or about towns, where wood is used for fuel, at a trifling cost in money. The other ingredients would cost in Richmond :

200 lbs. Ground Bones,	5	50
100 do do Plaster,		50
50 do Salt (inferior),		50
	Total	\$ 6 50

* Of unleached ashes half the quantity would be sufficient.

Or at the rate of less than \$20 per ton, leaving out the cost of the ashes.

On very light soils, the addition of 100 lbs. of Peruvian Guano to the above compost, would doubtless improve it. The quantity would then be sufficient for two acres and a half. But even with this addition, the cost would still fall far below that of many fertilizers now in use, and which contain less variety, and a smaller proportion of real plant food.

This preparation, if slightly moistened and then sifted, could be very conveniently applied to corn by means of the Guano attachment of any good corn-planter; or dropped in the hill by hand without sifting. In either case, however, the ingredients should all be spread upon a floor, and if very dry, should be moistened and then thoroughly mixed.

I think any farmer who will make a trial of this combination of fertilizers will have no cause to regret it. And he can certainly save the heavy profits laid upon most of our manipulated manures, and the high charges usually added for their preparation.

Yours, very respectfully.

J. L. CAMPBELL.

Washington College, March, 1869.

Diseases of Horses and Cattle.

Messrs. Editors,—I was much gratified in reading in your February number a communication from J. R. Freeman, veterinary surgeon on the diseases of horses and cattle. My gratification was owing chiefly to the suggestion of the whole subject as an interesting enquiry upon matters most important to the agricultural prosperity of our country. I hope that much intelligent discussion may arise, and much information of a reliable character may be the result. No man having any sympathy for the noble animals upon which our agricultural success so much depends, can be insensible to the cruel expedients to which they have been subjected by the ignorance of those who have set themselves up as the infallible healers of their diseases. No one can be insensible to the ridiculous absurdity of the many prescriptions made for a sick horse at a public gathering where the crowd assembles to look on the suffering animal. Specifics as numerous as the *presenters*, many utterly incompatible, some wholly destructive to animal life; and all of them generally without a knowledge of the disease, are uttered with the greatest confidence,

and often given by the anxious owners until death usually relieves the noble animal from his disease and doctors. The fact that the horse bears pain with great patience, is often subject to the insidious approaches of disease without the knowledge of the groom or owner, and manifests its presence only when the fatal mischief is done, as well as the similarity of symptoms of pain in most of the maladies which assail his digestive system, accounts for many of the errors of practice which have been committed. Hence there is no branch of learning which more needs intelligent pursuit; no class of men, who could confer a more lasting benefit upon agriculture than properly instructed veterinary surgeons, who would by well considered essays enlighten the public mind. I know of scarcely one reliable work on the disease of cattle and horses; although much has been well written about them; I have in vain sought amongst them, (and I have examined those in the highest favor with much labor and interest,) for anything to remove the obscurity which seems to invest the subjects of which they treat. Conflict of opinion, both as to diseases and remedies, contrariety in the detail of symptoms and causes of maladies, and as a general obscurity as to the whole matter under consideration, seems to characterize most of what has been written.

It is for this reason that, in the absence of veterinary surgeons in the rural districts, the agricultural public would so gladly have an enlightened and simple work embracing the subjects alluded to. By way of illustration, take the Bots as a disease of horses.

Your correspondent, Mr. Freeman, denies that horses are ever the victims of those worms. The mass of testimony of other writers would seem to establish the contrary conclusion. Indeed, nine-tenths of the writers and owners of horses consider grubbs as one of the most formidable diseases to which the animal is liable. Now I concur with him, that if ever, it must be very rarely, they are the immediate cause of death in the horse. Like worms in the human subject, they may, when the system is greatly enfeebled by some other disease, aggravate the symptoms and hurry the catastrophe. They should then be assailed by remedies, so as to relieve the animal of the exhaustion which is produced by the consumption of the means of nutrition. They are parasites, and a feeble animal cannot spare from the supplies of nutriment which they abstract. A post mortem examination has never satisfied me that they alone could have produced the death of the animal. The lesions of the stomach are readily accounted for by the action of the gastric juice upon the organ after death. However this may be, the horse in-

stinctively dreads the fly that deposits the egg on his limbs. Nothing increases his impatience more than the presence of the *nit fly*. This instinct may be the teaching of nature that this is his enemy; and as instinct is an infallible teacher, something may be learned from this fact. These suggestions are made to elicit information. I have no fixed opinions except those founded upon personal observation. I know that *blind tusks* or *wolf's teeth* do produce blindness, and I have seen a weak eye after one was lost restored by drawing them. I have relieved the shrinking of the muscle on the shoulder blade by frequent seatons over the part. I have been able to account for the so-called *Sweeny* by an injury to my horse from leaping over a fence upon a rocky surface, followed by lameness in two days, and the shrinking of the muscle, as well as its restoration by seatons. I have seen cattle frequently restored to health by boring the horn, and this when the animal was fat, and to all appearance healthy before. Now whether this state of the horn was the disease or the symptom, I will not decide; but this I do know, that both disease and symptom yielded to the treatment of boring the horn, and pouring in vinegar, salt and water. The horn was hollow; *caries* of the bone was apparent, and the effluvia exceedingly offensive. Some of these cattle afterwards killed for beeves, showed the re-formation of bone in the horn in progress.

I have a very lively recollection of Dr. Minor's paper on this subject, January, 1852, and all of my observations since that time have but confirmed the accuracy of his observation. I hope that Mr. Freeman and others will continue to write for your journal. Let us have light, and like the professors of the healing art, or men, come to the rescue. Our horses and cattle constitute an invaluable element of our agricultural success and independence. The detail of intelligent experience of all classes of our country would do more for our prosperity as a people than all the exhaustless *givings out* of the tribe of politicians, whose name is legion.

A. W. VENABLE.

Brownsville, Granville, N. C., February 26, 1853.

N. B.—From the descriptions given of the Texas disease in the cattle of the Northwestern States, I apprehend that it is the murrain known in "North Carolina," as our legislative enactments for more than a century indicate.

Ready-money payments are the best promoters of frugality.
Friendship is the most sacred of moral bonds.

TRIMMING LAMPS.—Some always use a pair of shears to trim lamp wicks. I never do. A better way, one which I invariably practice, is to pinch or wipe off the black crust with a piece of paper; you may keep a cloth for the purpose, if you wish.

You will find that the flame will be perfect in shape, and exactly in the centre of the lamp chimney, and also that the wick will last twice or three times as long.—Quite a desideratum in the country, where I have known it to be necessary to harness the horse and drive to town for lamp wicks.—*American Agriculturist*.

Frauds in Fertilizers.

PROPOSED LAW OF MASSACHUSETTS TO PREVENT.

We are indebted to Hon. Marshall P. Wilder, of Massachusetts, for the following copy of a Bill to prevent frauds in fertilizers. The Bill is a step, but a very, very, very short one, in the right direction. The first section is very well. But the penalty imposed in section 2, is ridiculously small.

In misdemeanors the reward to the informer is always proportioned to the magnitude of the offence and the difficulty and cost of detection and proof. But in the case in hand the farmer who must prove the fraud can only do so by a chemical analysis, which, to be worth anything, will cost more than the fine by at least double.—Then this may be met by a counter analysis, possibly a bought one, and then the lawyers will bother the jury and take up a good deal more than ten or twenty dollars worth of their time; for your Fertilizer-rogue cannot afford to have his brand injured by an adverse, but will employ able counsel to establish it by a favorable verdict.

In the case of false weights and measures we think the law is more severe than in this Bill of the Massachusetts Legislature, though the evil they seek to prevent is one of very considerable magnitude and very difficult to detect.

We wish the Legislature had seen fit to prescribe a penalty more in accordance with the principles we have suggested. As it is, we see nothing to prevent a shrewd manipulator from buying a prosecution in order to gain the eclat and publicity of a verdict. A man could well afford to pay two or three hundred dollars to a confederate to dispute the genuineness of a genuine sample.

It might have been well, too, to have required that proper chemical terms should be used in a descriptive analysis. Who ever

heard, for instance, of *bone sulphate of lime* as a correct chemical term.

COMMONWEALTH OF MASSACHUSETTS.

IN SENATE, February 19, 1869.

The Committee on Agriculture, to whom was recommitted the Bill to prevent adulteration of commercial fertilizers, have considered the same and report the Bill in a new draft.

Per order of the Committee,

DANIEL NEEDHAM, *Chairman.*

In the Year One Thousand Eight Hundred and Sixty-Nine.

AN ACT

To prevent the sale of Adulterated Commercial Fertilizers.

Be it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same as follows:—

SECT. 1. Commercial fertilizers sold or kept for sale in this Commonwealth shall have affixed to every bag, barrel or parcel thereof a printed label, which shall specify the name of the manufacturer or seller, his place of business, and the constituent parts of said fertilizer, together with a statement of the percentage which each constituent part bears to the whole mass.

SECT. 2. Whoever sells or keeps for sale commercial fertilizers not labelled in accordance with the provisions of the first section of this act, or who shall affix thereto labels not truly specifying the constituent parts of the fertilizers, shall be punished by a fine of ten dollars for the first, and twenty dollars for the second and each subsequent offence.

Prof. Mallet's Lecture.

We have been fortunate enough to procure from Prof. Mallet, of the University of Virginia, an abstract of his recent lecture before the farmers of Albemarle on "The General Principles involved in the use of Manures." We feel assured that many readers of the ENQUIRER will thank us for laying before them this instructive and valuable address.

Col. J. W. Mallet, was elected last year Professor of Applied Chemistry and Agricultural Science in the University, to accept

which place he resigned a Professorship in the University of Louisiana. He is an Englishman by birth, but married in Alabama prior to the war, and served in the war on the staff of the lamented Rhodes.

We do not hesitate to say that the University has made a rare acquisition in adding Colonel Mallet to its list of Professors. A comparatively young man, he at once made a profound impression at the University by his extensive and thorough scientific attainments, as well as by his decided talent. He has probably had no superior at the University, dating from the beginning.

As a lecturer he is singularly clear and forcible; and as a member of society a most delightful and polished gentleman.

We make these remarks partly because we wish to call the special attention of the farmers of the State to this new school at the University, inaugurated under such auspicious circumstances at this peculiar juncture in our agricultural affairs. The school is devoted to Chemistry in all of its applications to the Useful Arts, but more particularly as connected with Agriculture. It is going to be one of the most interesting and popular schools at the University—for apart from its special interest to us at this time, Prof. Mallett is bound to attract students.—*Country Enq.*

ABSTRACT OF A LECTURE DELIVERED BEFORE THE FARMERS OF ALBEMARLE COUNTY, MARCH 1ST, 1869.

Having been introduced by Col. Jefferson Randolph to the audience, the speaker commenced by acknowledging the compliment implied in the invitation to address the intelligent farmers of Albemarle, and announced as his subject "*the general principles involved in the use of manures.*"

Alluding to the great antiquity of the practice of manuring in some form—the use of manure by Chinese and ancient Roman husbandmen, &c.,—it was noticed that only within the last thirty years or thereabouts have any thing like clearly understood principles been brought to bear upon this important subject.

We know now however that manures may be employed with several different effects in view and of these effects themselves, we have begun to form some definite notions.

In the first place, manure may serve as *direct food* to the growing plant. The principal chemical constituents of the food necessary to build up the truly vegetable part of the plant—that part which we can dissipate by burning it—are carbonic acid, water, and ammonia (and nitric acid); and these are mainly derived from the

atmosphere—hence may be called atmospheric food. The chief constituents of the food which forms the mineral part of the plant—that which remains as ash after burning—are potash, soda, lime, magnesia, oxide of iron, phosphoric acid, sulphuric acid, silicic acid, and chlorine. These are derived from the soil, and may be distinguished as mineral food.

Different plants demand generally similar supplies of atmospheric food, but draw upon the soil for different supplies of mineral food—peculiar to each plant as to quantity and kind. One kind of crop requires a larger amount of mineral matter than another, one selects a larger proportion of phosphoric acid, another of lime, another of potash, and so on. On the other hand, the supply of atmospheric food is practically unlimited, the air being found to have the same composition everywhere, and being constantly in motion from place to place: but the soil differs much in different places as to the quantity and proportion which it contains of those mineral substances useful as food for plants. Although the quantity of mineral food required by a plant is much smaller than that of atmospheric food, the former (in proper kind and quantity) is essential to healthy growth. It is extremely important that *every one* of the mineral substances needed by a given crop shall be present in the soil; absence or insufficient supply of one renders the excess of the remainder useless. If land be deficient in or exhausted of any one or more of the mineral substances needed by a particular crop, the deficiency may be supplied by proper “manure.”

In choosing the proper kind of manure, we are guided to a large extent by the results of analysis of the ash of the plants to be cultivated, the aim being to at least put back upon the field in manure what we remove in the crop. The following table gives some average results of analyses of the ash of important cultivated plants:

	Wheat.	Indian Corn.	Tobacco.	Hay.
Potash.....	33	43	31	49
Soda.....	6	1	5	5
Lime.....	9	11	43	17
Magnesia.....	11	12	11	7
Phosphoric acid.....	35	28	5	15
Sulphuric acid.....	6	5	5	7
	<hr/>	<hr/>	<hr/>	<hr/>
	100	100	100	100

Silicic acid and chlorine being omitted from the table, and the whole plant, (root, stem leaves, &c.) considered together. As, however, these plants differ from each other in the total amount of ashes left, on burning a given weight, and as different parts of the respective plants only are removed from the field, and as the

total weight of the crop raised upon a given surface of land varies in each case, the following table possesses more practical interest for the farmer, showing as it does the quantity (in pounds) of each mineral substance actually *carried off* from an acre of land by a single crop of each of the kinds named—only that part of the plant commonly removed from the land being taken into account;

	Wheat, 10 bush.	Indian Corn, 25 bushels	Tobacco, 1000 lbs	Hay, 1 ton.
Potash	3.3	4.9	54.1	34.2
Soda.....	.4	.3	7.3	9.4
Lime.....	.4	.5	73.1	15.4
Magnesia.....	1.3	2.7	20.7	6.6
Phosphoric Acid.....	.5.0	8.2	7.1	8.2
Sulphuric Acid.....	.2	.1	7.7	6.8
	<hr/> 10.6	<hr/> 16.7	<hr/> 170.0	<hr/> 80.6

Several other considerations than these are to be borne in mind—as the original deficiency of the soil in any important mineral substance, the various depths to which the roots of different plants penetrate (giving them greater or less masses of soil to draw upon for sustenance), the compact or scattered distribution of the single plants over the surface of the ground (giving each a more or less abundant share of the total supply of food in the soil), &c.

It would seem most important to consider also the chemical composition of the soil itself, or rather of that part soluble in water (which alone can be taken up by the roots of plants). But there are some great difficulties in the way of such accurate soil analysis—not the least consisting in the fact that it is impossible within any practical limits of time to separate the soluble from the insoluble part of a soil by washing with water; water continues for almost an indefinite time to dissolve out some mineral matter, although the quantity extracted becomes continually less. This arises from the operation of a very wonderful property of soils—discovered only about ten years ago—that of removing certain mineral substances from solution in water, when such solution is filtered through the soil or shaken up with it, and temporarily fixing them in a differently soluble condition, so that pure water subsequently filtered through the same portion of soil dissolves out the (usually soluble) mineral substances quite slowly and gradually. This property was illustrated by some experiments made during the lecture.

Several other considerations—as that of the geological origin of the soil—may be of use in deciding upon its wants in the shape of mineral manure.

The various sources of supply of the chemical ingredients needed in the composition of mineral manures were next examined and

very special attention was drawn to the magnificent stores of *potash* which have within a few years become available in Northern Germany, where a mine exists, penetrating at the depth of 800 feet, strata rich in salts of potash, and themselves 160 feet in thickness, overlying a deposit of rock salt of more than 750 feet in thickness. Specimens of compounds of potash from the locality in question, Strassfurt, in Prussian Saxony were exhibited, and the highly advantageous results which have been obtained by using these materials as ingredients of manure were stated. The importance of this increase in our supply of potash for the culture of various Virginia crops, but especially of Tobacco, hay and clover, potatoes and grape-vines, was alluded to.

The lecturer cautioned his hearers, however, against the error of holding up potash as a "panacea" for all deficiencies—these new potash manures being only remarkable as furnishing us a much more abundant supply of what had long ago been known to be valuable, though too costly for very general use, and which is to be set down as *one* only of the most important forms of mineral food for plants.

The well ascertained effects of wood ashes, also containing potash, but in a much less concentrated form, were recalled, and an illustration of the value of this alkali was given by mentioning the effects produced upon land about Ivy depot, in Albemarle county, by spreading it upon a crumbling rock, locally known as "calico rock," in which analysis by the lecturer had recently detected 68-100ths of one per cent. of potash, or nearly seven pounds in one thousand.

The proper mechanical preparation of mineral manures was next treated of, the great importance being shown of grinding to fine powder and mixing very intimately and uniformly. Very uniform distribution over the land was also strongly insisted on as necessary to avoid the wasteful and useless expenditure of manure in one part of the field while another fails to receive its share.

The discussion of the second class of manures was then taken up—those which are usually called "stimulant manures," of which ammonia is the representative.—The action of ammonia in manure was explained as a special case of "high feeding," of the plants with this source of nitrogen in the form of aqueous solution taken up by the roots, instead of trusting merely to the very gradual supply of the same substance from the air. The various available sources of ammonia were enumerated.—The reported approaching exhaustion of the deposits of Peruvian guano (mainly reliable on account of the ammonia contained,) was alluded to, and farmers were urged

to provide for the really efficient saving of this material in the form of stable manure, by the use of hard surfaces for stock to stand upon in cattle-pens and stable-yards, (so that liquid manure may not soak away,) the arrangements of sheds to cover manure heaps and protect them from washing by rain, and the regular use of plaster (gypsum) in admixture with the decomposing manure, for the purpose of chemically preventing the evaporation of the ammonia. The fact was stated that the solid and liquid manure from a single cow for one year represents an amount of ammonia (if fully saved) equal to that of 750 pounds of best Peruvian guano.

Other "stimulant manures" were spoken of as nitrate of soda (Chili saltpetre) from South America, &c., and the abuse which may be made of manures of this class, was explained, showing how, by pushing on the plant to excessive development of vegetable tissue, it may be forced to exhaust the soil of mineral matter, (unless this be returned in the shape of mineral manure,) sooner than would be the case without the use of manure of the ammoniacal class.

Brief allusion was made to other classes of manures, as that which may be called "digestive," of which common salt is the representative and that which may be said to exert a "medicinal" action upon the soil—illustrated by him in its effect upon a soil containing protoxide of iron, but time did not permit a full discussion of those.

In concluding, the point was made that our knowledge in this direction already acquired is valuable, but greatly needs to be extended by further observation and experiment. Practical farmers were urged to aid in the progress of science by really accurate records of the results of their work, and especially of any new experiments made by them with manures, determining carefully the weight and cost of the material used, and the weight, quality and gain (if any) in money value of the crop obtained.

MARSHALL, Mich., boasts of several manufacturing establishments. A manufactory of steel springs, employing 20 to 25 hands, has lately been established there. The Novelty works turned out about 20 tons of ploughs and plough castings during the past year. A foundry produces monthly, seven to ten tons of iron, and 2000 to 3000 pounds of brass castings. There are also in the town, a car factory, an axe and edge tool factory and a paper mill for the manufacture of straw board.



Horticultural Department.

JOHN M. ALLAN,

EDITOR.

The State Horticultural Society.

Elsewhere we publish a list of the Standing Committees of this Society. These have entered actively upon the discharge of their important duties, with a determination to leave nothing undone that may ensure a large and attractive exhibition next November. The gentlemen composing these various committees are all thoroughly conversant with their respective subjects, and if our horticulturists will but heartily sustain and co-operate with them, there is no possible doubt of a successful result. Let every one feel that he and she has a personal as well as a general interest in the prosperity of this most important Society, and let each one resolve to be represented at the exhibition by something of their own production. If it be but one head of cabbage, a single apple, or a truss of verbena, send it. It is the littles that make the large aggregate, and we would always prefer seeing one hundred apples, cabbages or plants from as many different contributors, to the same quantity sent in by a few individuals. Let none be deterred from exhibiting by the fear that some one else will excel them; every good thing should be shown, even though it may not be the very best of its kind. Strive after excellence in culture, and show the results of that striving, though they should not be as good as had been desired.

Especially would we urge upon our farmers the importance of contending for the prizes for the best native fruits. Let every one who has an indigenous variety of any merit exhibit it, with a history of its origin, habits of growth, time of ripening, &c. Pomology in Virginia needs nothing more than it does a good list of native fruits, and we hope that the competition in this line next Fall will be very active.

Bedding and Border Plants.

It is quite time now to be preparing for summer flowers. We take it for granted that those who can, will have them, and in some degree they are within the reach of every one. If it is not possible for all to have highly ornamented and extensive grounds, certainly enough time, space and labor may be spared to decorate a small plot.

That class of flowers usually called *bedding* and *border* plants are most con-

venient and effective, and when combined with some of the annuals, which are grown from seed in the open ground, are made to serve any purposes of decoration, from the simplest to the most elaborate, comprising, as they do, all colors, forms and sizes.

Border plants should be mainly of low growth, interspersed with occasional taller and more striking sorts. For instance, a border matted with Verbenas and Portulaca should be relieved at intervals by some of the foliage plants (varieties of Coleus and Achyranthus), Phlox Drummondii, Geraniums, Petunias, Fuchsias, Double Balsams, and for later bloom, Asters, Marigolds and Chrysanthemums. Or if it is desired to do without the ground work, a showy border may be made of the above named taller plants properly grouped, with the addition of a variety of Roses. These last do not come under the head of border plants, but hardly any one expects to do without Roses in a collection of flowers. A border in this style may be much improved by an occasional runner trained upon a slight support. A wide border is rendered more complete by a low edging of Dwarf Box, or Alternanthera, which is a dwarf foliage plant of much value for this purpose.

In planting flower beds, no fixed rules can be laid down, as so much depends upon size, form and locality, and after these are given, so much upon individual taste. Circular or oval beds are generally arranged so that the lowest growing plants shall be near the edges, and increase in height toward the centre. This gives the impression of a mound without its disadvantages, and allows each flower its due prominence. The following list, in the order in which they are named, or nearly so, are each taller than the preceding, and will admit of grouping to great advantage: Pansy, Ice Plant, Verbena, Sweet Alyssum, Candytuft, Petunia, Heliotrope, Fuchsia, Balsam, Geranium (in endless variety), Pelargonium (do.), Canterbury Bell, Carnation, Salvia-Splendens, Deutzia Gracilis, Lantana, Achyranthus, Coleus, Tea Roses. The centre to consist of a large Rose, an Evergreen, or a delicate running Vine, trained as a pillar. In this and any other forms for flower beds that may be adopted, due regard must be had to color and habits of growth of the plants. But no rules can be definitely established for the grouping of colors, it being so entirely a matter of taste.

Towards the close of Summer, nearly all the flowers heretofore mentioned will have ceased to bloom, and unless provision is made against it now, the flower garden will then begin to assume a desolate appearance. There is, however, a large class of plants called Fall-blooming flowers, which will be ready to supply the places of those that are fading away. In this list the Fall-blooming Roses must take a prominent place. Richly colored Dahlias, Gladioli, Tuberoses, with their graceful flower stalk and delicate perfume, the many shades and styles of Chrysanthemums, Asters, Marigolds and Amaranths will almost compensate for the loss of the summer bloom. Fall flowers are generally too little appreciated. The Gladiolus, especially, is but little known and cultivated, while it is one of the most beautiful and highly ornamental flowers for bed or border.

Finally, do not neglect *climbing* and *trailing* plants. Wherever there is an unsightly fence or wall, there exists the opportunity of rendering that the most beautiful part of the garden. Any of the family of Honeysuckles, the Chinese Wistaria, many kinds of running Roses, the Clematis, the Virginia Creeper or the Jasmines will soon conceal all such ugly places, by their masses of foliage

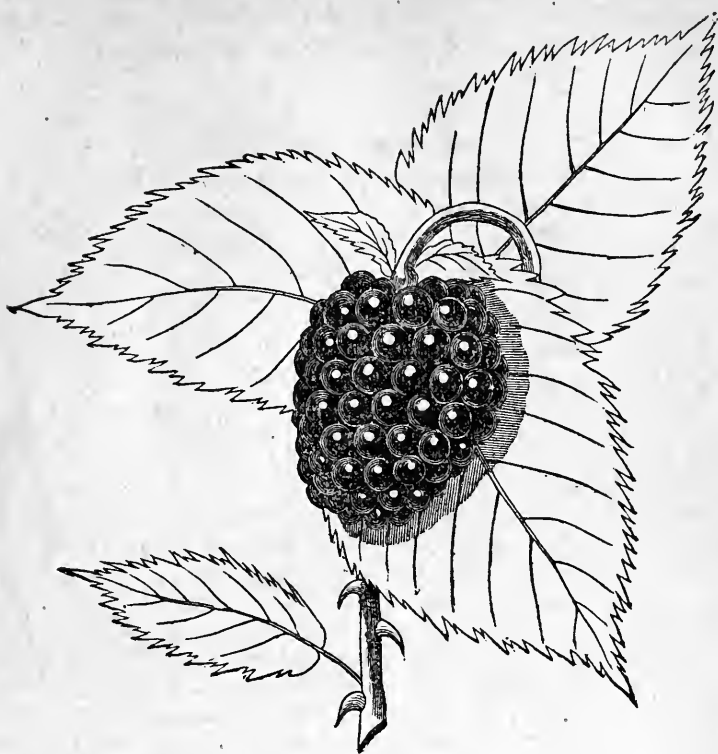
and bloom. But their use is not advocated only to cover defects. They are sufficiently desirable to be especially provided for, and hardly any plan for a flower garden can be complete without a handsome pillar or trellis.

Seed Growing.

In the Agricultural Department of the March number, there appeared a communication from Mr. Theo. S. Garnett, on the subject of home grown potatoes for seed. Mr. G's position is undoubtedly correct, viz: that potatoes *may be* grown year after year in Virginia without deterioration. The common idea, that this and other seeds cannot be grown here, arises only from the fact that they never have been; the difficulty heretofore has been, not that seed could not be raised, but that our people either did not know how, or were unwilling to exercise the care and management necessary to grow them. So far from their being anything in our soil or climate to hinder the production of good and constantly improving seeds, the reverse is true with regard to many of the leading vegetables and fruits. Take, for instance, Flat Dutch Cabbage; an experience of many years in this business enables us to assert that the seed of this cabbage grown around Richmond surpasses any that we have brought from other sections. But to prevent deterioration, it is important, first, to select only the best specimens of roots or plants, from which to grow seed, and secondly, to cultivate highly and carefully.

Indeed, seed-growing is a distinct business—one that requires skill, experience, and great caution to conduct successfully—and because of this, it has been neglected in the South, our farmers preferring to purchase from abroad, rather than take the pains required to produce at home. We are glad to know that some of our gardeners are entering upon this field, and hope that many others will follow their example. Judiciously conducted, the profits are large, but prudence must be exercised, or the losses will be ruinous; for many seeds may be grown here without detriment, which, owing to the condition of climate and season, will give too light a crop to be profitable. Early York Cabbage is one of these. In this country it will not yield above fifty per cent. as much per acre as it will in England; consequently, we cannot compete with the foreign seed. So with Beet and Radish. The Frenchman can grow and sell these at about half what it costs to produce them here. But all the late Cabbages, Parsnips, Cucumbers, Squashes, Melons, Beans, Peas, Potatoes, &c., can be reproduced *ad infinitum*, with constant improvement in quality and earliness, if care is taken to save only the "first fruits," and the best of these, to continue the stock. Let us hope that in a few years, instead of being a drain, seeds may become a source of revenue to our State. The climate and soil are propitious, and it rests with the people to take advantage of them.

MUSKEGON FRUIT GROWERS' CLUB.—A Society has been organized under the name of Muskegon, Mich., Fruit Growers' Club. The officers for the present year are: President, S. P. Peck; Vice President, C. L. Shepherd; Secretary and Treasurer, Thomas Wheeler; all, we believe, of Muskegon. It is intended to hold frequent meetings for discussion.



The Blackberry.

The great success attending the culture of this fruit in New Jersey, should lead our growers to experiment with it as a market crop. Within the last few years the Blackberry has grown so rapidly in popular favor, that in many sections it threatens to supersede the Raspberry. In some portions of our own State, especially in the Eastern part, Raspberries do not succeed well, owing to the heat of our summers; but Virginia is the home of the Blackberry, and now that the improved varieties of this fruit are attracting so much attention in the Northern markets, it were well for us to commence its culture upon an extensive scale.

We present a cut of the Lawton, one of the oldest of the improved kinds. This, with the Wilson's Early and the Kittatinny, are the leading varieties; the Wilson being the earliest.

THE following notes on "Grapes in the vicinity of Hermann, Mo.," we clip from the January and February numbers of the *Grape Culturist*. The conditions of climate and seasons in this State being very similar to those of Missouri, these notes will prove of great value to our Vineyardists:

Concord.—A very abundant crop, as usual. As mentioned before, the crop

suffered somewhat from bursting of the berries, but still yielded a very abundant harvest, which promises to make a very good wine.

Clinton.—Suffered somewhat from late frosts, as it is one of the first to bloom in spring. Makes a good wine, intermediate between Concord and Norton. An exceedingly rank grower, foliage subject to the attacks of the gall fly. Produced well in some vineyards, in others hardly anything. Requires a good deal of room, and spur pruning on old wood, to bring forth its best results.

Delaware—Has produced very satisfactory results this season; but should be planted *here* in deep, rich soil, on northeast and eastern slopes.

Hartford Prolific.—A very good crop, and for those who grow grapes for early market, it is one of the indispensables, as it is hardy, healthy, early, and very productive. Can hardly be recommended as a wine grape, though fair wine may be made from it.

Herbemont.—Has produced a splendid crop again, for those who have gone to the slight trouble of covering their vines. One of the best and most reliable, for our southern hill sides, and will be a mine of wealth to our southern States.

Iona.—Produced better bunches than usual, although it suffered somewhat by rot. Ripens very unevenly, and we cannot recommend it, although it is a grape of better quality than Catawba.

Ives' Seedling.—Four years old vines of this variety produced a very full crop for the first time. It does not seem to be an *early* bearer, but to bear profusely when older. Fruit very indifferent in quality, perhaps less foxy than Hartford, to which vine and fruit bear a very close resemblance. We have tried hard to discover the many excellencies which our Ohio friends claim for it, in the fruit and wine; but although we have tried at least twenty samples of the latter from Ohio, and some made in Missouri and Illinois, we cannot make anything more out of it than a fine claret. The best sample we have yet tasted, was made by Mr. Conrad Eisenmayer, at Summerfield, Illinois. What induced the committee to award this the first premium of the Longworth prizes, as the best wine grape for general cultivation, of our whole country, we are at a loss to imagine, as it has hardly been fruited outside of Ohio and Kentucky. In our opinion, it is not as good as the Concord here, either for wine or for the table.

Maxatawney.—Healthy, hardy, productive, and of the finest quality *here*. It ripens early enough for us here, and makes an excellent white wine, mixed with the Martha.

Martha.—Did very well again, and promises to be *the* white grape for every body; as its parent, the Concord, has proved among the black grapes. It is not subject to any disease, as far as we know, but it also suffered somewhat from bursting of the berries, and should not be allowed to hang too late. It has again made an excellent wine, especially if mixed with Maxatawney in equal parts. May *here* be safely recommended to every one.

Nortons Virginia.—A very good, regular crop, as usual. It is as reliable as anything we have, but has made its reputation already far and near, so that nothing further need be said of it.

Taylor.—This little grape has gained many friends this season, as the crop was satisfactory both in quantity and quality. It seems that the vines require age, and spur pruning on old wood, to make it produce well. Give the vine

plenty of room, and plenty to do, *i. e.*, prune it long, and we think it will bear satisfactory crops when it is three or four years old. The wine made of it more closely resembles the celebrated Riessling of Germany and the Rhine, than perhaps any other of our American varieties, and will always command a high price with wine connoisseurs.

The Norton Again.

Nothing can more forcibly illustrate the value of the Norton than the following list of wines cultivated in the vineyards of the Bluffton Wine Company, at Hermann, Missouri. More than one-third of the whole number are Norton :

395 Alvey ; 307 Cassady ; 390 Clinton ; 7,833 Concord ; 556 Cunningham ; 2,576 Creveling ; 3,830 Delaware ; 146 Hartford ; 959 Herbemont ; 100 Huntingdon ; 42 Iona ; 998 Ives ; 329 N. C. Seedling ; 12,481 Nortons ; 2,425 Rogers' No. 1 ; 571 Rogers' Hybrids [other Nos.] ; 123 Taylor ; 160 Telegraph ; 165 other varieties. Total, 34,386 vines.

Sweet Potato Culture.

Messrs. Editors,—The first in importance is to get the sprouts, and this involves the knowledge and preparation of the hot or sprout bed.

To prepare your hot or sprout bed, select a protected and warm site ; now excavate with spade a trench, say $3\frac{1}{2}$ feet wide, 8 inches deep, and of length sufficient to embed the desired quantity of slips. The trench is first filled to the depth of 4 inches with shucks or top fodder, well trodden down, and now with the greenest stable manure you fill the trench to the original surface level. The stable manure is now covered with wood, mould or virgin soil 1 inch. The slips are placed upon this bed as close as possible so as not to touch, and when thus embedded they are covered say one inch with fine virgin soil. Your bed now only requires a heavy covering (say 1 foot deep,) of pine tags or straw, to generate heat, and from day to day careful examinations must be made by thrusting the hand under this covering of tags or straw to see that too much warmth is not generated. You only require summer heat to hasten the sprouts, and a removal of part, and sometimes the entire cover, is necessary to maintain the desired temperature. The slips usually commence sprouting within ten days, and thereafter the covering of the bed will only be necessary to protect the tender sprouts from frost.

To produce early market potatoes, the sprout bed should be made by 20th March, and thus you may hope to have sprouts ready to set out (plant) by first of May, and marketable potatoes in this climate can be produced from these sprouts planted as late as July 15th.

Of good sound slips I should say seven bushels will furnish enough sprouts to plant an acre from the first drawing, and not many days thereafter your bed will again furnish scarcely less than the first.

Select for your potato patch a light or sandy soil, as free as may be of grass. Stiff or heavy land will produce very fine potatoes, but not early.

To produce the largest yield of potatoes, I would advise a heavy broadcast of stable and farm-pen manure, turned in some two weeks in readiness for the sprouts, with single ploughs. When the sprouts are ready to be set out, you

lay off the patch 2 feet 10 inches, and throw up the ridges with single ploughs. You will perceive that the 2 feet 10 inches will take all your broadcast manure in the ridge, and with this comingling of manure with the earth you may hope for a large yield.

Four furrows will give the proper ridge. The sprouts should be planted from 12 to 15 inches. It is best to set out the sprouts after a moderate rain, but never plant when the ground is too wet (sticky). You can set the sprouts without regarding the rain if you mud the roots of the sprouts, and put say a gill of water in the hole for the plant.

The work required in the potato patch I regard as very simple. My method, so soon as possible after the sprout begins to grow, is to loosen the soil around it and remove all grass on the ridge. The next, and with me the final work, will be to run a shovel plough at the base of each ridge, clean all grass, &c., from the potato sprout, and now with hoe work up the ridge, and secure your patch until digging time.

We get our earliest potatoes in market by 15th August, and it is well to cellar or sell all your potatoes ere the first frost. You may regard 200 bushels a good yield for October digging.

In the summer of 1868 sweet potatoes sold in Norfolk, Va., for \$7 per bbl., and \$4 in autumn. We have demand for all we can produce in Northern marts.

The small, unmarketable potatoes are your slips, or in August you will cut say vines 15 inches long; drop these across a ridge, and with a forked stick placed on the centre, you embed this vine some 4 to 6 inches.

You cannot err in any method pursued in the working of potatoes, so you keep them free of grass and keep the ridge up.

There is none other than the yellow bark potato planted with us for market.

It may be of value here to state, that if you can dig your early Irish potatoes by the 10th July, you have now the opportunity to make a good crop of late sweet potatoes from this ground. The manuring for the Irish will also make the sweet potato crops.

Editors Planter and Farmer,—I give for a very simple, but sure preventive against the fly on the tomato, when transplanted from the hot bed in the spring: A twig of the "old field pine" stuck in the ground on the south of the plant, and just large enough to shade it, bending north. Let the pine remain until the tomato assumes a vigorous growth, then remove it.

Tobacco, after being dried in an oven or warm sun, then rubbed very fine, and applied to squashes, melons, &c., is certain against the striped bug. Of course a renewal must be made after every rain. Lime, soot, kerosene oil, &c., are often recommended, and may keep away the bug; but to the plant they are as injurious as the bug, and it lives in spite of all—a sickly existence—as the patient recovers in spite of the Doctor; but "vis medicatrix naturæ."

Lunenburg, Va.

KINDEERWOOD

Rich Soil for Trees.

A correspondent wishes to know if the soil for peach trees and strawberry vines should be made rich, and if they should be highly cultivated? Yes to both questions. But be sure to distinguish between *high* cultivation and *deep*

cultivation. No trees nor vines should have the latter. All will be vastly benefitted by the former. The best fertilizer is stable manure, thoroughly incorporated with the soil before planting, but let it be applied as a top dressing ever afterwards. Never *dig up* the roots of a tree under pretence of *digging manure in*.

Soil and Aspect of the Vineyard.

In the present condition of grape culture, when nearly every day brings new varieties, it would be as absurd to give universal rules as it is absurd to search for a *universal* grape, one which will succeed in all locations over the length and breadth of this immense continent. We should be glad indeed if our friends from all parts of the country will give us their observations and experiences on this point, naming varieties of grapes they have under culture, soil, aspect, success or failure. The requirements for each variety are so essentially different, that one side of the same hill will often produce entirely different results than the other.

We look upon those who speak of one variety of grapes as succeeding *everywhere*, with something of the same suspicion, with which we look upon the physician, who cures all diseases with *one* remedy; and hope to do our share in defending the public against quacks in grape culture.

But while it is true that no rule will apply *generally*, it is equally true that general rules will govern each location and State. Thus we find here, that the class of grapes belonging to the *Labrusca* or northern fox grape division, generally require a deeper and more clayey soil, than those belonging to the *Æstivalis* or summer grape division. The first prefer our Eastern and North Eastern exposures, with their deeper and richer soil; the second the Southern and South Western exposure, where the soil is poorer, and more intermingled with lime and decomposed stones. We have seen the Catawba look yellow, and its leaves burnt by the sun, in aspects where the Herbemont, Nortons Virginia, Cunningham, Rulander (so called;) in short, all those belonging to the Southern class of the *Æstivalis* family, would stand the severest droughts without flagging, remain fresh and green, and bring their fruit to a perfection which they will not in deeper soils.

But while this rule will apply generally, there are exceptions of both classes. The Delaware, (in our opinion undoubtedly an *Æstivalis*) the Creveling, and Alvey, all belonging to the same class, will, according to our experience, do better either on the bottoms of our rivers and their Southern side, or in the deep rich sandy loam of our North Eastern or even Northern slopes. And we may add to them the Cassady, undoubtedly a *Labrusca*; and some of Rogers Hybrids, crosses between the *Vinifera* and *Labrusca*. In summing up, we find all varieties liable to sunscald, should be planted on deep soil or on a northerly slope, while those "children of the sunny south" with a strong and vigorous growth, healthy foliage, and small berries; in short, the southern division of the *Æstivalis* class, will do best, and furnish the best wines, on Southern slopes with warm limestone soil.

The soil should be loose and friable; if not so naturally, it should be made so by deep ploughing. Only in land thus prepared, will the vines be able to withstand the vicissitudes of our changeable climate, and be healthy alike in wet as in dry seasons.

This is Missouri experience. (Virginia experience is the same.—ED.) Will not our readers from other States give us theirs? Let us abandon the search after a universal grape; let us find out what will suit each locality and soil; and we will achieve more for the success of grape culture than can be done by all the Greely and Longworth prizes, which, however well may have been the intention of the donors, will only serve to make "confusion worse confounded."—*Grape Culturist*.

Virginia Horticultural and Pomological Society.

At a meeting of the Executive Committee of this Society, held at their rooms March 18th, pursuant to adjournment, the Chairmen of the following Standing Committees announced their associates as follows:

Flowers—Dr. James T. Johnson, Dr. Thomas H. Williams, Dr. Richmond Lewis, Dr. C. W. P. Brock, William G. Taylor, Esq.

Vegetables—Messrs. Joseph R. Rennie, L. Chamberlain, W. L. Harrison, I. O. Austin, John Gordon.

Essays—Dr. S. P. Moore, Hon. R. M. T. Hunter, Hon. B. J. Barbour, Prof. Mallet, General Bradley T. Johnson.

Horticultural Implements—Messrs. I. S. Tower, E. B. Addison, John Asher, A. P. Routt, John F. Early.

The Chairmen of the Committees on Fruit, Statistics, and Arrangements were allowed further time to announce their committees.

The Committee on Premiums not being prepared to report, the Committee adjourned to meet on the 15th of April, at 8 o'clock P. M.

EXCHANGES.

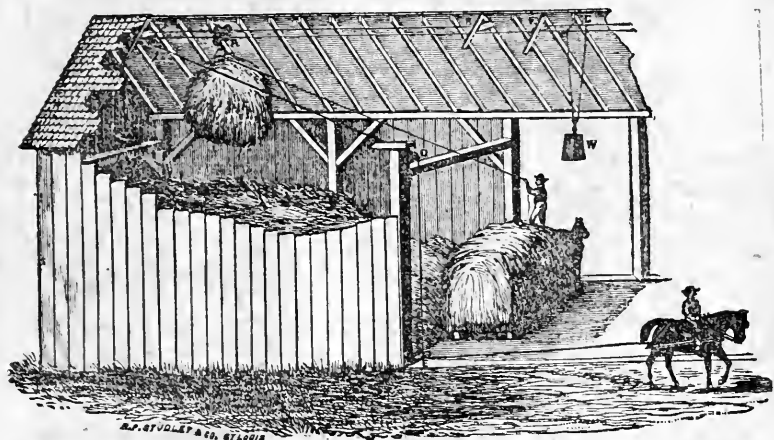
The Grape Culturist, George Husman and Chas. H. Frings, Editors, St. Louis.

The first two numbers of this new monthly were received too late for acknowledgment in our last issue. The number of extracts from its pages which appear in this issue attest our high appreciation of its merits and will enable our readers to judge of its value. It supplies a want deeply felt heretofore, viz, a journal devoted solely to the Grape and Wine interest. Edited by gentlemen who bring so much practical and scientific knowledge to bear upon the subject as do Messrs. Husman and Frings, it cannot fail of accomplishing great good, and we wish it unlimited prosperity. If we borrow freely from it, the Editors must blame no one but themselves; the matter is so pointed, practical and useful that one cannot forbear appropriating it.

WHY do not our intelligent Market Gardeners form club for their mutual benefit and social enjoyment? There is no other way in which so much good could be accomplished to themselves and to the subject of gardening. Weekly meetings at each others' houses, could not fail to produce much social good feeling, and in some neighborhoods would make a radical change for the better.

Mechanic Arts.

Black's Hay Hoisting Machine.



We give the cut of this great improvement on hoisting hay as described in the *Prairie Farmer*.

The hay crop is of growing importance in Virginia. We believe it is increasing and we hope will continue to increase until not a wisp of hay can be brought to our State from any other State. No large crop pays as well; none is attended with as little labor; none is as certain; and none is more necessary to an improving and judicious culture. But to meet competition, the hay must be cut with a mower, turned with a hay tedder, got up with a hay rake, hauled in a harvest cart, wagon, sled or rope in the most economical way, and housed or stacked with a hay hoister. All these implements we have tried, and if any one wishes it, we will give the price of all of them.

Having heretofore had abundant house-room, we have never stacked out of doors; but the hay hoister operates as well there as when the hay is housed. All that is needed is three very stout poles, small tobacco house logs, twenty or thirty feet long made into a tripod—sheaves they call it—and the work goes on.

With this rig we can compete with other hay in our own market, and otherwise not.

This is an improvement for hoisting fork loads of hay to the required height and then conveying them horizontally over the mow or stack, thus enabling farmers to so construct their barns that the same roof that shelters their hay will also shelter their stock. It consists principally of the traveling pulley A, and the track B. C., which is a rod tightly stretched between two short beams and may be 40 or 50 feet long. While the hay is ascending, the Traveler is

firmly latched at B. The rope passes through a ring which hangs below the Traveler and is connected with a joint forming a part of the latch. A knot on the rope coming in contact with the ring, by springing the joint, releases the latch, without perceptibly increasing the draught. The horse continuing to advance, the Traveler moves forward C, carrying the hay with it. An ingenious and essential part is a rake which grasps the rope at the instant that the Traveler starts toward C, and releases it only when the Traveler returns to B. The weight W, operates the brake and draws the Traveler back to B, as his horse returns to his position at E. The Traveler being automatic in all its actions, the pitcher experiences but little fatigue in pitching over beams and any desirable distance back, even with the heaviest fork. It pitches equally well from a drive way or in the end of a barn. In stacking, the track is sustained by two poles and a guy at each end. It will build a rick 40 or 50 feet long and 25 or 30 feet high, always dropping the hay along the centre.

The machine has been in use for three seasons, and the certificates which the inventor has received show the estimation in which it is held by practical men.

This machinery is patented and the manufacturer is Henry Black, of Carrollton, Ill., who will give any further information desired.

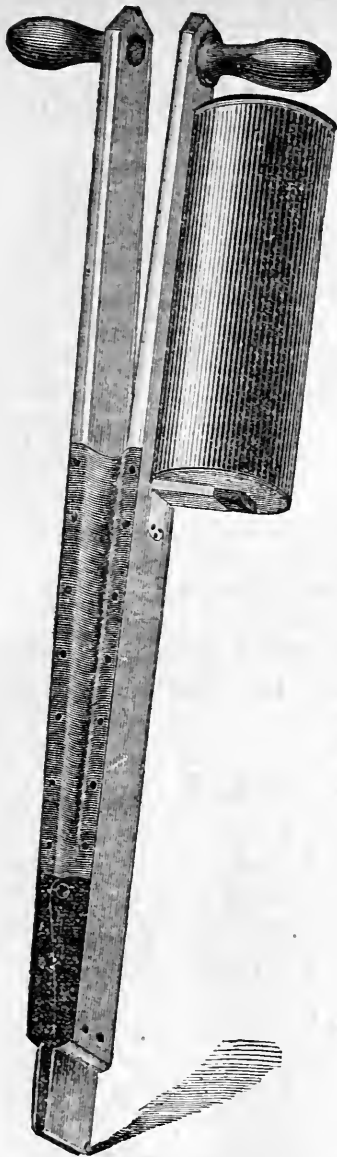
McCormick's Reaper in France.

By invitation from the Emperor Napoleon a private exhibition of the working of McCormick's reaping machine was made recently on the Imperial farm near Chalons, at which the Emperor was present, accompanied by Marshal Niel, Gen. Le Bœuf, and M. Tiperaud, and Director-General of the Imperial Agricultural Estates.

The trial was a complete success, and gave so much satisfaction to the Emperor that he immediately gave orders for the purchase of three of the machines for use on his private farms, and expressed the intention of encouraging the adoption of the invention throughout France, on account of its great labor saving properties, and said that he would set the example by putting it into operation on all imperial farms.

Such distinguished attention as this has been shown to no other foreign exhibitor, and it is considered certain that to Mr. McCormick will be awarded the highest honor of the International Exposition.—*American Artizan.*

The Hughes Hand Corn Planter.



This Planter, for easy handling, perfect operation, adaptation to all kinds of land, cheapness and durability, stands unrivalled, and is one of the greatest labor-saving implements ever introduced and used by the Farmer. It weighs but four pounds; a boy can use it, and one hand can plant, easily and perfectly, from seven to ten acres per day.

It works in dry land, in sod, among stumps, in wet land, in gravel, among rocks, everywhere.

For replanting it is invaluable.

The blades are from three to four inches wide, and the corn in falling is scattered by a conical separator, thus removing the objection of some that it crowds the seed into the hill.

We are ready to correspond with merchants, giving them *special rates*, according to the number they may wish to purchase. The retail price at the factory for the Planter is FIVE DOLLARS, and farmers who are unable to purchase one where they reside, can have one sent them promptly by enclosing us that amount and sending it by mail.

It is warranted to work *better* than any other planter in use.

SEMPLE, BIRGE & Co.,
Gen'l Agents for the Hughes Corn Planter,
St. Louis, Mo.

In presenting the cut of the above named implement, we have to say that we got it for the inspection of our subscribers. Some people can't afford Corn Planters to go by horse power; some don't like them; some prefer to plant in checks, which no Planter is advertised to do but two, and we know nothing of them.

The cut struck us as a good one: the plan, if it answers, is certainly better and more expeditious than planting by hand, and the whole operation more complete. Look at it, gentlemen, and judge for yourselves.—Ed. So. P. & F.

Household Department.

Diseases of Poultry.

Not unlike the human family, Barn Yard Fowls are subject to many diseases, some of which yield readily to medical treatment, while others only end in death.

One of the first remedies, or, more properly speaking, preventives is cleanliness. Fowls must have warm, well ventilated lodging quarters to make them healthy and valuable. Hens that have to perch in trees, or on poles, exposed to the drizzling rains and cold winds cannot lay regularly, nor will their eggs eat or hatch as well as if they were properly provided for. They must have good sound food—corn being the principal—ample range, fresh water, and ash baths to free themselves of vermine. They need free access to lime, a fair show of green food, and if given fresh meat once a week during the winter months, will appreciate it, and repay for such repasts by their cheerful song and abundance of eggs.

ROUP,

is doubtless the most fatal as it is the most loathsome disease known to the poulterer. It comes with difficult breathing, swollen eyes and faces, and offensive discharges from the nostrils; and is produced by filthy quarters and insufficient feeding. It is sometimes relieved by gentle stimulants, good nursing, and change of quarters; but being contagious, is easiest gotten rid of by killing the complaining bird.

GAPES,

is another disease which often proves fatal to young chickens, and is generally supposed to originate from one or more small worms in the throat, picked up while feeding in old yards, or swallowed whilst imbibing stagnant water. An intelligent physician, who has given this disease some attention, says the so-called worms are not worms, but ligaments of flesh very similar to those in the throats of croupy children, and should be treated just as croup is. The free use of lime in dough made in meal and wheat bran, with lime water to drink—or a few grains of wheat soaked in spirits of turpentine—or strong alum water to drink, have been all used with success. Where diseases appear in poultry yards, the water troughs should be thoroughly scalded and cleansed every day, and if sour, be white washed inside, to remove the acidity. Then give the birds fresh

water two or three times per day, and with the diet recommended above will soon disappear.

CHOLERA,

or excessive purging, is said to be produced by too much salt food. Two eggs and one tablespoonful of pulverized alum, made into a paste by the admixture of flour is a good remedy. Red Pepper and chalk mixed in corn dough, is another remedy, frequently used with success. Powdered alum mixed in food, is said to be a preventive. But the best preventive is, to feed on nothing that is sour or unsound.

PIPS

is the formation of a hard substance on the end and lower side of the tongue, and is fatal if neglected too long. Remove the hardened cuticle as soon as discovered, give the complaining bird some stimulating food—say stale bread moistened in good ale, a free run to the lime heap and ash bank—and it will soon recover.

HARD CROP

is another disease common among fowls, and produced by eating greedily and then drinking freely. When discovered, pour tepid water down the throat of the bird, work the crop gently with the finger and thumb, so as not to bruise it, but at the same time to soften the coagulated food, then give a spoonful of castor oil, and the patient will generally recover in twenty-four hours.

VERMIN

are more annoying and more difficult to prevent than any disease. The medicated ash bark may keep them from grown fowls, and does partially do so, but to protect young chickens against them seems impossible. My hatching boxes are always thoroughly scalded and cleaned after being used—my hens are examined and medicated with essence of pennyroyal, or crysallic soap, or coal tar water, or kerosine oil, and the nests are also medicated before being taken, and yet, in the month of February, out of fifteen clutches of chickens, I found almost every bird *lousy* when first taken from the nest. And, from the size of the vermin, it would seem as if they came with the young bird from the shell. My remedy for these pests is, to grease each bird, as well as the hen, with unwashed butter, fresh from the churn, and thus far that remedy has proved successful. I have tried flour of sulphur and various other remedies. but the fresh butter has thus far proved most efficacious. Out of fifty-six birds

hatched during the month of February (all Brahmas), I have lost but *three*, and they were mashed.

A PREVENTIVE.

Mr. John Douglas, of England, gives the following recipe as a preventive of "roup" and "gapes" in chickens and all fowls; and Mr. C. M. Saunders, of New York, says it may be true "if perfect cleanliness is maintained and the fowls are in other respects well treated." The experiment is a cheap and innocent one, and I advise our poulterers to try it. Here it is:

"One pound of sulphate of iron, one ounce of sulphuric acid dissolved in a jug with hot water, then let it stand twenty-four hours, and add one gallon of spring water; when fit for use, one teaspoonful to a pint of water given every other day to chickens, and once a week to old fowls, will make roup and gapes entirely a stranger to your yards."

And now, kind reader, having bored you sufficiently on the subject of barn-yard fowls, I am about to bid you adieu. I have endeavored to awaken an interest in the farmer on the subject of poultry, to show how its cultivation can be made pleasant and profitable to all classes, and to give reasons why I believed the *Brahma* was *the fowl* for Virginia barn-yards. If I have succeeded in attracting attention to the subject, and in inducing you to examine it for yourselves, I am well repaid for my labor. I understand that an effort will soon be made to get up a "Poultry Association" for the State, similar to those in Europe and some of our Northern States; and if leading farmers here, as elsewhere, take hold of the subject, we may soon rival the North even in poultry exhibitions and productions. And now I bid you adieu.

J. W. L.

BUTTERED BAKED APPLES.—Peel and core the apples, leaving them whole; carefully butter a heavily-tinned plate, and arrange on it; fill the holes left by the cores with powdered sugar, and sprinkle the apples with melted butter, then bake twenty minutes. On serving put a little currant jelly in each of the cores.—*Petit Journal*.

WAFFLES.—One-half pound of butter, one quart of milk, four eggs, three teaspoonfuls of cream of tartar; mix in the milk one-half a teaspoonful of soda, which you soak in a little water; put in when you put in the whites of eggs; flour to make a batter—not too thick.

THE SOUTHERN PLANTER AND FARMER.

RICHMOND, VIRGINIA., APRIL 1869.

TERMS OF SUBSCRIPTION AND ADVERTISING.

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PAYMENTS.

Subscriptions—in advance. Advertising—annual—quarterly in advance. All others in advance

Editorial Department.

Concentrated Fertilizers for Corn.

Last month we promised to write an article on the above at this time, and expressed the hope that others would follow the example of our correspondent on page 135-6 of the March number. In this we have been disappointed, the modesty of our farmers—to put the best face on their non compliance—having prevented them, giving each it may be, but his mite to the general store of information, which once collected and systematized, would be worth thousands in this one item alone.

The correspondent above referred to advises, as the result of 22 year's repeated trial and many experiments, that the Fertilizer be applied when the dirt is given to the corn, to be sowed upon as narrow a space as possible, just upon the corn, and to be covered with the plough. This accords with the experience of another gentleman from the county of Gloucester—the first was from King and Queen—who is fully satisfied that the above is the proper way to use it.

Our own practice has not been extensive with Guano on Corn. We tried it once in the hill; and it failed so utterly to make the corn ear well, that we gave it up, and soon adopted the practice of growing corn on clover sod, reserving all concentrated fertilizers for wheat and oats. But last year we tried an experiment which was conclusive on our lands as to the best mode of using them on corn. It was this: on a lot of good land limed with twenty-five bushels shells burned and slaked, we had a crop of corn planted the last of April. On part of it we put on fertilizers in the hill at the rate of 150 lbs. per acre. The corn stood well, grew off finely, and made a good crop; on another part we applied to the hills, checked off four feet square, a shovel full of wood-pile and yard sweepings made into compost with lime. This also made a good crop, better than the first part. On another, and the last part, the most inferior land of the lot, where the corn grew off worse, we sowed 150 lbs. dried or pressed fish at the last working of the crop, and just before it began to tassle. It was sowed in the middle of the row, and ploughed in with a one horse turn plough, baulks broken out at the same time. What the yield was we cannot say, for the

March pigs, 21 in number, ran in the field from the time the corn was up until the Middle of September, their mothers being excluded. They were then taken out and confined, to prevent their trespassing on neighbors; and the entire crop was cut up and shocked. Of course we could not measure nor compare the different products thus partially and indiscriminately consumed by the shoats. But we could notice and now record one note worthy fact, viz: that though the stalks were a great deal larger, and the growth evidently more vigorous on the part manured in the hill at planting time, yet there was rather a deficiency of twin ears on that part of the field; whereas on that manured broadcast when the corn was laid by, though the stalks were smaller, the crops was much finer and there was a predominance of twin ears.

Combining then the facts given in this and the preceding number of the Planter, and adding the years as if they were in one continuous series, it would appear as the uniform result of about twenty-five crops that it pays much better to apply the fertilizers at a period considerably subsequent to the planting and quite close to the formation of the ear.

The next question is as to the kind of fertilizers to be used. Our correspondent above referred to says: "As to my experiments with manipulated guanoes and manufactured manures, which have been many in the last fifteen years, I have to say, the money expended was all lost except when ground bones, or bone ash and Peruvian guano were the only ingredients." As "the bone ash and Peruvian guano" used were Ruffin's Phosphor-Peruvian, which we know was genuine, we assume that a good phosphate mixed with Peruvian guano will answer. Of all forms of phosphate we decidedly prefer bones either ground or burnt and mixed with Peruvian guano or pressed fish. It costs more, but if genuine it can't be anything but phosphate, and phosphate in the best as well as purest form. The burning them is a mere matter of economy; except about three per cent. of ammonia which can be easily replaced by guano, the part lost by combustion is water and oil, neither of any value to crops, and we think the more open texture of the burnt bone, making it more permeable to ammonia and other solvents makes it really more valuable. Still other forms are cheap, and many of them do very well. We do not propose to name them, because after all, the purchaser must rely upon the personal guarantee he has in the character of the party he deals with, or upon the analysis of a chemist whom he knows to be honest and capable; and when we say capable, we no more mean that every accomplished chemist is therefore an accomplished analyser, than we mean that every well educated physician is equal to a specialist, or that every lawyer is equally good at common law, equity and admiralty.

Of ammoniacal manures there are to us but two sources of supply, guano and pressed fish, the latter in very limited supply at present and of uncertain continuance.

Peruvian guano ought to contain 16 per cent. amm., and 25 per cent. phosphate, soluble. The fish which we used on corn, again on wheat last fall, and which Mr. R. B. Chafin of Amelia has used on wheat with such success that he is now seeking to obtain a fresh supply for his tobacco crop, and which our friend, Dr. Jno. R. Garnett of Henrico also used, at our instance, with success on corn last summer, that fish contained 25 per cent. moisture, 9.36 per cent. amm., and 13 per cent. phos: an analysis where accuracy is proved by Prof. Way's. This is more than half the ammonia, and not quite half the phosphate

in Peruvian guano. Rating Peruvian guano at \$80, and the fish at \$30, which we paid, it is plain that the fish is decidedly the cheapest and that the deficiency of phosphate can be more cheaply supplied from some other sources. At the North they guarantee, or profess to guarantee, 8 per cent. of ammonia which still makes a cheap substitute for guano.

The next question is, can we produce a sufficient increase of crop to warrant the outlay? Our correspondent estimated his gain at 25 bushels corn per 100 pounds guano, or 16 pounds ammonia, though we suppose his average gain was not equal to that. Suppose it to have been 15 bushels. This, at the present price of corn, 80 cents, and guano, \$82 50, would be \$12 for an expenditure of \$4 12½, or very nearly two hundred per cent.—a very fair operation. Assuming our correspondent's amount of application, 100 pounds Peruvian guano, in its equivalent of pressed fish and bone ash combined, we find it will take 171 pounds fish, costing \$2 56½ + 16.30 pounds, (at 73 per cent. phosphate lime, \$50 per ton,) 41½ cents=(say) \$2 98, in round numbers, \$3 per acre; or at 150 pounds per acre, \$4 47, and at 200 pounds per acre, \$5 96.

But as the proportion of ammonia is larger than we think necessary, it will do quite as well, in most cases, to use only 100 pounds of fish and to double the quantity of bones, the cost of which each one can calculate for himself on the above data.

The fish are damp and lumpy, and will have to be run through a threshing machine or Little Giant, then be mixed with the bone ash, and plaister, if you choose, will help, (or *dry* clay, if the land does not need plaister, will be quite as good,) the mass well mixed and shovelled, and then sowed on the land, to be ploughed in.

The fish is prepared for sowing by being ground, but the cost of doing that is altogether too large, and at \$50 per ton, the price asked, and 12 per cent. ammonia, the quantity alleged to be in the dried article, which is about right, there is only a little more than \$5 per ton difference, which is decidedly higher than it ought to be.

Whether the above assumed increase will be realized in the crop, is a question which each one must answer for himself. Generally, we should say that on land which will average 20 bushels per acre, the application in small quantities will not pay; and if larger are needed, we would rather apply the fertilizer to the wheat crop, to be followed by clover and *grass*. But it is simply a question of capital and judgment, not opinion, mind, but judgment—a very different thing from opinion.

This being settled, we have to say that, taking all things into consideration, when the farmer knows that he gets what he bargains for, it is better to buy the manipulated article than attempt to make it, unless fish can be had in the quantity required and at or near the price stated. We gave that advice when we were manipulators; and "sauce for the goose is sauce for the gander." The reason is that the article is generally prepared by superior machinery, and the manufacturer, buying by wholesale, has a much better opportunity of obtaining the genuine ingredients.

We anticipate the question: "Of whom shall I buy?" But, friends, just there we express no opinion. Remember what Sir Peter Teazle said, and emphasize it when you buy fertilizers: "This is a d——d bad world, sir, and the fewer people you praise in it the better."

There are reliable men in the trade, but find *them* out for yourself.

Prof. Mallet's Lecture.

In another place the reader will find and we hope will read diligently the lecture of this gentleman, delivered on the first day of March, before the Farmers of Albemarle county. Our accomplished friend, Mr. Southall, of the Enquirer, knows Prof. Mallet so much better than we have the pleasure of doing, and is so much better qualified to judge of his attainments, that we adopt his introduction without hesitation or reserve.

Why cannot the Farmers near Charlottesville get up a class and prevail on Prof. Mallet to deliver before them a course of lectures on Agricultural Chemistry? We are sure it would be of great benefit and be also a great pleasure to them, and enable Mr. Mallet to rehearse for similar displays on a much wider theatre.

We say we hope the farmers will read; perhaps we should have said, we *wish they would* read; for we remember more than one case in which many of them decline that advantage. As for instance; once a particular friend said to us: "Why don't you write an article on so and so?" "Well," we replied, "there was just such an article in the September number of the paper; and I thought of you when I wrote it." I recollect," he said, "there was such an article, and I would have read it; but it was so long." We beg such parties at least to consult the tables on the inorganic requirements of plants, and to note what is said about the important discovery of potash salts in Germany.

The Richmond Whig.

The Whig has so often done this paper the kindness of a friendly notice that we should be as ungrateful as inappreciative not to express our pleasure at its enlargement and improved typography, and further to express the hope, indeed the conviction, that both are due to its increasing success in the field of journalism.

Within the last few months, it has wisely given itself very much to the question of industrial development, and has done much, and no doubt will do still more, to attract the attention of foreign capital to our resources, as well as to rouse and impel the energies of our own people in the same direction.

Its politics, we suppose, are symbolically represented by the old state seal, and its motto *Sic Semper Tyrannis*, which we once heard was pretty freely, but we rather think, on the whole, correctly translated by an Irishman: "that's the way they do us when they have us down."

Success to the Whig; may its dimensions never be less.

Captain Maury's Communication.

We are very much obliged to this distinguished gentleman for the article which he has contributed to this paper. We ask for it the close and critical perusal of our readers. In point of style and execution the paper from Amelia is very superior. We dissent somewhat from the figures and conclusions of the *pro forma* statement; but we shall reserve our criticism for the May number of the planter and Farmer. With that *pro forma* amended we would say that the paper is a model for similar reports from every county of the commonwealth.

What May Prove a Fraud in Guano.

We have got hold of the following, which we insert for the benefit of our brother farmers:

NOTICE.

No. 1 Peruvian (*Guanape*) Island Guano.

The consignees of the Peruvian Government have sent to me two cargoes of this Guano. One cargo is stored at Baltimore, the other at New York, in bags marked as other Peruvian Guano, with the addition of the *GUANAPE*. The following is an analysis made of this Guano by Professor Leibig of Baltimore ex-ship E. Sherman.

Moisture.....	16.55
Organic Matter	38.72
Containing of Oxalic Acid....	3.800
And producing Ammonia.....	9.382
Inorganic earthly matter.....	44.72
Containing of the phosphoric Acid.....	15.23
Lime.....	14.77
Magnesia.....	86
Chlorine.....	1.03
Sulphuric Acid.....	1.06
Alkaline	4.11
Ox. of Iron and Alum.....	1.47
Sand and Silicia.....	2.22

The Phosphoric Acid of which 5.65 is readily soluble, is equal to 35.25 of bone phosphate of lime.

(Signed)

G. A. LEIBIG, Phr. Dr.

The price fixed by the Peruvian Government for this Guano at present is fifty dollars, gold, per ton of 2,240 lbs. in bags.

For sale at Baltimore by B. F. Voss, Agt. Peruvian Guano Co.

R. C. FERGUSSON,

Agent for Consignees Peruvian Government.

42 South street,

New York.

f125-3aw8t

Observe that the No. 1. Peruvian (*Guanape*) Guano has only 9.372 per cent. of ammonia against 16 to 18 per cent. averaging 17 per cent. in the old sort. Look out for the word *Guanape* on the bags, it is not better than pressed fish and costs upwards of a good deal more.

We impute no evil purpose to Mr. Fergusson; but we think it well to caution farmers.

Fish Guano, or Pressed Fish.

We are very glad to learn that an establishment has been started in Mathews county, Va., for the preparation of this valuable fertilizer. If not advertized in this issue of the Planter, it certainly will be in the May number, which will be in fair time for tobacco and full time for corn.

We have not learned definitely the percentage of water in the sample, but if it be no more than the usual quantity in that sort of manure, we can safely

say, that though more disagreeable to handle, it is really a good deal cheaper than Peruvian guano, and *made at home*.

To those who have never heard of it, we can only say that it is the source of ammoniacal supply in a good many of the fertilizers now sold in the market and has long been known in other countries and on our sea shores, as a valuable manure either in the raw and unmanufactured state, simply as refuse fish; or in the pressed state, the fish being subjected to strong pressure for the oil, and the residue prepared in various ways for agricultural use.

We hope an agency for the sale of this article will soon be established in this city. There is one now in Norfolk in the hands of Messrs. Gresham & Shanks to whom we refer parties wishing further information.

This is another new enterprize which we welcome.

Excelsior Oats.

We owe our thanks to the Department of Agriculture for several samples of these oats imported from England. We have already distributed them, and could have easily disposed of many packages more. We earnestly hope that all who may have received the packages will remember the sentence which accompanies each package. Our attention to that is all important to the labors and usefulness of the Department. Here it is:

"The object of this distribution is to disseminate new seeds, and extend them that have proved of sectional value. It is, therefore, indispensable that the commissioner be advised of the results of experiments. Please report."

Slight as this request appears, it is really the gist of the whole matter.

If we were asked why Agriculture is to day so far behind the other useful arts, we should say it is due mainly to the fact that so few facts are well observed and reported to scientific men.

Wild Goose Plum.

Our thanks are due to Dr. M. W. Philips of the *Southern Farmer*, for a package of trees of the above fruit. We shall plant them, and if they turn out well, we hope to be able in a few years to distribute more of them among our friends. We suppose all know, that it is a variety of the Chickasaw, a wild native plum, and a very good one generally, that grows in gullies and odd places on many farms. As being measurably free from the ravages of curculio, and perhaps affording a good fruit for tarts, jellies and preserves, it is capable of being made of considerable value. So at least it appears to us, who do not know, or pretend to know anything of fruit, or *fruticulture*; a word, by the way, we are surprised not to have seen manufactured and brought into use.

But whether it be good or not, it comes as a pledge of regard for ourselves and more than ourselves from a man, who though he has buried the past and would no more revive it than a mourner would exhume and revivify the dead, yet looks back on the tomb as not only the resting place of the dead, but the repository of holiest memories. Whatever the future may be, there are some who are blest with the constant feeling that the past at least is theirs, and that all the powers of earth and hell cannot tear it away.

Fertilizer, Flour and Woollen Mills at Charlottesville.

On a recent visit to Albemarle, we were pleased to see that Charlottesville is neither dead nor sleepeth.

Mr. B. C. Fiannagan has in full operation a mill, with machinery of the best description, for the manufacture of fertilizers; also a large flouring mill, in which he makes a brand of flour that competes with any in our market. When we state that all the power is steam, there being no water power within less than a mile of the town, we think all parties will accord credit to the enterprise that, *in these times*, has conceived and carried out such important improvements.

It is in the strict line of our editorial duty to notice all such things, to help them on as far as our feeble ability will allow, and to "call attention" to the advertisements which give full particulars.

In the same spirit we cite the fact that Mr. Marchant's woollen factory, which was burnt by the enemy during the war—enemies in war, in peace (when we get it) friends—again adorns the shores of the Rivanna at the mouth of Moore's creek, a mile and a half below Charlottesville, on the site of what was called thirty years ago, "Pioneer, or Merriwether's Bridge."

There, we were glad to learn, the best descriptions of woollen are made, and fair prices paid for wool. We have been promised a book of samples by Mr. Marchant, which we shall keep in our office and exhibit with pleasure to the gentlemen whom we are endeavoring to coax into wool growing.

These are the enterprises that will do more to help reconstruction than most of the political theories of the day, and especially those that refer to the dead past. We hail them with pleasure as the precursors of larger, grander and more varied enterprises.

Large Pumpkin.

Samuel A. Townsend, of Kent, Connecticut, raised on his farm the past season, a mammoth pumpkin, which measured in circumference seven feet, and weighed one hundred and thirty-two and a half pounds. From the time it budded till it ripened and was picked, by actual calculation, it must have grown two and a half pounds per day, and one ounce and three-quarters per hour. It is estimated that it would require ten cans of milk to make it into pies.—*Exchange*.

A tolerably large pumpkin for Connecticut; but no great shakes in other places, as Arkansas, for instance, which name, by the way, we presume, is the Indian term for abundance of garden *sass*.

A peddler tried to sell a clock in that State once, but missed it. "Don't want such things here," said the planter, "no use for them." "Why, how do you get the time of day?" From the pumpkin vines; and in this way: Take sunrise from the Almanac, and stick a stake in at the end of a vine. Then, when you want to know the time of day, take a foot-rule, and measure, and calculate. The vine uniformly grows five feet an hour, which is just an inch a minute. More convenient than a sun dial, and more accurate than a clock."

The pumpkins from these vines were about the size of balloons.—COR. SOV. PLANTER & FARMER.

Sale of Fine Blooded Stock in Virginia.

We mislaid, and have only recently recovered the following from the *Cultivator and Country Gentleman*. We have no doubt these cattle are as good as a great many fancy stock that are sold at much higher prices. We are glad to see that they are all sold in Virginia, and hope further sales will remunerate Mr. Rosenberger for his trouble and public spirit. It will always give us pleasure to chronicle his transactions in this line.

“Movements in Improved Stock.—Mr. Geo. W. Rosenberger, New Market, Va., has recently sold the following Short-Horns: To John Miller, Rappahannock county, Va., Highlander, 6,870, roan, two years old, for \$120. To Morgan Biedler, Page county, Va., Belvidere, 6,450, roan, two years old, for \$100. To Gideon Brown, Rappahannock county, Va., Zuleika, roan, one year old, for \$100. To John W. Driver, Rockingham county, Va., River Duke, roan, five months old, for \$100. To S. C. Cooley, Frederick county, Va., Mag Goff, roan, fourteen years old, for \$102; Rock Lilly, white, seven years old, for \$108. The two last cows were weighed; the first drew 1,360, the other 1,450 pounds.

Correspondence of Southern Planter and Farmer.

C. B. WILLIAMS, ESQ.:

Dear Sir,—Enclosed I send 50 cents, for which please send me the Southern Planter for whatever that sum will pay. Am glad you have Mr. Ruffin as associate. Am an old subscriber, and bought guano from him. His remarks on Manipulations in his first No. are just what is needed. The agricultural press in our poor country seems to be subsidized, and the people are shamefully swindled by unscrupulous manufacturers of fertilizers. Expect to renew when time is out.

Charlotte, N. C., March 13, 1869.

We publish the above for an object. The article in the January number of the Planter and Farmer on Fertilizers was published before Mr. Ruffin had formed his connection with us, and before either had contemplated it. It was proper and perfectly fair in us to publish the article, as it was in Mr. Ruffin to write it. Let us see: a merchant of high standing had requested Mr. R. to take the article and try it, and to read and criticise the pamphlet of the manufacturer. Mr. R. agreed; and before the trial stated his objections to the mixture on the score of cost and deceptive nomenclature, and offered to surrender the article. He was still urged to try it, and note the result, and did so. For what purpose? Surely the merchant could not have meant that he was to speak out if the fertilizer pleased him, and to keep silence if it did not please him. Surely the merchant did not wish merely to get a favorable certificate; he must have been seeking a practical test of the value of the fertilizer, and an investigation of its claims by one he thought capable of making the investigation, with a view to influence his action in placing it before farmers who would want evidence of its value. So at least Mr. Ruffin understood him, and acted accordingly.

Every week he, who was known to have been a guano manipulator, and of an article which gave general satisfaction, was consulted about fertilizers. About a great many of them he knew nothing—could not have known any-

thing, because he had never tested them. To meet this class of questions, then, he could only give information and general rules—what he styled a *pro forma*. As a case in point, he selected a particular article, which he had examined and tested, and he showed how he had done it. He did not mention the name of the article, the maker, or the agent. He had no wish to excite hard thoughts, or to engage in controversy. And now we have been complained of for having published that article, and the maker of it came to state his complaint. We offered him the use of our columns for reply, but he declined, because, he said, as editors, we had the advantage. What advantage? The rule of this paper has always been to discuss fairly, to give our adversary the first fire, and in the same type and with the same conspicuousness as the reply. This is what we always have done, and mean to do; and this was what Mr. Ruffin did in the article complained of. If, under such circumstances, a party aggrieved, with one of the most accomplished chemists of New England to back him, declines the offer, we cannot help it. In this case a discontinuance of the advertisement was threatened, as if that could intimidate us from the discharge of duty.

Now we have made this statement because we wish to define our position. The Southern Planter and Farmer wants all the advertising it can get; it pays better than subscriptions—a good deal better—and we want it. But the paper is what its name implies—the organ of the planters and farmers; and whilst we are not the committee of that class, or their guardian *ad litem*, and do not by any manner of means consider ourselves bound to hunt up and expose hum-bugs in any form, to rat like a terrier, yet we do reserve the right, when in our judgment it is proper, to criticise or expose, editorially or through communications, anything that we consider hurtful to the agricultural interest; and no man can buy up or buy off either of the editors of this paper by an advertisement. At the same time we hope to conduct the paper fairly, and will always allow a reply to whatever we, or either of us, may advance in the way of argument or opposition.

That the high price of fertilizers is an evil, we proclaim; that frauds are practiced in them is notorious; that mistakes are and can be made in such compounds is palpable; and we should feel mean, and be mean, if we failed to call attention to these facts, because we could be paid handsomely for “calling attention” to a long advertisement. At the same time we declare the columns of this paper now and always open to the commendation of anything which a disinterested correspondent may think merits praise, even though we ourselves may have a different opinion, still more where, as in most cases, we have no opinion one way or the other.

And further and finally, we shall aim to be impartial. When a thing is new and partakes of the nature of a fresh enterprise, we will notice it, in a leader if necessary, as we did Mr. Stacey’s shuck enterprise, because we think it important that our readers, or a portion of them, should know the fact. But such notice is never meant as a favor to the advertiser, or an invidious discrimination.

REDONDA GUANO.

Mr. Editor,—Being somewhat addicted to the tentative art in farming, particularly on the subject of manures, I propose to give you a short sketch of my last year’s experience, hoping it will prove acceptable to your readers. My

cardinal principle in farming is, "That good manures are cheaper than labor." But here lies the difficulty—among the almost endless varieties of manures now pressing their claims on the attention of the farmer, which are good? As success is the only recognized test of merit in manures, as well as other things, the farmer must risk something, in carefully conducted experiments, to find out the value of manures, as one experiment is not *always* a sure test. Following out that principle, I last spring purchased a ton of Redonda Guano, which I had seen highly recommended, and used it on corn and tobacco. I began my experiment on tobacco. On a field on which I used Peruvian in the drill, at the rate of 250 pounds per acre, I laid off four rows through the centre of the tobacco, and applied in the drill 500 pounds per acre of Redonda Guano. The result was, that the tobacco on which the Peruvian was applied was more than double the size of that on which double the quantity of Redonda was applied, making a great difference in favor of the Peruvian, even at the advanced cost of the latter. I afterwards regretted that I did not leave four rows without any manure as a surer test; but my manager (who is an experienced tobacco grower) joins with me in the opinion that the tobacco where the Redonda was applied was no better than the land would have produced without any manure. I next applied the Redonda on corn, at the rate of 300 pounds per acre, when I laid it by. Then I left out part of the land to see what difference there would be. The land was of a light, gravelly texture, and of very moderate fertility. Neither my manager nor myself could, at any stage of its growth, nor after the crop was fully matured, detect the slightest difference between the corn where the Guano was applied and where it was not. Our conclusion is, that though the Redonda Guano may not be entirely worthless, we would rather buy good forest mould at the same price. I am preparing to try this year the Soluble Pacific, and if agreeable, will give you the result of my experiments as soon as they are determined.

Will you be kind enough, Mr. Editor, to let me know in your April number something of the cultivation of the navy bean, and particularly whether it is a running bean or not?

JOHN C. JAMES.

A REMARKABLE GOOSE.

Messrs. Editors,—It may interest some of your readers to know that I have a goose which, on Sunday, the 21st March, laid two eggs. They were laid at an interval of four or five hours. They were both soft in the shell, and one was of the natural size—the other was about as large as a turkey egg.

J. E. WOODWARD.

Henrico, March 24, 1869.

EDS. PLANTER & FARMER:

Dear Sirs,—Will you please favor your readers with information on—

1. French roofing (with thick glass).
2. The practicability and probable use of Superphosphate of Lime, to be manufactured at home.

Yours, very respectfully,

R. S. F. PEETE.

Warren Plains, Warren county, N. C., March 1, 1869.

1. We know nothing of French roofing—will try and look into the subject.
2. The best way to manufacture a good Superphosphate at home is to burn

the bones and grind them fine in a bark-mill or some similar contrivance—then sow the *meal* or *hominy* in the stable, where it will become incorporated with the manure. If the quantity of bones is small, pound them with mauls in a trough. This will make first class phosphatic manure and durable; *we speak that whereof we know*. The usual plan, or rather the recommended plan, of treating them with Sulphuric Acid, is expensive and troublesome, and risks injury to yourself or freedman from handling the Sulphuric Acid.

But do you not destroy Ammonia by burning? Yes; but only 3 per cent.; which is not worth saving by such means as you have; and is more cheaply restored by the Ammonia from your manure. Bones contain Phosphates, 3 per cent., or thereabouts, of Ammonia, an inappreciable amount of a few other things, and about 50 per cent. of water and grease, which means *rain-water*, of which you always have enough, one year with another.

You will be surprised to see how few pounds of bones you have when you come to weigh them.

Mr. Editor,—Our plan of making and saving manure in a common yard does not please my eye. Will you, or some of your contributors, suggest through the *Planter and Farmer*, some of the more improved methods. Will it pay to throw ashes, lime or plaster in the manure pile? You see that in these things I am an

IGNORAMUS.

Long Meadows, Augusta county, Va., March 15, 1869.

Whether it be advisable to apply Gypsum to farm-pen or stable manure, is a question not yet settled among the chemists. Fifty or more years ago, John Taylor, the author of *Arator*, strongly advised it. And Leibig was an earnest advocate of the same practice, on the ground that it converted the volatile carbonate of Ammonia into the Soluble Sulphate, thereby removing the Ammonia one degree further from loss. This has been disputed, among others, by Bousingault, who, if we remember, admits the change under conditions of moisture, but says that when the Gypsum is dry, the Ammonia becomes volatile again, and the Sulphuric Acid returns to the lime. Who can decide?

It is certain, though, that it can do no harm; and if the land needs Gypsum, it will do *that* good, whether it helps the manure or not.

But mark one thing, "*Ignoramus*:" Don't drop your manure on the land in piles, and let it stay until you get ready to spread it. Scatter the piles the day you make them; or the next day, at farthest. Otherwise, you injure your manure seriously.

We shall be glad to hear from some of our contributors on the above subject.

We think the best way to manage manure, especially in Augusta, is either to make it in the field, where it is wanted, by feeding the stalks, straw and hay to stock; or to make it under shelter; and as often as the shelter needs cleaning out, to haul the manure and scatter it on the grass land, preferably, other things being equal, on the land that is to go in corn the year *after* the manure is spread; so as to give it a year to decompose and penetrate the soil.

Carbonate of lime may be spread over manure in the yard without injury, and if the land needs lime in small quantities, it is a good enough plan. But caustic lime will injure the manure. The same remark applies to ashes. If leached, they will do no harm; if unleached, they ought to be applied to the

land separately. But the quantity of ashes on each farm is so small, that it will generally be better to reserve them as a special application to some garden crop or garden spot.

Catalogues and Pamphlets.

We have received the following:

Semple Birge & Co.'s Illustrated Catalogue of Farm Machinery and Implements, No. 13 South Main street, Mo. They are agents for the manufacturers.

New England Conservatory of Music, Boston Music Hall, February, 1869. Their Annual Catalogue and Circular, gotten up in the highest style of mechanical skill and taste. West & Johnston's and Randolph & English's Literary Buletins for March.

Allen's Seed Catalogue for 1869. Address R. H. Allen & Co., P. O. Box 376. New York.

R. H. Doolittle, Oak's Corner, New York, has sent us a pamphlet containing twelve year's experience in blackberry culture—price 20 cents. Address R. H. D., as above, or Doolittle & Wright, Waterloo, New York. Plants sent by mail on receipt of the price.

Prairie Farmer Annual and Agricultural and Horticultural Advertiser. Price 30 cents. Containing much valuable instruction on various subjects connected with rural affairs.

Dreer's Garden Calendar, 1869, Philadelphia. Containing numerous wood cut illustrations. The work is designed to furnish brief directions for the cultivation and management of the Vegetable, Flower and Fruit Garden, with select lists of seeds, No. 174 Chestnut street, Philadelphia.

List of Premiums and Rules of Government of the New York State Poultry Fair, First Annual Fair, Officers, &c.

Vick's Catalogue and Floral Guide for 1869, illustrated with a great variety of beautiful representations of flowers, fruits and vegetables. Address Rochester, N. Y.

Gen. John S. Goe's Descriptive and Illustrated Catalogue of the pure bred Stock offered at private sale by him $4\frac{1}{2}$ miles east of Brownsville, Pennsylvania.

Wade & Armstrong's Amateur's Guide to the Kitchen Garden, with Descriptive Catalogue of Garden Seeds and Calendar for 1869. They may be addressed at their Agricultural Implement and Seed Store, 1120 Market street, Philadelphia.

Report of James C. McCabe, Secretary of the Iron Mountain and Helena Railroad, to Gov. Clayton, of the State of Arkansas, 1869, for which he will please accept our thanks.

Edward J. Evans & Co.'s Catalogue of Fresh and Genuine Field and Garden Seeds, sold by that respectable firm. Address York, Penn.

J. W. Cardwell & Co.'s Annual Catalogue of Labor Saving Implements and Machinery, Richmond Agricultural Works, Richmond, Virginia. They promise always to sell as low as the same articles can be bought for either in this market or Baltimore. Give them a call.

Messrs. Allan & Johnson have favored us with their "Catalogue of Bedding and Border Plants, Roses, Flower Seeds," &c. It is filled with the choice and the beautiful in the floral kingdom, and should be consulted by all our fair readers. They offer decided inducements to those purchasing a collection of plants. Send for a Catalogue.

Commercial Report.

We copy from the Richmond *Whig* the following carefully prepared and accurate review of the tobacco and grain markets of this city, dated March, 22, viz:

TOBACCO.—The activity in the market, reported in our last weekly review, has not abated. All classes of desirable Lugs and Leaf, in fair order, continue to hold their own firmly. When out of order, concessions have to be made to buyers.

There is no reason to change our quotations this week for shipping or working Tobacco.

Much nondescript and frosted Tobacco is on the market. For such the prices are purely nominal, and we cannot give an accurate quotation. Bright Tobacco of all classes in demand, and prices fully maintained. The general tone of the market is as favorable as could be expected at this season of the year. The breaks to-day were 75 hhd., 11 tierces and 1 box, and for the past five weeks were:

Week ending	Hhds.	Tierces.	Boxes.
February 20,	772	157	49
“ 27,	905	167	46
March 6,	914	218	50
“ 13,	696	167	49
“ 20,	761	206	58

The breaks from 1st October to 20th inst., inclusive, were:

	Hhds.	Tierces.	Boxes.
1868-9,	9,805	2,305	748
1867-8,	7,928	947	973
Increase,	1,877	1,358	....
Decrease,	.....	.....	225

The receipts in February compare as follows with those for the same month of 1860:

	Canal.	R. & P.	R. & D.	C. & O.	R., F. & P.	Total.
1869,	1,021	48	740	934	41	2,784
1860,	1,190	253	621	1,406	167	3,637

The receipts from 1st October to 1st March were 5,531 hhd. The average for the same period of four Tobacco years previous to the war was 7,645 hhd.

We quote:

Lugs—Shipping, (green or unripe,) common to medium,	\$5.00@ 6.00
Do. ripe, in good order,	5.75@ 7.50
Do. do., in soft order,	5.50@ 6.50
Working, common to medium,	5 00@ 6 00
Do. good,	6.50@ 7.00
Bright, smoking or working, common to medium,	8.50@15 00
Do. do., good to fine,	13.00@25.00
LEAF—Shipping, short, dark, in good order,	7.50@ 9.50
Do. do. do. soft, do.,	6.50@ 8.00
Do. long, do. good, do.,	8 50@11.00
Do. do. do. soft, do.,	7.00@ 9 50
Stemming, short and long,	7.50@12.50
Bright wrappers, medium to good,	18 00@30 00
Do. do. fine to extra,	30.00@60.00

GRAIN.—Since our last weekly review, there has been no change in the price of Wheat, while offerings continue very light. The offerings of Corn show no diminution, but the market has become quite dull, and under the influence of lower prices elsewhere, sales were made to day at 4c. below the rates of Monday last. Oats and Rye continue rather dull of sale, without any special change in rates during the week. The transactions on 'Change to day were:

WHEAT—Offered—White, 116 bus.; red, 564 bus. Sold—116 bus., very common white, \$1 35; 380 bus. ordinary red, \$1.65; 50 bus. very good do., \$1.77½.

CORN—Offered—White, 2,426 bus.; yellow, 300 bus.; red, 22 bus.; mixed, 2,152 bus. Re exhibited—White, 166 bus.; yellow, 50 bus.; mixed 322 bus. Sold—566 bus. very good white, 82c.; 250 bus. yellow, p. t.; 592 bus. mixed, 82 cents.

OATS—Offered, 836 bus., of which 352 bus. re exhibited. Sold—326 bus. fair to prime, 62@67c.

RYE—Offered, 138 bus. Sold, 36 bus. prime, p. t.; 22 bus. common to very good, \$1.30@1 35.

OFFERINGS AT THE GRAIN EXCHANGE FROM JULY 1ST.

WHEAT.	W'k end'g Mar. 20.		To date	
	1868.	1869.	1868.	1869.
White,	259	172	259,040	244,287
Red,	224	1,360	121,476	239,515
Total,	483	1,532	380,516	483,802
OATS,	4,873	4,056	168,986	252,868
RYE,	1,656	372	45,531	37,567

The offerings of CORN from November 1st were:

CORN.	W'k end'g Mar. 20.		To date	
	1868.	1869.	1868.	1869.
White,	5,512	3,106	168,277	113,983
Yellow,	1,068	236	16,938	6,066
Mixed,	1,852	3,940	55,648	44,411
Total,	8,432	7,282	240,863	163,098

The offerings of Grain for the last five weeks were:

Week ending	Wheat.	Corn.	Oats.	Rye.
February 20,	2,300	9,538	10,186	596
“ 27,	3,073	6,463	8,820	493
March 6,	2,434	7,995	7,770	592
“ 13,	1,850	6,570	6,159	524
“ 20,	1,532	7,272	4,056	732

FLOUR, ETC.—The annexed quotations represent the prevailing rates for Flour. For favorite brands holders obtain prices above our figures. Corn Meal is dull.

FLOUR—Richmond country super, \$8.37½@8.50; do. extra, \$9.25@9.50; family, \$10.50@10.75.

CORN MEAL—City mills, white, bolted, 95c.; country Meal, 85@90c.

MILL OFFAL—Bran, 25c.; shorts, 30c.; brown stuff, 35c.; ship stuff, 35c., at the mills, wholesale.

COUNTRY PRODUCE—Prices are generally unchanged.

THE SOUTHERN PLANTER & FARMER,

DEVOTED TO

Agriculture, Horticulture and the Mining, Mechanic and Household Arts.

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

CH: B. WILLIAMS, EDITOR AND PROPRIETOR.
FRANK G. RUFFIN, Co-EDITOR.

New Series.

RICHMOND, VA., MAY, 1869.

Vol. III---No. 5.

Tropical Fruits.

CLEAR WATER HARBOR, FLORIDA.

As much attention is at this time directed to South Florida as furnishing the soil and climate suited to the production of tropical fruit, I have thought that a communication through the *Planter and Farmer* would be acceptable to many of its readers. It is generally known that on the St. John's river and at several points along the Atlantic coast of this State, oranges have been cultivated for many years. Until recently no attempt has been made to cultivate them extensively in any other part of the State. At some points around Tampa Bay, and on Manatee river, small groves have been planted and have borne well for many years. It is only within the last two years that the idea of making the fruits adapted to this soil and climate a prominent object has been entertained. The experiments that have been made have proved entirely satisfactory, and preparations are now making for planting extensively, not only oranges, but limes, bananas, guavas, pine-apples, and several other kinds of fruit, all of which can be produced successfully; and now the prospect is, that as soon as the trees now planting can be gotten into bearing, a large business, in this branch of industry, will be done. In this communication I purpose to give some information concerning the general character of the soil and climate of this part of the

State, and of the cultivation of the fruits most important in the estimation of those engaging in this branch of industry.

SOIL AND CLIMATE.

The climate of Florida generally, but especially of East and Peninsular Florida, partakes largely of a tropical character. In ordinary seasons we can scarcely be said to have any winter. Sometimes there are light frosts, and sometimes a Texas Norther sweeps across the gulf and gives us a few days of weather a little too cool for comfort to those who hardly know what winter is. In the latitude of Tampa it is rare to have a night cool enough to make a scum of ice over a bucket of water. Sweet potato vines usually remain green through the winter, and pumpkins remain out and continue to bear through the coldest weather. The cold of the past winter was unprecedented. A large part of the mangrove bushes, and some of the more tender species of fruit trees were killed. Some of these must have passed fifty winters in safety. During the fall and winter months the weather is usually dry—only occasional showers; in the spring there are more frequent showers, but until after the middle of May, not more than sufficient to bring up the seed planted and keep them in thrifty condition until the first of June, when the rainy season usually commences, and lasts through the summer months, and sometimes extends into September, and occasionally into October. During this period there are usually showers every day, lasting from fifteen to thirty minutes; occasionally there will be a cessation for several days, and occasionally several showers each day.

Near the coast the country is generally low and flat—known here as “flat woods.” Its growth is generally scrub pines and low palmetto bushes. It is usually wet and poor, and unfit for anything but range for cattle. Occasionally there are tracts of rolling pine land, with better timber and soil, that with moderate fertilizing will produce well. Such locations are generally free from annoying insects, and furnish pleasant residences. The first settlers of this region generally devoted their attention almost exclusively to cattle, and their only mode of fertilizing was by penning their cattle on small spaces of ground, which were then planted in potatoes, or sugar cane, or sometimes corn. As the country is now filling up with a dense population, the range for cattle must be in a great degree taken up, and a different mode of fertilizing adopted. Occasionally there are tracts of land called “hammocks.” Some of these are large; in this vicinity they are generally small, embracing

less than one hundred acres. These are very fertile, and will produce any crop planted without any farther enriching. The growth of these tracts of land is a mixture of oak, ash, hickory, sweet gum, magnolia, and other trees common to this latitude. The growth on the land generally is purely pine. In some parts it is good for building and lumber, in others it is hard to split, and timber for rails hard to find.

The soil on the pine lands is generally of that light, sandy character common to the pine lands along the Atlantic coast. For ordinary farming or planting it is not well adapted, as the amount of land to be fertilized is too great for the ordinary means of the cultivator, and for remuneration by the crops produced. For fruit planting, however, this objection does not hold, as the amount of land planted is so limited that it can be fertilized without too great cost and labor, and the high remuneration will justify the outlay of money and labor which may be required.

The locality from which this communication comes is immediately north of Tampa Bay. The harbor is formed by a succession of islands thrown up by the action of the tides. The water in the harbor is generally shoal, with channels passing through of sufficient depth to admit vessels drawing seven or eight feet. The shore of the main land on the northern part is high, forming beautiful sites for residences. The land back from the shores for two or three miles, is rolling pine land, furnishing a fine location for fruit plantations. Into this there is now moving a good population, which is taking the place of the pioneer settlers, and will in a few years make this one of the most lovely spots in this "land of flowers." The harbor abounds in the luxuries of the ocean, and furnishes fine water for sailing and bathing. The means of fertilizing the land are furnished in the beds of decomposed shell found on the islands, and in the seaweed washed ashore by the tides, and the millions of fish which fill the bay in the fall and early winter. For healthfulness no location can be superior, while for the comfort of climate, taking the year round, few localities can compare favorably with it. The constant breezes, fresh from the gulf, so temper the summer heat, that such a thing as an oppressively hot day is very rare.

TROPICAL FRUITS.

Experiments have proved satisfactorily that nearly all the fruits common to the West Indies can be successfully cultivated. Oranges, lemons, limes, citrons, guavas, mangos, sugar apples, aligator-pears, sapodillas, pine-apples and bananas, all grow well, and stand the

ordinary winter without damage. Several cocoa-nut trees were growing finely on the writer's lot, but were cut down by the intense cold of the last winter. They were, however, only retarded a little in their growth, as they are coming up and look vigorous, and bid fair to do well, as the extraordinary cold of the early winter did not injure them.

Perhaps some statement concerning the cultivation and profit of several of these fruits would be as acceptable as anything I can write.

Oranges, Limes and Lemons.—When the stocks of the native wild orange can be obtained, it is best to get them and bud into them. When this cannot be done, they must be obtained from the seed. The only objection to this is that it requires a longer period to get the trees into bearing. When the wild stocks can be obtained, four or five years will be sufficient; from the seed it requires from six to eight. Generally at six years old, if the trees have been well attended to, the ground around the trees well enriched, and kept in good tilth, they may be expected to bear, on an average, 200 oranges to each tree. From this their production increases rapidly. At ten they will average 1,500; at twelve, 2,000. It is not uncommon to have individual trees bearing 5,000, and some have been said to double that number. The trees are planted at the distance of from twenty to thirty-five feet. I prefer twenty-one, which will give one hundred to a small fraction over an acre. Ten acres will make a grove of convenient size, and one hand can do all the work of cultivating it after it is planted. This would give 1,000 trees to the grove. Until the trees come to bearing size, the ground can be planted in any other crop desired, care being taken not to injure the trees while young by crowding them with other growths. At eight years they may be considered to be in fair bearing condition, and will then generally average 1,000 to the tree. These at one cent each sold on the tree, the purchaser being at all the risk and expense of marketing, will yield \$10 to the tree, and the whole grove will bring the sum of \$10,000 per crop—a very handsome crop and income for the outlay. But these long eight years of cultivating and waiting—what is to be done with them?

Bananas.—All you have to do to fill up this gap, is to plant the same ground which is occupied with your orange grove in this most delicious and productive fruit. In its native tropical climate it forms a large part of the food of the inhabitants. It is propagated by suckers coming up around the root of the parent stem, and grows off readily when transplanted, and yields very largely. In plant-

ing oranges it may be set out at the distance of about eight feet apart, so as to make two rows of bananas between every two rows of oranges. It will come into bearing in two years, and as it is well supplied with suckers, it keeps up a succession of bearing plants to supply the places of those which, having brought their fruit to maturity, cease to bear, and are taken off to give place to the young shoots which are coming on. Each stem which bears fruit will give about one to succeed it, and three for transplanting. If the ground is made very rich it will do more. It grows well on ordinary light pine land enriched with leaves, or rotten wood, or dead grass. The rushes growing so abundantly along the beach and margins of our ponds, is found to answer the purpose admirably. By this method, while your orange trees are coming slowly and steadily into bearing condition, you have another crop on the same ground, which in two years brings you a crop perhaps equally or nearly equally as valuable. I say *perhaps*, only because it has not been grown as a market crop in this vicinity. We know that it grows well, will bear transportation to market, and sells readily.

Limes and Lemons.—Limes and Lemons are cultivated and planted very much as the orange. They are more susceptible to cold. They were killed down to the ground by the severe cold of last winter, when the more hardy orange was but slightly injured. I forgot to mention while speaking of the propagation of the orange, that it has recently been found that it can be readily produced from the slip. This will probably be the most common way of propagation as soon as it becomes known, as it will shorten the period of coming into bearing.

Guavas.—This I find a delicious fruit. There are several varieties ripening at different times, and differing in taste, like the different varieties of apples. As a fruit for market, it will probably be valuable only when made into jelly. In this form it is manufactured largely in the West Indies, and imported into our Northern cities. It is too soft and tender in its natural state to bear transportation.

Mangos.—This is a fruit in shape and appearance something like a large pear. It has a seed somewhat like the peach, but larger. Its pulp is a rich yellow, and its flavor strongly resembling the pine-apple. It comes from the seed, and comes into bearing in four years. It bears very largely, and will bear transportation well. I see no reason why it should not become valuable as a market fruit.

Alligator Pears.—I wish sincerely this noble fruit and tree had a

more civilized name; but by this only is it known. The tree is large, and ornamental as a shade tree. The fruit, when ripe, resembles that of the purple egg-plant; its shape is like the pear, and in taste it is somewhat like a rich muskmellon. It is eaten with pepper and salt, and by those who are accustomed to it is highly prized. I know no fruit which to my taste is more delicious. The last three fruits mentioned are tender, and though they stand ordinary winters well, yet by the unprecedented cold of last winter they were killed down to the ground.

The Pine-Apple.—This fruit has hardly been tried enough to speak with confidence concerning it. All the attempts to produce it have succeeded without difficulty. It has been successfully planted fifty miles north of this. It is a variety of the cactus family, propagates by suckers around the root and on the fruit—is easily transplanted, and comes into bearing in two years. It yields largely and bears transportation, and I see no reason why it should not be a valuable article for market.

The Sapodilla I have not seen. I have no doubt it will do well. It is said to be a delicious fruit.

These are the principal fruits to be cultivated. Some others of less importance it is unnecessary to mention.

The crops of sweet potatoes and sugar deserve some notice. The first of these is planted from slips of vines about eighteen inches long. The vines in ordinary seasons remain green through the winter, and may be planted any month in the year. Ridges are thrown up, and the vines cut in sections of proper length; they are then dropped about twelve inches apart, and with a stick having a notch cut in the end, are forced down about eight inches into the ridge. This is all that is done. The vine takes root readily, and grows off rapidly. The potatoes are not usually taken out of the ground, except as they are wanted for use. In the months of August or September is planted what is called the stand-over crop. This is intended to grow through the winter, and be ready for use by the first of May. The severe weather of last winter destroyed a large part of the crop, and by killing the vines has caused much damage. The potato is used largely for feeding stock, and being produced in large quantities and easily kept, answers well.

The sugar crop is important. The cane comes to high perfection, and grows well, with slight fertilizing, on our light lands. A gentleman near Tampa, last fall, from one and one-fourth acres, made fourteen hundred gallons of good syrup, worth fifty cents per

gallon. Half an acre is amply sufficient for the supply of an ordinary family.

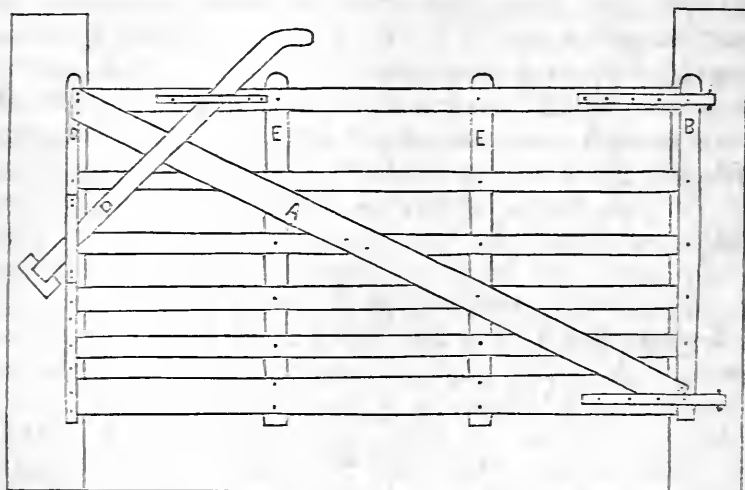
FACILITIES FOR MARKETING.

Fruit loaded on a good sailing vessel can be landed in Mobile in three days. In twenty-four hours it can be landed at Columbus, Ky., a few miles below the mouth of the Ohio, and in twenty-four hours more in St. Louis or Chicago. From these points it can be rapidly distributed through the vast West. Pensacola, Columbus, Ga., and Montgomery, Ala., are all easily reached in three days. Oranges have been carried from Tampa to New York in five days. Our market is almost unbounded. The superior quality of the oranges grown in this State, with the freshness with which they can be put into market, gives them a character which causes them sought after in preference to any others. As soon as the trees now growing and to be planted in the next two years are gotten into bearing, this coast will annually put into market a crop which will fall not far short of \$10,000,000. The present price on the trees is about one and one-half cents; it will not fall much short of that for many years. At one cent each, an orange grove of ten acres is an independent fortune. I think our future is bidding fair for high prosperity, and our lovely shores will soon be adorned with beautiful residences, and become the homes of a prosperous and happy people.

FLORIDA.

NORWAY OATS.—We have published articles *pro and con* with reference to these oats. A mislaid letter dated February 10th, has just turned up. It is from J. B. Garber, Columbia, Pa., who writes us he sent to New York for two quarts thereof. To test their weight, he measured the "two quarts," and found that there were two quarts and three-fourths of one pint. Weighing them, he found they weighed exactly one pound and thirteen ounces, sack included. Calculating what one bushel would weigh with three-fourths of a pint to every two quarts, additional, we would have just twenty-four and eleven-nineteenths pounds per bushel instead of thirty-two pounds, the standard weight. Mr. Garber adds: "We have just been informed by a neighbor, who also invested a dollar, that on measuring the quart he had nearly a pint more; besides, he informs us that, on critically examining it, he found seeds of that worst of all weeds, the Canada thistle! The ten dollars a bushel to be paid for these oats is a mere trifle compared with the incalculable injury that farmers will sustain by the introduction of this pest on their farms. Will those who have secured these oats please weigh and measure their samples—and see how facts and advertisements agree?—and search closely for the seeds of weeds also? My neighbor says he will commit his sample to the flames, and advises me to do the same."—*Rural New Yorker*.

Description and Illustration of a Good and Cheap Farm Gate.



In riding over the country you rarely see good gates on the farms. And those that you see, not one in a dozen will shut of itself. Some, in fact, instead of closing, will actually fall open, and require some force to close them. Enclosed I send you a rough draft of a gate, that I know from experience is not only a good, but a cheap one; and any good mechanic can make one or more a day. The gate should be made of slats four inches wide by one inch thick, of good heart pine, or white oak. I prefer the pine. The brace (A) ought to be at least six inches wide, one inch thick, and run the whole length of the gate from the bottom of the rear post to the top of the gate, resting and shouldered a little on each post, and fastened to them with a few wrought nails. The rear post (B) should be made of 3x4 inch heart timber, and morticed through the wide way of the timber. The front post (C) need not be so heavy, but made of 3x3 inch timber. This post ought to be light. The short braces (E) may be made of the same stuff as the slats; and there ought to be at least two of them put on the opposite side of the gate to the main brace (A), and extending from the top to the bottom of the gate. Wherever the braces cross the slats they ought to be riveted, having a burr on the side that is riveted. The burrs may be very conveniently made by punching suitable holes in hoop iron, and then cutting them off with a cold chisel diagonally across the iron, so as to make diamond shaped pieces; now turn the sharp points of the burrs at right angles in a vice or the claw of

hammer, so that when you put the burr on the rivet it will drive into the wood, and serve to hold it in place while riveting. Or you may use either large wood screws or wrought nails, clinching them; but neither will last like the rivets. The latch (D) ought to be made of oak $2 \times 2\frac{1}{2}$ inch timber, dressed so as to slide smoothly on its bearings, and shouldered so as not to fall more than a certain distance, and put on at an angle of 45 degrees. The catch ought to be not less than 3 inches wide, made with a long and easy slope of six or eight inches, and fitted so as to drive in the post after a 2 inch augur. If the latch and catch are well made, they will keep in order longer than any other I have ever seen; but if indifferently made, will not work well. The gate ought to be from ten to twelve feet wide and five feet high. Ten feet is sufficient for a common road gate, but it will take a gate not less than twelve feet wide for reapers to pass.

Such a gate as above described may be made for two dollars and fifty cents without the hinges, and will keep in order, with but little trouble, for ten or fifteen years. The hinges should be made of good tough iron, 2 inches wide by some $\frac{3}{8}$ or $\frac{1}{2}$ inch thick. The bottom hinge should be stout and strong, and is most conveniently put on with small screw bolts. The top hinge should stand out from the post say two inches, and the bottom one at least two inches longer than the top one.

Now to hang the gate properly your posts must be put in not less than three and a half or four feet, and be firmly rammed in the ground; for if your posts are not firmly set, you need not expect that your gate will keep in order but a few days at a time. There should also be a log of wood fitted in between the posts, and let in the ground so as to be out of the way. Your hinges being already fastened on the gate as directed, set the gate in position against the posts as near level as possible; now mark the places for the hooks, and bore the holes for them; put the hooks in the hinges, and drive them a little way up into the holes. The lower hook should be longer than the top one, and stand out from the post an inch and a half or two inches more than the top one. Do not drive at first as far as you intend, but drive the lower hinge nearly as far as it ought to go; say let it stand out from the gate post four inches; now drive the top hinge, and regulate the fall of the gate by driving it and trying the gate until you get the proper fall. It will fall too hard if you drive the top hook up close to the post. The gate ought not to have any more fall than will make it catch with certainty; if it falls too hard your gate will knock to pieces.

Having regulated the fall, you may now bore for the catch, drive it in position, and fit the latch so as to bear evenly on the slope; grease the slope, and your gate is finished, and will give satisfaction if the work has been properly done, and the above directions have been followed. In opening your gate, instead of dragging on the ground, the outer end of the gate will rise from the ground, and after passing a certain point will stand open without propping; so that you will not lose time looking after a stick to hold the gate open while your teams are passing through. It will also close with certainty.

If you think the above suggestions are worth anything to the public, you are welcome to use them as you think proper.

Yours, &c.,

A FARMER.

Orange county, Va.

Horses for Farm Work.

One of my neighbors, who formerly did all his work with oxen, but who gave up and bought a span of heavy Canadian horses, is about to return to the oxen. He says if you get the right kind and *know how to manage them*, they will do nearly or quite as much work as horses; they cost less; do not require so much care; there is no expense for harness; and they can be turned off to the butcher, generally with a profit.

On a rough farm, where there are stumps and stones, and more or less logging to be done in winter, especially on swampy land, a yoke of cattle is indispensable. But when the farm is cleared of stones and stumps, horses, it seems to me, are more profitable. Our seasons are so short, and wages so high, that it is very desirable to push forward the work rapidly. There is a great difference in cattle, just as there is in horses, but, as a rule, horses will get over the ground faster than oxen. If two horses cannot walk along with a plough or a harrow at a fair rate, put on three.

The more I read of them, the more I am convinced that the Percheron horses, say half or three-quarters blood, will prove to be just what American farmers need. When I read Mr. Du Hay's charmingly written and interesting work, "The Percheron Horse," I feared, from his remarks in regard to the climate of Perche (page 80), that when bred here they might lose some of their energy. But I have just read an article in the Journal of the Royal Agricultural Society of England, which indicates that we need have no fear on this point. Our climate is vastly more stimulating than

that of England, and if this breed does not degenerate there it certainly will not here. Mr. W. Dickenson, the writer of the article, than whose there is no higher authority, says if he had not gone to the Paris Exposition in 1855, he "should have continued thinking there was no better class of farm horses in the world than the English." But in the streets of Paris he saw a class of horses that "astonished" him. "These horses, walking so nimbly with great loads of stones, were not so fat as our own favorites, but they seemed to me to be doing twice the work. Although leaner, they bore the strictest scrutiny; the more I saw of them, the more I admired them. Meeting Mr. Jonas Webb, I called his attention to them. He said he had never seen such before; he had observed a horse taking into the show yard an immense load of provender, that astonished him beyond measure; he had resolved to try to buy him, but he lost sight of him that day and never saw him afterwards." Mr. D. obtained a stallion which he called "Napoleon," and says: "He has been at work on my farm ever since, almost always with mares. I have never had so good, quiet, active, and powerful a horse before. He is unlike our English cart-horses, for with great size (16½ hands high,) and immense substance, he shows a dash of blood. He has an Arabian head, not small, but of fine character, well proportioned to his size. The neck is very muscular and well turned, the shoulders large, very deep, without lumps on the sides, and oblique—such a shape as would not be objected to for a riding horse; the bosom open, the fore legs magnificent and very short, with great bone, hard sinews, and little hair upon them. His feet are perfect in shape, and perfectly sound in work, his back short, rather dipped, round-shaped ribs, large loins, rather plain, drooping hind-quarters, very large thighs, low down and tightly joined together, with prodigiously powerful, clean hocks, and very short hind legs, well under him. We never have had a difficulty with the engine or thrasher, or with anything in the mud, that Nap. could not extricate us from. His stock are as good and kind as possible. It is a saying with the men, that Nap's colts need no breaking. My mares are small and active; the stock are considerably larger than the dams, but so cleanly, that as foals they look more like carriage horses."

It is very evident that the Percheron stallion is what we want to improve our race of farm horses. When grain and hay were cheap it did not make so much difference what kind of horses we kept, or how many of them. We could, perhaps, afford to let them lie idle half the time. But all this is now changed. Horse feed is expen-

sive, and wages of the teamsters high, and it is very important to keep none but the best horses, and to study economy in using them. I have seen a farmer draw a load of only 22 bushels of potatoes to the city, while another farmer, by having a large, double box, drew over 50 bushels. And even this is a small load—only 2,800 lbs. for two horses.—*Prof. Harris, in American Agriculturist.*

Breaking Colts—Rarey's Method of Horse Training.

The more high spirited and the more valuable the colt is, the more likely is he to be spoiled, by trying to do at three years old the work that should have been done before he was one.

He should be brought into the stable, and visited, and handled often, until he is somewhat used to it, then portions of the harness tried on; if he can be accustomed to it without showing fear, lead him out into the yard, and make him turn to the right or left at the word or the reins. If he refuses to obey, which is quite likely, we know of no way but to whip him into subjection. When he does obey, caress and reward him. If you succeed in making him obey here, fasten him beside a steady horse with a light wagon, and make him go, peaceably if he will, forcibly if you must. If after all these operations he shies from the harness, tries to run from the wagon, or refuses to draw, do not give it up, but use every exertion to bring him to submission, and, finally, to the process known as taming. No horse properly gentled and trained according to the above directions will need taming, but as the majority of colts are never trained, a great many horses will have to be tamed.

Rarey's method is the best. It consists in fastening up the left fore leg, by a strap, buckled tight over the ankle, and the arm near the body, and the second strap attached to the right foot, run through the circingle to the right hand of the tamer, while the left holds the bridle. The horse is now harmless, and should be made to hop, when a vigorous pull with the right hand will throw him on his knees, where he can be held until he is ready to turn on his side, which he should be encouraged to do. These operations will take from fifteen minutes to three hours, according to the strength and spirit of the horse. When once fairly down, he should be caressed, handled, and a saddle or portions of the harness put on him until he finds that none of them will do him any harm. This throwing should be repeated several times, until the horse readily submits and allows his master to do whatever he pleases. By this method Mr. Rarey has tamed the most vicious of horses.—*American Stock Journal.*

Distemper in Cattle—Preventative.

Messrs. Editors,—Having seen it stated the past year that the distemper prevailed amongst the cattle around Richmond, as also in some other places, I feel disposed to re-publish the substance of a communication of mine in the *Southern Planter* for 1854, which, as a preventative, I have never yet known to fail.

About the first week in May procure a trough to correspond in size with the number of cattle; place it where they are penned, and bore a hole through the bottom to let off the surplus water after a rain. Fill it nearly full of red clay, then put on a liberal quantity of salt, and when the cattle are penned at night, they will invariably go to the trough and lick to their satisfaction. The first rain that falls, the salt will saturate the clay, and the cattle will consume the whole of it. This remedy must be continued until the first hard frost.

My father was the first that I know of who adopted this treatment, he having heard that cattle afflicted with distemper had been known to resort to red clay and get well. He, I suppose, recollecting that nature often performed a cure beyond the powers of art, salted his cattle some two or three times a week on a red galled spot, and although his neighbors' cattle were dying rapidly around him, and that for several years, yet he never had a solitary case amongst his stock. For some two or three years he kept them in his enclosures, but after this, in consequence of an imperfect fence, his cattle would go on an adjoining common, and roam with his neighbors' distempered cattle from week to week, yet they entirely escaped this infectious disease. These facts speak for themselves, and go to prove that my father's remedy is a specific to stay this fatal malady.

An uncle of mine told me years ago, that the distemper being amongst his cattle, one of his milch cows was taken with the disease, went off, and when found, was in a gully eating red clay, and got well.

One of my sons at one time lost all his cattle except a milch cow, and when taken with the disease, she went off, was gone several days, and when found, was in a gully eating red clay, and she got well.

Here we have the instincts of nature beautifully exemplified, and we may add, the dog, when sick, seeks relief from herbs, and the guayakil, when bitten by a serpent, finds an antidote in a certain plant.

In the *Southern Planter* for '45, *lime-water is recommended as a sovereign cure for distemper even in the last stages of this disease, and by the way, this is said to be the best known remedy for distemper in horses.

The late Dr. Wm. S. Morton, in a communication to the *Southern Planter* in '54, on distemper in cattle, said: "I strongly suspect that what we call distemper, is the bloody murrain of Scotland and other parts of Great Britain, and that it was carried to North Carolina by Scottish immigrants." The above suggestion I have reason to believe is correct, as I once lived in North Carolina, and from authentic information, I learned that the first cases of distemper occurred in that State near Fayetteville, which was settled principally by the Scotch. Hence the new name—"Carolina distemper."

W. R. HATCHETT.

Keysville, Va., April, 1869.

Condition of our Bottom Land.

Whilst I have pen in hand, I will offer a few remarks relative to the present condition of our bottom lands.

When the streams were in their natural state, every freshet would impel the currents to strike the curves in the stream with such force that the washings or sand were floated or thrown on the adjoining lands; consequently, the bed of the stream remained stationary. This fact every owner of bottom lands has noticed. But since the streams have been straightened, do they throw out the same amount of washings as when in their natural state? No, verily; but, on the contrary, they have continued to accumulate in the bed of the streams until the banks have become so shallow that they afford no protection to the bottom lands, consequently they are nearly valueless.

I have observed when a stream has been straightened near its source, that it is not so liable to fill up; but when it extends for miles, the reverse is the invariable result.

Some twenty-five years ago, an old and intelligent friend, who owned valuable bottom lands, directed my attention to the mistaken policy of straightening the creeks, and regretted having fallen into this error, as he found after his creek was made straight, the sands were accumulating in the channel, the banks were shallower, and

* Half bushel of water to a peck of lime; let it stand until the water is clear, then pour off the water, and drench with a quart twice a day, until the animal recovers. Three or four doses are generally sufficient.

his bottom lands more subject to be overflowed, (although the stream had been straightened in its whole length below him.) and he feared that from this cause his lands would ultimately be ruined; and how truly has the foreboding been verified; for at this day these lands are nearly worthless. This stream, in its natural state, had excellent banks.

If this theory is deemed erroneous, I would ask, why is it that the rivers are not filled up? Are they not governed by the same natural laws as the smaller streams in their primeval state?

Entertaining these views, I think we should go back to first principles, and give our ditches a serpentine curve to reclaim our bottom lands, which should be carried through the whole length of the stream.

It is with some degree of diffidence that I submit the above views to your consideration and that of your readers, lest they might be deemed a vagary; yet I have arrived at these conclusions from observation and the teachings of nature, which are the charts by which we are enabled to substitute philosophy for error.

Respectfully, WM. R. HATCHETT.

Keyville, Va., April, 1869.

Results of Experiments with several Fertilizers.

Messrs. Editors,—You have several times requested correspondents to give you their experience in the use of fertilizers. I propose to give you the result that has followed my use of them. Last year I purchased two tons poudrette from the Lodi Manufacturing Company, near New York, and used it on my corn at time of planting—dropping a good size handful to three hills of corn, and in same field mixed equal quantities of poudrette and plaster, and dropped a handful to two hills of corn. The land was of a thin light gravelly quality. I don't think it was of any more advantage to the corn than if I had used same amount of sand. We suffered very much from a drought in June and July in this county, and that may have been the reason; but whatever the reason may have been—either the character of the land or the drought—I derived no benefit from the use of poudrette.

In the Spring of 1860 I used Peruvian guano and plaster in equal quantities at time of planting my corn, to wit: a handful of the mixture to two hills of corn. The corn grew off very beautifully and green. In this instance it “kept the word of promise to the ear, but broke it to the hope;” for the ears of corn were no

better than where plaster alone was used, though the luxuriance of stalk and blade was very appreciable, and could be seen for some distance.

Last Spring I used a ton of Lardy's soluble Pacific guano on my tobacco, two hundred and fifty pounds broadcast to the acre. The land was good fresh land, having been cleared the year before and planted in tobacco. I derived no benefit whatever from its use. On part of the land where no guano was used, the tobacco was equally good and ripened as early as where the guano was sown. I also purchased two tons Baugh's raw bone phosphate, one ton from the manufacturer in Philadelphia, and one from Baltimore. I used three hundred pounds to the acre. The tobacco started badly, and in several places commenced to "french." I gave it two workings, and it improved so slowly and looked so badly that I then purchased a ton of Peruvian guano, made an equal mixture of the guano and plaster, and sowed broadcast about three hundred pounds to the acre, and hilled the tobacco up. It was several weeks after this before we had rain, but the tobacco commenced to improve, and so soon as it rained grew off well and made a fair crop. All signs of "frenching" disappeared. How the tobacco would have matured without the application of guano and plaster I cannot say, but it certainly gave no indications of making even a third of a crop until the last mixture was applied.

I also used a ton of Eureka ammoniated bone super-phosphate of lime on my tobacco, 250 lbs. to the acre. This was decidedly better than either of the other two preparations, and made a fair crop with no other assistance except plaster dropped on the plant. On balance of my crop I used equal mixture of Peruvian guano and plaster, two hundred and fifty pounds of mixture drilled to the acre. The tobacco was good size and leafy; but I find all, in handling, poor and thin in quality. This, however, I attribute to the excessive rains we had in August last. The crop everywhere, so far as I have seen and heard, is thin and poor—which is always the case, so far as my limited experience goes, when there is much rain in August and September.

I had an opportunity of seeing several times during last year the crop of a near neighbor, Mr. T. W. Leigh, who used the soluble Pacific guano (Reese & Co.) His tobacco was large and fine. It was grown on second years' land, and about 250 lbs. to the acre. By the side of this he used Peruvian guano, and I could see no difference in the tobacco. I was so much pleased with his experiment that I purchased two tons last fall for my wheat, and the

wheat is looking thrifty and well, though not so well as where I used the Phospho-Peruvian prepared by the Messrs. McGruder of Richmond.

On my wheat crops for the last two years I have made experiments with other phosphates, but found them of little advantage, except Bradley's Super-Phosphate of Lime. This was nearly equal to Peruvian Guano. This may be owing to the character of my land and the bad seasons we have had for wheat. Whatever may have been the cause, they have certainly not paid for their use.

Last Fall I purchased my seed wheat in the Valley of Virginia (the Lancaster), and with the exception of the two tons Soluble Pacific, have only used Peruvian Guano and the fertilizer prepared by the Messrs. McGruder; and this last was purchased from the letter of recommendation given by Mr. Ruffin in their published advertisement. The wheat where it was used is looking very fine—equal to any crop I have seen except that of Mr. John R. Edmunds, and his wheat was seeded on a heavy Pea-fallow, without any fertilizer. I was so much pleased with my Valley wheat that I am planting seed corn obtained from Augusta county, and at the last working propose to sow 100 lbs. Guano to the acre broadcast.

I hope other farmers will give their experience with fertilizers and the Pea-fallow.

Very respectfully, &c.,

PAUL C. EDMUNDS.

Round Hill, Halifax county, Va., April 12, 1869.

Postage on Seeds, &c.

Seeds, vines, grafts, &c., can be transmitted by mail, very cheaply and safely, if not exceeding the limitation prescribed with regard to the weight of the package. Postage must be pre-paid by affixing stamps for the proper amount, according to the following rates: "On one package to one address, not over four ounces in weight, two cents; over four ounces and not over eight ounces, four cents; over eight ounces and not over sixteen ounces, eight cents; over sixteen ounces and not over thirty-two ounces, sixteen cents—thirty-two ounces being the heaviest weight allowed to pass through the mails. No writing of any kind can accompany the package; if it does, letter postage will be charged. The character of the contents of the package should be marked on the outside—whether seeds, vines, &c."

[The above is taken from Moore's *Rural New Yorker*.—ED.]

An Essay on the Social and Material Interests of Virginia.

To Col. Thos. Brown, President of the Meshodeck Farmers' Club, Westmoreland county :

Having been honored by the Club with the appointment of Essayist, with liberty to write upon any subjects that might suit my fancy, and communicate for publication directly to the *Southern Planter and Farmer*, I respectfully present to the columns of that excellent paper the following communication.

WILLOUGHBY NEWTON.

To the Editors of the *Southern Planter and Farmer* :

I very cheerfully comply with your request to continue my contributions to the *Planter and Farmer*. I have been, of late, actively engaged in settling up my affairs, which had been somewhat deranged by the ravages of war and eight years' neglect. Having accomplished this desirable object almost to my entire satisfaction, I breathe freely, and can now think of the future without being embarrassed by the past. I do not propose to bore your readers with a formal essay, but shall write with the freedom and ease which is my wont, and following wherever the humor of my pen may lead me, shall remark, after the manner of "Commentator," in the *Farmers' Register*, with frankness on the contents of the *Planter and Farmer*, or upon any other subject that may strike my fancy. I mean to be eminently practical, yet I hope to be pardoned if I mingle my facts with an occasional remark that might become a moral philosopher, or even "a retired political philosopher," after the manner of Taylor, Garnett, or Ruffin, who never lost an opportunity of enlivening the dullness of mere material investigations by the speculations of philosophy.

The first subject on which I shall remark, and by far the most important, is the settlement of the debts of the farmers. Until this object is effected, there can be no general improvement in the agriculture of the State. Much the larger part of the lands will continue to be cultivated on the wretched "Metayer system" or rented out to the freedmen, until, exhausted by imperfect and reckless tillage, they become utterly unproductive. A few farms cultivated by proprietors of means and capacity, like green spots in a desert, will render more conspicuous the desolation that surrounds them. All interests in the State are equally concerned in the speedy accomplishment of this object. Creditors are no less interested than debtors. If I am not greatly mistaken as to the amount of indebtedness, it is impossible that under any system of coercion half the debt can be paid. Judgment liens will prove utterly de-

lusive, and creditors who flatter themselves that they have secured their debts by suits, will find themselves no better off, with their debtors in a court of chancery, than if they had passed through a court of bankruptcy. The lien of the first judgment, the superior dignity of fiduciary debts, and rights of dower, will in nine cases out of ten absorb the whole property at a forced sale, and the large majority of creditors will go unpaid. I speak from long experience and much observation, and having no interest whatever in the subject, am at liberty to express freely my opinion. What is the remedy? Let creditors act with the utmost liberality. Foreign creditors have set our Virginia people a noble example. I have not heard of one of them who is not willing to accept the *face* of his debt, and many of them have volunteered to make much more liberal discounts. They are under no obligation, other than the claims of humanity and enlightened policy, to make these sacrifices. Virginia creditors should not only be affected by these considerations, but should feel bound by a principle of universal justice wanting only a legal sanction, to contribute rateably upon the principle of "general average," to the losses of their confederates, in a common enterprise. Yet I learn, to their shame, few are willing to make any abatement, but demand dollar for dollar. Such avarice will have its just reward, and no good man will grieve at the result. The present state of things cannot last much longer. Let creditors and debtors, each for himself, come together at once. A just and liberal spirit on both sides can effect wonders. Much can be done by what an old gentleman of this county used to call *ingotiation*, or exchanging one debt for another, as most men are both creditors and debtors. Let the settlement be final, and the debt be cancelled, if possible. Let no one whose debts are considerable trust to any arrangement to pay by instalments. The debt will never be paid, and the debtor and his family will continue slaves to the creditor. Better far make a clean sweep, and go through the bankrupt or insolvent court.

I have read with interest and admiration the report of our friend Captain Maury, foreshadowing the brilliant commercial future of Norfolk and Virginia, and hope ere long to make him a suitable acknowledgment for his kindness in sending it to me. I have read also his communication in the *Planter and Farmer*, and the letter of his Amelia correspondent. I will not anticipate your promised criticism on the *pro forma* statement, by entering into a detailed examination of it, but content myself with remarking that the result is far too favorable. I concur in the remarks of other corres-

pondents quoted. Trucking and farming are very distinct operations; and farming can only be profitably conducted on a comparatively large scale, as I have attempted heretofore to demonstrate, and as is conclusively shown in a most excellent article in the last number of the *Rural American*, which I hope you will re-publish.

What is your authority for the table of prices of land in the several States? I think it should be received with many grains of allowance. I am very confident that Virginia lands are intrinsically worth much more now than before the war, and a very few years will demonstrate the fact. If sold under the hammer now, there being no money, they would bring no price; but in this part of the State, whenever sales are effected, it is at prices quite equal to those paid before the war, and these prices are regarded by visitors as extremely low. I do not think that the cause of immigration or the interest of our own people is promoted by representing that large blocks of land may be purchased at fifty cents an acre, as has lately been done in a correspondence between Everett & Co., of London, and the Bureau of Immigration at Richmond. A country can hardly be worthy of the attention of immigrants, whose lands have been settled for more than two hundred years by an intelligent population, are in the centre of civilization, traversed by railroads and navigable rivers, and at the door of the best markets of the world, and are now rated at fifty cents an acre. Intelligent strangers seeing such statements, would naturally avoid such lands as hopelessly sterile, and like the lands on the borders of the dead sea, lying under the curse of God. To compare the value of our lands with those of the far West seems to me absurd. The poorest of our lands are, from mere location, cheaper at any reasonable price asked for them, than the lands of the far West at nothing. We need not be uneasy. The natural advantages of Virginia are so great, that the tide of immigration will soon set in with a rush, and the population will increase quite as fast as it can be assimilated, and few, I suppose, desire to see Virginia pass under foreign dominion. For myself, I wish Virginians ever to be the dominant race in Virginia—in the strong Anglo-Saxon of one of my correspondents, “the best *breed* of people that God ever made.”

I looked with interest and high expectation for your promised article on fertilizers for corn. It is a subject on which I really want information, for although I have tried as many experiments as most farmers, I am still in the dark. Permit me to say that your article has not furnished me the desired light, particularly as you designedly withheld an important fact which I think you ought to

have communicated. The agricultural press should, as far as possible, protect farmers from imposition, and when the Editors know an honest dealer, it can be no reflection on others to recommend him. I am sure you would disdain, where duty is involved, to be governed by *policy*; but perhaps those who do not know you so well, may unjustly impute to you such motives. Our farmers' club have had this subject frequently under discussion without satisfactory results. The failure of fertilizers on the last year's crops was so general, and the results so disastrous, that the club declined to publish the report of the committee, lest it might injuriously affect the value of our lands. We came, however, unanimously to one resolution, to buy no fertilizers on credit if possible to avoid it, and to purchase from no dealer who sells at a higher price on credit than for cash. I may say on my own responsibility, that I know of but one such dealer, and I am very sure that his fertilizers are honestly compounded. That person is G. Ober, of Baltimore. By this I mean to reflect on no others, and hope that the remark may be applicable to all.

Jeremy Bentham, notwithstanding his eccentricities, mingled a great deal of sound sense with his philosophy. In his "Book of Fallacies" he exposed, with the quick perception of an acute observer, the gross errors into which mankind had often fallen by accepting as truisms maxims of life and manners, which are found upon examination entirely unfounded. A book of fallacies written after the manner of Bentham, for the benefit of farmers, would just now do a great deal of good. A fallacy now in the ascendant is, that every man should have his *specialty*. This fallacy is not confined to farmers, but has been proclaimed by a gentleman of fine taste and acquirements in the halls of the University. Our young men, instead of having their minds expanded and their hearts enlarged, by ranging over the wide domain of universal knowledge, must "cramp their genius over the pestle and mortar," or confine themselves to some narrow path which may lead to material wealth, at the expense of all that constitutes true greatness in man. Let specialties receive due attention. But the true aim of education should be, to develop to the utmost all the faculties; and so to train the mind, that it may be capable of rising to the loftiest contemplations, and of comprehending the smallest details. This has been the peculiar characteristic of the Virginia mind, as illustrated in the history of so many of her distinguished men, of whom Marshall, Jefferson and Madison were types; whose intellects, cramped by no artificial restraints, ranged the universe of thought, and like

the wonderful organ of the largest and most sagacious of living animals, could at once embrace the greatest and minutest objects. We are in great danger of sinking into a grovelling materialism. The souls of most of our leading men are absorbed by the desire of gain. Individually and collectively, they are making haste to be rich. Wealth is certainly desirable, but life has many nobler objects, and it is the duty of those who control the education of the young, to direct their minds to those higher aims.

Specialties are now all the rage with many of our farmers. *Potatoes* are to make fabulous yields, and to raise their producers to sudden opulence. They are almost as valuable as gold, and an alderman eats fifty dollars' worth of them at a meal. In the cant phrase of the day, "there is money in them," especially if you raise those *colouer d' rose*. Fruits of all kinds, great and small, are to produce fortunes. Grapes, blackberries, raspberries, strawberries, and even cranberries, have found an advocate. The profits, actual or estimated, from these ventures are so great, that the experimenter flatters himself he will soon find the lamp of Aladdin or the philosopher's stone. A retired merchant, an enthusiastic suburban farmer from the neighborhood of Philadelphia, who has settled among us, lectures us freely on our want of enterprise. "Why don't you plant potatoes? There are men in the neighborhood of Philadelphia who rent land at high rates, plant cabbages between the rows of potatoes, pay their rent and expenses from the sale of the cabbages, and have left fifteen hundred bushels of potatoes to the acre as clear profit!" He religiously believes these statements, though the average crop of Pennsylvania is only eighty bushels to the acre, and is planting potatoes vigorously. All these things are very good in their place, and no farmer should neglect them. But we should remember that they belong to the province of the gardener, the fruiterer, and the trucker, who in due time will find ample employment among us, when capital and labor and manure can be commanded to carry on these very costly enterprises, and new lines of ready communication are opened with the great cities.

Our friend the junior editor has, I perceive, again mounted his *special* hobby the sheep, and like the currier who insisted on fortifying the city with leather, I fear, it will be difficult to change his convictions. As he seems to be somewhat sensitive on the subject, I would not mention it, if he had not invited remark. Can our intelligent friend believe that it would be profitable to devote our lands, near to market and peculiarly adapted to corn and all cultivated crops, exclusively to sheep husbandry? Is there not land

enough remote from market, peculiarly adapted to sheep, to supply the demand, in the face of the fact that so great is the fecundity of this animal that the market is overstocked, and even during the last fall and winter thousands were slaughtered for their pelts and tallow?

This furor for change, this haste to be doing something, they know not what, which causes our people, like Bob Sawyer in the novel, to be always fussing and running about, to make at least a show of business, will have its day, and the quiet good sense of the Virginia people, inherited from their British ancestors, will finally prevail. Sooner or later we shall find that all the efforts of land agents and immigration societies will not change the essential characteristics of our people, or the nature of our agriculture. Virginia will still continue, under the influence of natural causes, which governments and laws may modify, but never destroy, to be a planting and farming State, and the laborers who worked for our fathers, will continue, with their descendants, to work for us and our descendants.

The English are a people of practical good sense and of enlarged philosophy. You do not find them given to specialties. The beautiful pictures of English rural scenes, sometimes found in our parlors, do not represent a sheep or cow or horse alone, or any special product of the farm, but from the duck and the dunghill fowl, through the whole range of domestic animals, and the varied products of the field, all find a place. These are true representations of British husbandry—such as have often been exhibited at Holkham and Triptree.

I was a farmer before the war, on the British system of alternate or convertible husbandry; and when I look back to the past, I may say without vanity, a most successful one. This is the only system which, notwithstanding the novelties which may amuse for a time, can be permanently successful in Virginia. You ask for facts; at the risk of the charge of egotism, I will give them. I acted on the principle, TO BUY NOTHING THAT COULD BE RAISED ON THE FARM. I raised my own horses and mules, and often had horses for sale. My pork, beef, milk and butter, lambs, mutton, fruits and garden stuff, were always in the greatest abundance. My clover fields were always luxuriant, and my irrigated meadows yielded the heaviest crops of the best timothy and herds'-grass hay, which I often sold to Yankee timber-getters in the neighborhood at \$1 per hundred. The crops of grain were always large and of the best quality; and from one of my farms more corn was sold for a series of years, than from any farm of proportionate extent in Eastern

Virginia, though it supported a large number of negroes and horses, and fattened beeves for the family, and many hogs. The farm contains five hundred and sixty acres, including arable, waste, wood land and meadows. The sales for several years averaged 3,000 bushels of corn, being one year 3,600 bushels. I sometimes reaped from 20 to 22 bushels of wheat for one sown, and for a series of years the crops were large. I had no *specialty*, and my stocks of horses, mules, cattle, sheep and hogs were always numerous. If any person wanted a good cow or yoke of oxen he knew where to find them, and Baltimore butchers in search of mutton or lambs, were seldom disappointed. For more than thirty years I never failed to have lard and bacon to sell, and butter was so abundant that it was often given away, or used to grease machinery. My horses and mules were all lost during the war, and many of my hogs and sheep wantonly destroyed. Yet I saved a flock of sixty sheep, and sent to Hanover, for safe keeping, one hundred and thirty fine grade Cotswold and Southdown, that were greatly admired on the road. These on our salt water pastures had never cost a cent in food or salt; yet more than half of them died in Hanover, on a range of five hundred acres, in a few weeks, for want of salt.

I continued this system as far as possible during the war, and furnished to the Commissary large numbers of fine cattle, and as much as seven thousand (7,000) pounds of bacon at one time; and immediately after this contribution, when General Lee made his last appeal for provisions, I was able to furnish bread for one hundred men for six months, and a considerable quantity of bacon. It is impossible to estimate the quantity of grain furnished to the army and to the suffering people in the devastated districts. It was numbered by thousands of bushels; and when the war was ended, though much of it had been wasted or burnt, I had several thousand bushels left, with which to begin operations anew. I have pursued the same system since the war. The corn has been short and the crops of wheat have failed, but the stock has not. We have sold a considerable number of fine work oxen and cows at good prices and some beef cattle from time to time since the close of the war. In the last three months we have sold seven work oxen for \$100. Notwithstanding these sales, the number of the original stock has not been diminished. We have had lamb, mutton, beef, milk and butter, generally, in abundance, and every year since the war have sold more or less bacon and lard. This year I think the proceeds of bacon and lard will supply the family with groceries. Like other patriots, we have been greatly oppressed by old debts, the failure

of crops, the inefficiency of labor, and the scarcity of money; yet a system which under varying circumstances has produced these results cannot be a bad one.

This brings me to what the *Planter and Farmer* says upon the *pork question*—a subject of great importance and greatly neglected. Raise your own pork. It is far cheaper to raise than to buy it, no matter what may be the price of corn. You cannot risk your whole stock of hogs now in the fields or woods. Raise a considerable number in pens with water-proof roofs. Feed with all the slops from kitchen and dairy, which in my family are worth for this purpose nearly a hundred dollars a year. Add to this, refuse grain, vegetables, clover cut and fed in the pens, or in growing lots enclosed for the purpose. I raised fourteen last year in this way. Eleven of them averaged over two hundred—three, being younger, about one hundred and fifty pounds. The manure made from them, which is now ready to be applied to corn, will, I am sure, produce more corn than the hogs consumed.

I am more and more convinced every day that I live, that the alternate or convertible system of husbandry, with comparatively large farms, is the true policy for us in our present circumstances. The labor has greatly improved, and will continue to improve; and once freed from debt, with their energies untrammelled, the gentlemen farmers of Virginia will soon show the world that they are not the drones they have been represented. I fear I have incautiously used the word *gentlemen*. Gentlemen and ladies are terms now eschewed, unless it be by men in independent positions like the Chief Justice who, in sentencing criminals found guilty of a felonious offence, concludes by ordering the marshal to take *those gentlemen* to the penitentiary; or his honor, the Mayor, who, when females of equivocal character are brought into court, orders the Sergeant to escort those *ladies* to the lock-up.

There is another fallacy that ought not to pass unnoticed. All our young men are earnestly urged to strip off and go hard to work with the axe, the plough, the hoe. This is very well when necessary or profitable, but to the extent to which it has been preached, it is extremely mischievous. I doubt not it has driven from Virginia hundreds, nay, thousands of deserving young men, who have left their homes in sorrow and despair, as flying from a life of poverty and servitude. If they were rightly informed, who could blame them for emigrating, rather than remain at home toiling hopelessly at the average rate of farm wages from thirty to fifty cents a day? I would invite them to take a more cheerful view—

to return and reclaim the wasted farms of their fathers, and resume the position, which properly belongs to them, as country gentlemen. No man, young or old, should be too proud to take a hand at anything that is useful. My own son gives daily evidence of this. He is expert in the use of all implements and machinery; can run a line with a plough as straight as if laid off by a surveyor's instruments, and this he has lately done day by day, and was very profitably engaged, because he was leading others. This industry I encourage, but I always inculcate upon him that *brains* are worth more than hands; and as there will always be, in this State especially, plenty of laborers that will require brains to direct them, he will occupy his time more profitably in studying thoroughly the requirements of the farm, and seeing that they are strictly attended to by the laborers, than in drudging with a hoe from day to day. This doctrine of hard work may be pushed to extremes. I have known several worthy white men greatly shorten their days by too much work in our hot summer suns. Our friend, the President of the State Society, I think, rides this hobby rather too freely; and when he ventured, in his inaugural, to advise that the "patrimonial oaks" should be cut down, lest their shades should shelter old gentlemen disposed to indulge themselves, I could not but feel that he had committed an act of impiety—a crime without a name. In all the laws of Lycurgus there was no punishment denounced against parricide, because it was not supposed possible that such an unnatural crime could be committed. To cut down the *patrimonial* oaks is more akin to parricide, for it would break the *father's* heart if living. I confess my fondness for an arm chair, under an umbrageous tree, from which I can see in the distance the graceful movements of the reaper and the harvester, and cry out as they approach me in their round, after the manner of boys at play: "Fight on, my brave boys, your Captain is looking at you!" Surely a sexagenarian, not possessed of any nimble powers of locomotion, might be allowed this indulgence. *Deus nobis hæc otia fecit*, and it is clearly an act of impiety to deprive us of it. But our friend is too practical and utilitarian to enjoy the Arcadian scenes so sweetly depicted by the great poet of the Georgics. In one of these scenes he describes a shepherd with his flocks feeding around him, lying *at ease under a wide-spreading beach tree*; the sun is approaching the horizon; shadows are falling from the mountains; the air is tranquil and serene; and the smoke is ascending from the neighboring villages. This is a scene for a painter, but it has no charms for utilitarians. I confess myself to no little fondness for the ro-

mance and poetry of life. I recollect at this moment lines of Pope, as repeated to me by my father more than half a century ago:

“Happy the man whose will and care,
A few paternal acres bound,
Content to breathe his native air
On his own ground.”

The last couplet of the next stanza is,

“Where trees in summer yield him shade—
In winter fire.”

Perhaps my fondness for shade, and especially for that of the “patrimonial oaks,” arises in part from these early associations. But enough of this. *Vive la bagatelle.*

Very truly your friend,

WILLOUGHBY NEWTON.

Cheap Local Fares and Freights the True Policy of our Railroads.

Messrs. Editors,—A friend who claims to speak by authority, tells me that a word or two from even so humble a subscriber as myself would not be totally unacceptable to you. It is in response to this suggestion that you are troubled with this communication.

After residing in Richmond from early boyhood, I have settled down in the country, to try farming in a very small way. Two reasons impel me to this course: the first arises out of considerations of health and economy; the second springs from a settled conviction that, while so many are falling away from the plough, every new comer is, in the present condition of the South, a sort of public benefactor. The soil here seems to be of a very generous disposition, but a course of hard treatment has reduced a tolerable garden spot into a sad wilderness; still I do not doubt that labor, which is the farmer's necessity, will turn the tide in the other direction, and that at no distant time we shall have the wilderness returning to its garden state. I have a notion that any man who has a tolerable share of common sense, joined with industry and perseverance, and will read and question closely, yet act with promptness and independence, may become a farmer. If you think differently, do not tell me so, I pray you, for the present, as I have much respect for your judgment, and may be discouraged. If, however, we shall meet with any measure of success, my better-half, who takes great interest in our movements, may some day trouble you with a sample of what we can do; and, if we can do no better, I dare say that a big blackberry, (a cultivated one, I mean,)

or a tolerable cympling, would not be regarded by you altogether beneath your attention.

As a Virginian, I am deeply interested in whatever concerns the happiness and prosperity of our people; and it is with a sad heart I see so many of our best men standing idle when the earth is still before us, out of whose bosom the prosperity of man has been dug, in every age of the world, upon the Nile, the Jordan, the Tiber, the Thames, &c. Nor can I see why we cannot build up upon the banks of the James an influence which, ere long, shall challenge the admiration of the world. But this last time of my pen is not without an object, as will presently appear.

The location I have chosen, or rather accidentally hit on, seems desirable enough. I am thirteen miles from Richmond, and about one and a half miles from the track of the Richmond, Fredericksburg and Potomac railroad—a sort of national highway, which has one of the finest opportunities in the world to acquire a large share of popularity and a still larger share of pecuniary gain. I wish, indeed, that the representatives of this road could have a just appreciation of its opportunity; but it often happens with corporations, as with individual men, that the sight of the present shilling forbids the contemplation of the contingent dollar. Easy of access from all points, and running, as it does, through one of the healthiest sections of country in the world, this road is well calculated to attract the attention of those who wish to settle in Virginia. And though the lands are often poor, yet they lay remarkably well, and are well capable of improvement by manures which can readily be brought from Richmond or Baltimore. Now if this road would, in view of the present situation of affairs, put its local fares and its manure and farming implement freights at a very low rate, it would need no prophet to foresee that its whole line would, at an early day, become a continuous village. Then the Company, instead of being frequently grumbled at, as it now is, would have the hearty regards of all, and where it is now receiving orders by the hundred, would find thousands flowing into its treasury. Then, too, the traveler as he went North, or came South, instead of beholding a sometimes desolate country, would have his sight refreshed by some of the loveliest scenery in the world; and even the good-natured “Yankee,” as he journeyed hitherward, could believe the stories of the darkey who, having run away from his Virginia home, was last seen sitting on the banks of the Mississippi, singing,

“Carry me back to Ole Virginny.”

It is strange to me that our railroad corporations do not see that every dweller on the line of their roads is a laborer in their interests, and that every bushel of manure and every farming implement transported by them is assisting in preparing produce which must find its way to market by their agency; and yet if the assumption here is correct, and I think no one can deny it, there is no road whose situation favors a really liberal policy more than does the situation of the Richmond, Fredericksburg and Potomac. For its own sake, as much as for the public good, I would be glad to see it adopt a policy which would infallibly pay so well, both in fame and money.

But I have exceeded the bounds proposed to myself, and I will close abruptly, with the words which Milton has made Satan address to his tardy co-laborers. If I had the voice of seven thunders, I would bawl them into the ear of every dreaming corporation and every indolent Virginian:

“Awake! arise! or be forever fallen!”

K.

Hopewell, Hanover, April, 1869.

Beet-Root Sugar in England.

There have been a number of visitors lately to the works at Lavenham, including M. Caird and Professor Vœlcker, and the experiment appears to be progressing very satisfactorily indeed. The whole of the machinery has been supplied by MM. Jules Reallier and Van Gœthem, Bruxilles, the Belgium engineers, who are fully acquainted with the details necessary for the manufacture. The works are carried on under the superintendence of M. Victor Ortamus, civil engineer, from Belgium, who has had considerable experience in sugar manufacture on the continent, and the principal workmen are foreigners, while for the purpose of enabling them to communicate with the English men and women employed at the works, a Frenchman is engaged as an interpreter, and through him orders are given to the various English employees. There is a lime-kiln on the premises, for the purpose of manufacturing the gas required for saturating the liquid; and from the kiln it passes along a pipe, and thence through two purifiers to an engine, by which it is forced to the spot wanted for use. After leaving the saturating pans the liquid is of a different color, having become a deep brown; and, although sweet, it has a somewhat earthy flavor. When it has been sufficiently long in these pans, it is drawn off into what are

called the decanting pans, where the temperature is again reduced; and it is subsequently transferred to two enormous evaporating vacuum pans, where a certain amount of evaporation takes place, and this completes the process at Lavenham, the remainder of the evaporation being transferred to Mr. Duncan's works in London, for which purpose the product of the roots is sent off, in casks, in a liquid state. The Inland Revenue Department keep an officer constantly on the premises, for the purpose of looking after their interests; and Mr. Duncan, with characteristic thoughtfulness and liberality, has had an eye to the personal comfort of this official, and presented him with a couch, rug, easy chairs, and washing stand. Mr. Duncan is rapidly using the supply of this district at £1 per ton.—*Mark Lane Express.*



We have procured the above cut, not without considerable expense, from N. H. Paaren, Veterinary Surgeon, Chicago, Ill. It will be seen to exhibit the relation which the bony structure of the horse bears to the body, clothed with flesh and skin, and needs no explanation to render it intelligible to our readers.—EDS. SO. PLANTER AND FARMER.

M Ville's Book on High Farming without Manure Reviewed.

Mr. Editor,—For several years past the agricultural journals of the South have, from time to time, contained brief notices of the labors of Prof. Ville of France, who claims to have made important discoveries in practical agriculture, and in some instances formulæ have been published professing to represent the composition of certain applications found by him to be the best possible for certain crops. It is fair to presume, therefore, that a majority of your readers have heard something of Prof. Ville and of his new system, and like myself have seen enough to excite their curiosity, but not enough to enable them to judge of its merits, or profit by its teachings. The appearance among us of a little work by the Professor, translated and published in England, and republished in Boston, entitled "HIGH FARMING WITHOUT MANURE. *Six Lectures on Agriculture, delivered at the Experimental Farm of Vincennes. By M. GEORGE VILLE, Professor of Vegetable Physiology at the Museum of Natural History, Paris,*" wherein the laws which he claims to have discovered, and some of the results of their application in practice are stated, affords us an opportunity for learning what the system really is, as well as for forming a correct judgment as to its merits, and of the service it may be to us of the South, if properly appreciated and applied.

M. Ville has, we are told, been experimenting for many years, first on a small scale; and after he had satisfied himself of the truth of certain laws of vegetable nutrition, he proceeded to put them to the test of actual practice. In the translator's preface we are told that "The researches of M. Ville, which are now placed at the head of the most important discoveries science has yet made for the benefit of agriculture, were, like all innovations, received at first with something more than coldness and indifference;" and farther on we learn that, at the time he was most violently opposed and unpopular, the Emperor "extended a generous and powerful hand to the Professor, and the most complete success has crowned his glorious initiative." A portion of the imperial farm at Vincennes was placed at his disposal, where for a series of years he has carried on his experiments at the Emperor's expense, and to which point large numbers of farmers, and others interested in the progress of agriculture, are annually attracted by the increasing fame of the Professor, and the very remarkable crops produced on those portions of the farm under his direction.

Instead of operating upon ordinary soil, or soil of known com-

position, M. Ville, for reasons which I shall advert to in another place, commenced his experiments by growing plants in flower-pots filled with calcined sand as a basis, to one of which he added one of the substances always present in plants; to another two; to another all save one, say lime; to another all save another, say potash; and finally to another every substance found in plants, each substance added being in an available form. He thus had every form of soil, from absolute sterility on the one hand to great fertility on the other, passing through every intermediate grade, the composition of each being, of course, known and recorded; and was enabled to compare the effects of each on vegetation, to determine, as it were, the relative values of the substances composing them, and to arrive at that combination of material best calculated to produce the most perfect plants and the largest yield.

After repeated experiments in flower-pots, he proceeded to repeat them on plots of ground set apart for the purpose, and from these he passed to an application of the principles evolved to some of the fields of the farm of Vincennes. One of the most important of his discoveries, and the only one to which I wish to refer in this place, was that, by the use of a mixture of various substances, all of which have long been known in agriculture, and constituting what he calls a *complete fertilism*, he unfailingly makes large crops, and for a succession of years, provided the application is sufficiently heavy. This complete fertiliser is composed of some substance capable of yielding nitrogen, either in the form of nitric acid or ammonia, together with phosphoric acid, potash, &c., all in an available form, and having such a relation to the soil that, when applied in sufficient quantity, this and the soil will be capable of supplying all the substances required for the production of a succession of heavy crops. In other words, we have not only a demonstration of the great benefits to be derived from the use of judicious mixtures of what are known as the commercial fertilizers, but we also have the assurance that in these fertilizers, properly used, we have a satisfactory substitute for stable manure, and may confidently hope for remunerative crops, and improvement in our soils, even though we may be deficient in what English farmers and our northern neighbors consider indispensable to all good farming—stable manure. In another place I shall resume the subject of the Professor's experiments and their results, contenting myself for the present with giving prominence to the important truth just enunciated.

For the English farmer, or the farmer from one of our northern States, who is a stock grower, and always has a large portion of his

land in meadow and permanent pasture, his stock necessarily consuming a large portion of the produce of the farm, and returning it to the soil in the shape of manure, the commercial fertilisers come in as simple increments to his general stock of manure. He may appreciate their value, and use them to a limited extent, but after all, he feels that they are not necessities. But such is not our condition. Our system of farming is not and, from the nature of things, cannot be self-sustaining. From causes which it is not necessary to discuss here, we are not now, and most probably never will be, a stock growing people, and hence let us husband our resources as we will, we cannot hope to keep up our soils by the manure made on our farms. The great bulk of our lands, originally light, has depreciated under a system of cultivation which, to say the least of it, is faulty, and must continue to do so unless we can check their downward course by the use of the commercial fertilisers. But this is not all: many, very many of our soils—soils on which our farmers are depending to supply the wants of their families—are in such a condition that the use of fertilisers is necessary before the production of a crop is possible. With our lands in such condition, how important is it that we should, if such a thing is possible, determine the principles which should govern us in the application of fertilisers, and having determined them disseminate them through every available channel!

It is my purpose to discuss the general origin of soils, with particular reference to the soils of Virginia east of the Blue Ridge, and the effects of cropping upon them; to explain the natural process of restoration of worn out lands; develop M. Ville's system somewhat in detail; and make such an application of it to our own condition as seems to me necessary, with the hope that I may be able to make the discussion of practical value to at least a portion of your readers.

Soils, no matter where found, have their origin either directly or indirectly in the decomposition and disintegration of the rocks which constitute the surface of our planet; consequently, in tracing the origin of any particular class of soils, not alluvial, a knowledge of the underlying formations, and of the processes by which a fertile soil succeeds the barren rock, becomes both interesting and valuable. The agents by which these changes are accomplished are the atmosphere, water and frost. To this action the hardest rocks must eventually yield, resulting in various mixtures of clay and sand, with smaller quantities of such other substances as were originally present in the rock, but often modified in form. The decomposed

rock, the mere mixture of sand, clay and other materials, is not, however, soil capable of producing crops: it still must go through a long process of amelioration. At first it is capable of supporting a scanty vegetation only; but whatever it can support, takes root and grows, drawing its organic matter from the air.

After a time this vegetation dies, and mingles with the soil, making a positive transfer of organic matter from the air to the soil. This process going on year by year, the organic matter of the soil slowly increases, the first scanty vegetation is supplanted by a more vigorous one, and this in time by one still more vigorous. At last shrubs and trees cover the ground, which, sending their roots far down into the subsoil, draw from it supplies of mineral food, which passing first into the leaves, eventually find their way into the surface soil, along with the still increasing stores of organic matter. *This annual top-dressing of both mineral and organic matter is necessarily composed of all the substances which enter into the composition of vegetables, and which are absolutely required in every soil to make it fertile, and in such form as to be available to whatever crops may be grown.* These are organic matter not composed of, but containing *ammonia, potassa, soda, lime, magnesia, soluble silica, sulphuric acid, phosphoric acid, chlorine, and oxide of iron.*

From what I have just said it is apparent that nature, in her process of forming arable soils, *is continually making additions to the stock of substances which are necessary to fertility*, and in so doing is gradually bringing them all, as nearly as the nature of the case will admit, to the same condition, no matter what be the source from which they may have been derived. It is equally plain, however, that there must be great diversity in soils, not only in their physical properties, but in their chemical composition also, and that soils of equal productiveness when first cleared, and of course of equal apparent fertility, must differ widely in their ability to meet the demands made upon them through years of continuous cultivation.

But if what I have said in relation to the origin of soils be true, there ought to be certain characteristic, or family resemblances between all the soils of a particular geological period, in spite of the tendency of all soils to assume a common condition, and such indeed is the case. Take, for example, the soils of the Valley of Virginia, resting upon and formed from the Valley limestones; we find, of course, every variety of fertility, and great diversity in mechanical condition, yet they are as a class clays, and essentially grass lands.

Nearly all of the country east of the Blue Ridge down to the head of tide, is covered by metamorphic rocks—rocks that, after deposition in water, were subjected to long continued and intense heat, whereby they have become highly chrystaline in structure, and materially modified in other respects. The decomposition of these rocks gives rise to a class of soils which are prone to wash, and liable to serious injury when naked fields are long exposed; a sort of sifting process goes on, resulting in the retention of the coarser particles, and the loss of the finer and more valuable portions. But whilst they all bear a certain resemblance to each other in these respects, and in others that might be pointed out, they yet differ widely in different counties, and in different portions of the same county, or even of the same farm. In one locality rocks of a granite type may prevail, producing soils well supplied most probably with potash, but deficient in lime and other equally important constituents, full of small scales of undecomposed mica, and never truly fertile. But let such a rock, retaining its feldspar, have its mica replaced by hornblende, or some allied mineral, and at once the overlying soil assumes a dark red color, and lime, magnesia, &c., if not present in quantity, are at least sufficiently abundant to make the soil fertile, and capable of a high degree of improvement.

The soils of Tidewater Virginia are, as a class, widely different from those just referred to. These soils constitute the upper beds or strata of what is known as the tertiary belt of Virginia. During the tertiary period the waters of the Atlantic covered the whole of this portion of Virginia, as well as the greater portion of both North and South Carolina, Georgia, Florida, &c., the shore line through our State being nearly on a line passing through the falls of the large rivers, and the last deposits of mud and sand which were borne into the ocean by the running streams, and other natural causes, now constitute the soils of this region. Rising from the waters before the close of the Tertiary period, still beds of mud and sand, plants took root in them, and by the same process by which all soils are made productive, they were gradually transformed into arable soils. They are, as a class, light and sandy, deficient generally in some important constituents, as lime and potash, but yet capable, by the use of lime, or marl, which is generally abundant, and other means, of a high degree of improvement.

Along the banks of streams we meet with *alluvial* lands, or "*low grounds*," which are generally very productive, and in some instances seem to be practically inexhaustible. Such soils are made up of the fine material that has been washed out of, and borne

down from the uplands. Such soils, besides being in a fine state of division, are made up of the very richest portions of the soils supplying them, and being composed of material from numerous points, are sure to contain abundant supplies of all the elements of fertility, in available forms.

Left-Hand Ploughs.

Prejudices on this subject, like all others, are hard to remove; but if farmers would consider the question fairly, and what is better, if they will try both kinds of ploughs, they will find the left-hand plough decidedly preferable. As a general rule, farming in Pennsylvania is thought to be better done than it is in Virginia; but in some parts of Virginia, particularly the counties of Clarke and Jefferson, ploughing is better done than it is generally in Pennsylvania; and one reason of this is the use of three-horse left-hand ploughs. In those counties two-horse ploughs are rarely seen, and right-hand ploughs are never seen. There are three reasons, not very potent, but sufficiently so to decide the question, why left-hand ploughs should be preferred. The first is, any horse which does not walk too fast makes a good leader, and all know, before the introduction of left-hand ploughs, the greatest recommendation to a work-horse was being a barshear leader. Secondly, the plough cuts uniformly a given quantity of land; and thirdly, when back-furrowing, the horses turn, at the ends, to the left, which is better than turning to the right, because, in this case, the leader has to push the other horses round, which takes up time and injures the horses' feet materially by treading on each other—whereas, turning to the left, the leader pulls the other horses easily around, and they do not hurt each other's feet and ankles. The advantage of back furrowing is, the horses tramping the unploughed ground at the end of each furrow, which is not the case when the ploughing is done in lands. Then they walk out at the extremity of every furrow on the ploughed ground, which renders it unfit for the seed until it is ploughed again.

Now, if the left-hand plough costs more than the right-hand, or if there could be any reason assigned in favor of the right-hand plough which the left-hand does not possess, we would not take up our time urging the superiority of the left-hand plough for the reason we have given. But both kinds are alike, except in those particulars we have named; and they are sufficient to induce every farmer, when he is obliged to buy a plough, to choose a left-hand, whether it be for two or three horses.—*Religious Herald*.

A Large and Paying Application of Guano to Tobacco.

The following very interesting article on the above subject reached us too late for the April number, but is yet in full time to be of great value to our planting subscribers. But we regret that our friend does not allow us to use his name, as well as his ideas. That being forbidden, we can only say that he is by inheritance, and by many years' practice, one of the best planters and farmers in the State, whose name is authority on the subject.

We only add for him, what we are sure he would have added for himself, that the wheat after the tobacco should be followed certainly with clover and, in our judgment, we presume with some of the spear grasses.—Eds. S. P. & F.

ALBEMARLE Co., March 23d, 1869.

COL. FRANK G. RUFFIN:

Dear Sir,—When in Charlottesville, a few days since, a letter was handed me by our friend F*** C*** from you, in which you stated that you wished me to give you a statement of the fertilizers I used on my tobacco crop last year, and how applied, and that you wished to have it in your next issue of the *Planter and Farmer*. Before going farther, I must say to you that I don't wish my name given in any way, as I dislike to appear conspicuous. If what I have to say, however, is worth notice you can publish it.

But now to the point. I aimed at 150,000 hills of tobacco, but after finishing hilling, found it was only 140,000. My intention was to put on 400 lbs. of Peruvian Guano to the acre, but as it turned out less than I laid off the land for, there was a little more than 400 lbs. to the acre put on. I applied the guano broadcast, with about two bushels of plaster to the acre also, mixed thoroughly before sowing. My land was broken up in the fall, and the next spring, after having finished planting corn, I leveled down my tobacco land and hauled out what stable and barn-yard manure I had, spread it, laid off the land as if to sow wheat or oats, about ten or eleven feet wide, and then sowed twice in each land. I then ran a heavy three-horse cultivator over the land twice or three times, as necessity required. Where there was a great deal of grass I had to use the one-horse McCormick or shovel-plough, as the cultivator would not answer where the land was foul. I don't like the two or three-horse plough for preparing land to hill, as it turns up too much soil that has not been pulverized by the frost and leaves the land too rough. I think I shall make from the 140,000 hills, after having one house burnt, when curing, containing 10,000 plants—33,000 or 40,000 lbs. of tobacco of fine quality, which I would like you to see when sold about the first or second week in May.

The application of fertilizers I made at first appears extravagant—a little over \$20 to the acre—but I estimated in this way:

First, I would get not less than 400 lbs. of tobacco more to the acre than I would without the guano; second, I would get tobacco of such quality that it would bring from one to two dollars per hundred more than it would without guano; third, the benefit to the wheat crop not less than five or seven bushels to the acre over and above what it would bring without guano. The idea that guano makes tobacco thin has never been proven to me—that is, as far as my observation goes in the Piedmont region; it may be so on light sandy soil, which has never come under my observation. Wherever I have made a heavy application it looks, when ripe and when cured, as if manured with stable manure.

P. S.—Don't understand me as saying that all of my tobacco land was manured. I don't think there was more than one-fourth, and that very light. Where the land was best I put no manure but guano, and that produced the best tobacco.

J. W. G.

Manipulated Fertilizers—Gilham's, Wilson's, &c.

Messrs. Editor,—It is a source of sincere pleasure to Virginia and North Carolina tobacco raisers to find within their reach, at so reasonable a price, a manure so admirably adapted to their purpose as *Col. Gilham's "Tobacco Fertilizer."* To feel assured that, from his intimate knowledge of chemistry and his known character as a high minded, honorable gentleman, they can rely implicitly on the products of his manipulation as *genuine*, is a vast gain to agriculture. Though not a tobacco grower, I read the supplemental sheet of the *Whig* of the 25th inst., with genuine gratification, containing the testimony of so many intelligent *Virginia gentlemen*, many of them known to me personally, attesting its virtue as a fertilizer, in comparison with Peruvian guano, and in *every instance* showing its superiority, to say nothing of its *economy*.

Whilst we of the South have been victimized so often with spurious phosphates put up north of Mason and Dixon's line, and even south of that line—at *Baltimore*—'tis but just to the manufacturers to single out the *genuine*. In this too limited category of *honestly* manufactured phosphates, I take pleasure in mentioning "Wilson's Ammoniated Super-Phosphate of Lime," patented August 11, 1863, manufactured by the Rumford Chemical Works, Providence, R. I. I have used it on wheat for two seasons past, and on the crop secured in '63, feel well assured it effected a marked influence in preventing fly and hastening the ripening, as well as increasing the

product. Messrs. Spotts & Gibson are its sole agents, and Mr. S. induced me to try it from representing to me his uniform refusal to sell *any* fertilizer until he was satisfied of its genuineness. He visited and inspected the works, and saw for himself its *effects* on the barren "Seekonk Plains," in the vicinity of Providence. This is a section of country consisting of light, drifting sand, barren in the extreme. On this quality of land, on $11\frac{1}{2}$ acres in corn, he (Mr. Wilson) made 850 bushels shelled corn, or 80 *bushels to the acre*, 40 bushels of barley, and oats 30 bushels. From a lot of less than 16 acres, that four years before was a part of these plains, he took off at the first mowing 35 *tons of hay*, and at second *ten large loads*. It was first cropped two years in corn, and one in oats and barley.

A neighbor of mine, Wm. Temple, sold some weeks ago a young hog, less than two years old, that weighed 542 lbs. gross. The purchaser might have been tempted to fatten it for the next county fair, but injured it in putting it into a wagon to haul it home. It was not fat, but growing rapidly, and weighed nett. 440 lbs.

Yours respectfully,

J. M. McCUE.

Mt. Solon, Va., March 29th, 1869.

Practical Working of Mr. Gilmer's System of Farming—Fertilizers Used.

My Dear Sirs,—One year ago I wrote the article "Our Altered Circumstances Necessitate a Change in our System of Farming," which appeared in your May number, page 279, and drew from my esteemed friend Mr. S. W. Ficklin an article—"Mr. G. C. Gilmer's System of Farming Reviewed," in your June number, in which he says the communication of Mr. G. C. Gilmer in the May number is instructive, but not without errors. When I read this very sensible article from my very sensible friend, I at first thought of replying, and was asked by some of my neighbors to do so; but upon reflection came to the conclusion we were both aiming for the same great object, the greatest amount of benefit to us all, and to test fully these disputed theories, would take time and deserved much sober reflection. I therefore determined to delay my reply until I could the better convince myself, by a little more practice, of its benefits and its errors, for practical truths are what we all should be after, and not mere theories. Our country and countrymen are not now in any condition for testing mere theories, however plausible

they may be. I have not been able to carry out that plan as fully as I desired and intended doing, owing to the condition of our labor. I have tried whites and blacks, at low and high prices, but failed to secure such hands as one must have to carry out that plan fully, but did the best I could, and am so well convinced that it is now the very best plan for me, that I am now hard at work trying to test it fully. From past sad experience I am more fully convinced than ever that our profit does not consist in low wages, but the amount of work done for the wages given, and I have not been able to make one cent out of the common laborers, now to be found in the greatest abundance strolling all over our country; they wont work, but will steal more than enough to swell their receipts far beyond the high wages which should secure such hands as can and will do fair work, and take care of what is entrusted to them in teams, tools, feed, seed and manures. I was sadly disappointed in seeding wheat last fall, owing to inefficient hands, only seeding sixty-one bushels, on which I used (with my rye crop of twenty bushels) three and a half tons of manure, bought and paid for, for the last spring crops which could not be applied for want of efficient hands. I have now five bushels of buckwheat (on hand) purchased last spring by my efficient and esteemed friend Mr. John T. Armstrong, of Goshen Hill Depot, Rockbridge county, procured from Western Virginia, which could not be sowed for want of ploughed land to put it on, whilst I had an abundance of teams, but could not get the ploughmen. I was sadly disappointed in my hands procured last January for the year, and was unable to get good hands until the first and second of March. I think they are hands just suited to my mind. I give for my manager \$200, for my white teamster \$192, and for two colored men \$156 each and their board. High wages, but they have paid me far better than any hands I have ever had, as my teams, feed, stocks, crops, and preparation for other crops, will fully testify, as any observing man can see for himself by looking over my farm as he travels along the main county road leading through my premises, so as to give a full view of my entire farm. Never have I done more good fencing; cleared up perfectly more land; had more good ploughing done; seeded more grass seed; a better crop of oats seeded in good time and style; my stables, manure heaps, old tobacco houses, cutting-room and hay lofts thoroughly cleared up; and the manure, grass seed, &c., all well applied in their proper places and time.

And now if friend Ficklin will pay me a social visit and see for himself, he can be fully convinced my hundred acres in yards,

garden, orchard, lawns and grass lots is not such a humbug as he seemed to be thinking when he was writing his review of my article. His plans, I have not the least doubt, are the best for him, and for all so fortunately situated; but mine, I still believe, the very best for me and for those similarly situated, for whom I wrote that article, and I fear nine-tenths of our whole farming community are in my condition. I think when friend Ficklin purchased his farm it was thought to be in a very high state of improvement, and he, with his ample means and fine practical sense, good judgment and great business capacity, has no doubt put it all in almost, if not quite, perfect order. His elegant mansion, sweet yard, beautiful lawn, thrifty orchard, fine crops and well selected stock of all kinds, denote means that but few can even hope ever to enjoy. For such I do not profess to write, but for those whose fields have been so choked out of their former appearance of thrift by the broom straw, wild briar and bushes. I can devise no better plan than the one offered in your may number of last year. I thought it the best then, and I do now believe it the very best for nine out of every ten of our Virginia farmers. This I do know, so far as I have been able to go, that portion of my farm shows this day as high a state of improvement as it ever did in the palmiest days of our once happy country. I then worked twenty-two slaves; I now work but four hired men, and my manager remarked last night that he had met and successfully conquered the advancing enemies the broom straw, wild briar and bushes, in the fields on which he had attacked them, and with his present force, in three years more, he could bury the last member of those unsightly and unprofitable pests. With my present force I can clean up, fence in, and work well this farm of six hundred acres under my present system, and I do now hope at a cheaper rate than when I had so many hands, and so many more useless mouths to feed, backs to clothe and diseases to doctor. With good teams, good hands, and well selected manures, judiciously applied, it is hard for one to say what he cannot do. I do not know that I shall put over ten or fifteen acres in corn—certainly not over twenty—all of which will be thoroughly prepared and manured and worked, which I think pays me much better than working so much land in corn. All spare time I will devote to fencing, cleaning up, ditching, picking up rocks, and thoroughly preparing my land for an early seeding of rye and a large crop of wheat next fall. I apply most of my home-made manures to top-dressing my grass land, and will so apply my wheat and oat straw on my young grass seeded this year, which I think

pays better than passing it through the farm pen. I use all the plaster I can, and am now using lime. I think with but little grazing, plaster and lime, and green crops for fallows, we may hope in a few years to be able to try our hands upon our friend Ficklin's plan successfully. I last year used upon my small crop of corn Baugh's Raw Bone Super-Phosphate and, I think, his blood manure, the Old Dominion, from our esteemed and reliable friend, Col. Gilham, of the Southern Fertilizing Company of Richmond, and a guano of Mr. Bentley's, of the James River Manufacturing Company, and the Pacific Guano of Messrs. Allison & Addison, of Richmond. All did well, except the manures of Mr. Baugh, which did not pay, and I have not purchased any more of it. It did well on corn and wheat the year before. Why it failed on my last crop I do not know. All I know, upon a fair trial, it failed to pay me and I quit it at once, which I will do with any manure which fails to act for me upon a fair trial. I was so well pleased with that I got of my friends, Gilham, Bentley, and Allison & Addison I shall try them all again, and shall so continue as long as they do as well as any I can get. I am also trying on grass, oats and corn this spring some of the manures from the enterprising company of B. C. Flannagan & Co., of Charlottesville, and if they pay as well, shall hereafter use mostly of theirs so long as it pays. I think we all should encourage our home factories. My enterprising young friend and neighbor (Mr. Howard Smith, of Morven,) tried the bought manures on my plan on corn last year, and thinks it has paid him better on corn thus applied than it has ever done upon any other crop. More will try it this spring. I do not write for a company, nor for a manure, but for the good of our needy farmers of Virginia. Let any one try it on one or two acres, and I think he will be fully persuaded to test it upon his entire crop. A little in the drill to force it beyond the worms and crows, and then broadcast the balance across the rows at the second working and the ears will come, I think.

With best wishes for all who are dependent upon the farming interests of Virginia, and the highest success of your valuable journal and the noble enterprise in which you have embarked, I remain,

Yours truly,

GEO. C. GILMER.

Near Charlottesville, Albemarle Co., Va., April 21d, 1860.

To Hasten the Thinning and Weeding of Drilled Corn.

Messrs. Editors,—When corn is planted or drilled as recommended by the writer of this in your last February number, the operation of thinning and weeding by the hand hoe may be greatly facilitated by the use of the following described harrow, with five teeth, and if the land is light and the team strong enough, more teeth may be added accordingly, by having the piece across the beam longer: Have the beam to which the horse is hitched about $4\frac{1}{2}$ feet long by $3\frac{1}{2}$ inches thick one way and $2\frac{1}{2}$ inches the other; the hole for the clivis pin $\frac{1}{4}$ inches from the end of beam; the front tooth 8 inches from that; the piece for the other tooth to be the same size of beam and to be put on at right angles with it $2\frac{1}{4}$ feet from the front tooth, and the distance between the teeth in this piece must be regulated by the width of the teeth, the distance being no greater than just enough to prevent the loose earth thrown out by the teeth from covering up the remaining stalks of corn; a wheel, by means of two pieces of iron on the sides of the end of the beam, may be fastened, the centre of which, when revolving in the furrow made by the front tooth, to be $2\frac{1}{2}$ feet from the cross piece. The wheel may be sawed from a white or post oak, or black gum log, about 2 inches thick, and banded, the diameter of which must be regulated according to the length of the teeth from the bottom of the frame work. This implement to be used by going as nearly as practicable at right angles across the corn rows, soon after the first harrowing, as recommended in the February number (last), and to be used across corn rows 5 feet apart; but the harrow may be made for rows any distance apart by altering its proportions between the teeth and the centre of the wheel, and it is intended to be used more particularly on land bedded in single rows, but it can be used on level land.

Respectfully yours, &c.,

ARCHIBALD THWEATT.

Sun Marino, P. O. Dinwiddie, Va., The Peck, April 20, 1869.

NEW POTATOES.—A few years ago the Early Goodrich was to be ten days earlier than any other; then Early Rose was to be fourteen days earlier than Goodrich; Early Prince is now to be ten days earlier than Early Rose. Thirty-four days is an enormous advance in six years! but does any body believe it? Gentlemen, take warning by the Tomato men; you have our encouragement in your endeavors to improve the breeds of things—we hope you will be paid well for every thing—except those marvelous statements, which we hope will not be charged for in the bill.—*Gardener's Monthly.*

Corn-Husking Machine.

[We may as well state that the object of the following queries is to get data on which Mr. Stacey can act in introducing into Virginia, corn-shucking machinery. He wants the shucks. It is to our interest to let him have them on fair terms. He wants to know our views on this matter, and if we are wise we will let him have them. It is high time we had begun to count the cost of our various agricultural manipulations. Old times are changed, and the sooner we learn it and act on it, and shew brains about new matters, the better it will be all around.—EDS. So. P & F.]

F. G. RUFFIN, Esq.:

Dear Sir,—Will you please present the following important questions for the consideration of the readers of the *Planter and Farmer*? I would be glad to be favored with the conclusions of the best practical farmers in our community as data to govern me in a contemplated effort to introduce a machine designed to facilitate and cheapen the process of harvesting the corn crop, and hope to obtain their responses in time for the next issue of the *Planter and Farmer*:

1. What does the fodder saved in the usual manner, by pulling and cutting tops, generally cost per 100 pounds?
2. What is the percentage of loss caused by shrinkage or shriveling of the grain, consequent upon pulling fodder and cutting tops in the usual manner?
3. What is the percentage of corn left in the shucks when the corn is shucked by hand?
4. What would be the cost of cutting the corn with fodder on the stalk and shocking it in the field, as is usual at the North?
5. What would be the relative proportion and value of the corn fodder, saved by the process of cutting the corn crop and shocking it in the field, as compared with the old method of pulling fodder and cutting tops?
6. What does it now cost to pull the corn off the stalk and shuck it, independent of the cost of hauling from the field?

Very respectfully yours,

G. B. STACY.

DIGGING AMONGST FRUIT TREES.—This subject is at length awakening attention even in slow and staid old England, where it is so very hard to get the wagon of process out of the venerated old ruts. In a discussion of the subject recently in one of their journals, a correspondent says that one of the most successful Strawberry growers of his time, the late Mr. Keen, raiser of Keen's Seedling, after a lifetime of observation, had come to the conclusion that shallow digging was the best for the Strawberry crop; although the correspondent himself thought it absurd not "to let in the atmosphere" by deep digging.—*Gardener's Monthly*.

French Roofs—A Valuable Suggestion.

Editors Country Gentlemen.—It has been suggested by a friend that the new style of French roof, which is becoming so common both in city and rural architecture, might be turned to profitable account, and at the same time insure an amount of beauty and convenience that is well worth considering. The suggestion is to have the covering of coarse, strong *glass*, in place of slate or shingles, and thus, by the admission of light and heat, this part of the house would become an admirable conservatory, where fruits and flowers would flourish in the rankest luxuriance. In city houses, especially, water could readily be introduced in so convenient a manner as to insure the proper degree of humidity, while the simplest possible arrangement would secure ample ventilation. Grapes of all kinds, dwarf fruit trees of plum, apricot, peach, &c., &c., could be readily grown, as well as all kinds of flowers, and the attic of one's house become the most profitable and delightful feature of the domain. Glass suitably cast could be more cheaply produced and applied than slate, or even good shingles, and would be quite as strong and durable as either. The introduction of colored material would add very slightly to the cost and could be applied with charming effect.—J. B. OKIE, in the *Cultivator and Country Gentleman*.

South Carolina Negroes.

Mr. Thurlow Weed publishes in his paper, the *New York Commercial*, the following:

Of the population of South Carolina, 400,000 are colored and 300,000 white. The ratio is changing fast. Emigration helps and so does the death rate. A *Times* correspondent says that the mortuary reports in Charleston for the year 1868 exhibit the fact that out of a population of about 40,000 in the city—about half white and half black—there have died 1,208 persons; of these, 818 were colored, and 390 white. That is, more than two negroes to one white died last year in Charleston. More exactly it is, one negro in every twenty-four dies annually; while in the same time only one in every fifty-one whites dies.

The vote of the State is about one in seven; that is, about 100,000 votes in all. Of these 60,000 are negroes and 40,000 whites—the majority of negroes being 20,000. The black race is crowding toward the coast, leaving the upper and middle country. This gives the mountain counties already a majority of white votes; and this majority must increase on that side of the State.



Horticultural Department.

JOHN M. ALLAN, - - - - - EDITOR.

Is it True that Nurserymen and Seedsmen oppose the Spread of Horticultural Magazines?

In the April number of the *Gardener's Monthly*, Mr. Charles Arnold asks what steps can be taken to prevent vagabond fruit tree vendors deceiving the people by selling all manner of trash under stolen names.

So long as the public are not only willing but apparently anxious to be humbugged, we fear no means will avail for this purpose. Each man must learn in his turn, by painful experience, the folly of listening to any one who offers to deliver at his door articles at lower prices than responsible nurserymen quote them at their grounds, before he will agree to forego the seeming advantage of cheap stock. But the point we wish to bring forward is an incidental one, arising from the remarks of the editor of the *Monthly* upon Mr. Arnold's inquiry. He says: "The best thing we know is to encourage every one to read the papers. And here let us speak a truth we have never liked to tell before, namely: as a rule, those most opposed to the spread of horticultural magazines are nursery and seedsmen." Can Mr. Meehan, who is both a nurseryman and seedsman, mean that any considerable portion of these gentlemen are opposed to horticultural magazines? We can hardly credit it. It certainly is not true of our Southern growers and dealers. None could be more active and liberal in their aid and sympathy with everything calculated to disseminate sound information than these very gentlemen. As a case in point, we turn to the Catalogue of Messrs. F. Davis & Co., nurserymen of this city, and find an earnest commendation to their patrons of the *Gardener's Monthly* and other periodicals.

We are not so familiar with the Northern nurserymen as is Mr. Meehan, but judging from his columns we should say that they certainly do not "hide their light under a bushel." Not the least attractive part of his excellent journal is from the pens of nurserymen and florist contributors. If these discountenance the dissemination of light and knowledge, why do they, by their advertising patronage, sustain such publications? Without this last, three fourths of them would die out.

There may be here and there a blockhead who would have the rest of the world as stupid as himself; but as a class, our nurserymen, &c., are too intelligent and practical men of business, to put it on no higher ground, not to know that information increases interest and brings with it a corresponding growth of trade. Can't you think better of it, Mr. Meehan?

Virginia Horticultural and Pomological Society.

MEETING OF THE EXECUTIVE COMMITTEE.

A meeting of the Executive Committee of this Society was held at their rooms on the evening of the 15th of April last. A very encouraging report was received from the canvasser, and it was, thereupon, decided to offer a premium list amounting to EIGHT HUNDRED DOLLARS.

The following Standing Committees were announced (the first named of each Committee being Chairman):

Flowers.—Dr. J. T. Johnson, Dr. Thomas H. Williams, Dr. Richmond Lewis Wm. G. Taylor, Esq., and Dr. C. W. P. Brock.

Vegetables.—Joseph R. Rennie, L. Chamberlayne, William L. Harrison, J. O. Austin, and J. W. Gordon.

Wines.—William H. Haxall, Richard L. Christian, John J. Werth, M. B. Buck and Colonel William Gilham.

Fruits.—Franklin Davis, Chairman; the others to be announced.

Essays.—Dr. S. P. Moore, Hon. R. M. T. Hunter, General B. T. Johnson, Hon. B. Johnson Barbour and Professor Mallet.

Statistics.—Professor William Allan, Jacob Fuller, Jed. Hotchkiss, Rev. Leonidas Rosser and John T. Griffin.

Horticultural Implements.—I. S. Tower, E. B. Addison, John Asher, A. P. Rott and John T. Early.

Arrangements.—Captain C. H. Dimmock, T. A. Brander, John Poe, Jr., and M. T. Clarke.

In consequence of the illness of S. P. Moore, Chairman of the Committee on Premiums, the list was not acted on, but was deferred to a future meeting.

On a motion of Dr. Johnson, a committee of six was appointed to make the necessary arrangements for a strawberry and flower exhibition during the season.

The President appointed the following committee: Dr. J. T. Johnson, Franklin Davis, J. E. Stansbury, John Morton, Rev. Leonidas Rosser and Colonel J. J. Werth.

The Committee then adjourned to meet on the 27th instant, at 5 o'clock P. M., at which time it will take action on the premium list.

Navy Beans.

We are in receipt of several inquiries about Navy Beans. We do not know what to say more than has been said in the February No. of the *Planter and Farmer*. Navy Beans are in demand, have been for years past, and doubtless will be in the future. They are readily grown, requiring the same soil and culture as any snap bean. While extremely rich land is not necessary to their successful cultivation, very poor will not produce them profitably. A happy medium is to be preferred. Plant in drills about three feet apart, and in hills in the drills, putting three to five beans in the hills, these last to be one foot apart. Cultivate sufficiently to keep down weeds. When ripe gather by hand, if practicable, saving the first ripening to sell for seed. When gathered in bulk and flailed out, their market value is very materially reduced. But in any case two dollars per bushel may be expected, and fifty bushels per acre will not be an extravagant yield.

Nut Culture.

Messrs. Editors.—In reply to your request to your readers, to give their experience in *nut culture*, I will give what little I have. About six years ago I planted a number of our native chestnuts and shell-bark and hickory-nuts. They came up finely, and the largest chestnut tree is now about ten feet high. The shell barks were planted in poorer soil, and I suppose are naturally slower growers than the chestnut. They have not attained more than three or four feet. The chestnuts are growing in a stiff clay soil, which has been enriched from time to time for the purpose of raising potatoes, corn, &c. None of them have ever received any attention, except that the crops near them were cultivated.

In the autumn of 1867 I had a handful of Spanish chestnuts and pecans planted, placing a stake at each nut; but I had very little expectation of their growing, and consequently was not very careful to exclude cattle and hogs from the field. Last spring, however, I was gratified to find *one* Spanish chestnut and *four* pecans stretching up their slender stems, through the grass and weeds, to the light. Whether the others failed to vegetate, or the nuts were eaten by the hogs, I cannot tell, but I think the latter supposition more probable. At any rate, I was encouraged to plant more, and therefore enclosed two dollars to a friend in New Orleans, requesting him to send me not only Spanish chestnuts and pecans, but also filberts and English walnuts. The quantity sent for this small amount surprised me. My friend, however, informed me that he purchased them from Mr. A. F. Cochran, importer of fruits and nuts, who, with a patriotism worthy of commendation, furnishes all who wish to *plant* with nuts at *cost of importation*. I therefore advise all persons who wish to *engage* in the nut culture to send their orders to this gentleman.

I planted them carefully, but find to my sorrow that either some mischievous *persons* or *hogs* have played the wild with my nut plantation, but I hope a few have escaped, and I will report to you perhaps again in the spring. I then sent to Mr. Thorburn (No. 15 John street, New York) for some nuts of that splendid nut-tree of Southern Europe, the Italian pine (*Pinus pinex*) and some filberts and pistachios (*Pistachia vera*). I planted the Italian pines in a grove of our native pines and the filberts in some *rows of early corn*. I thought the native pines would protect the young foreigners until they grew large enough to stand our summer's sun and winter's wind, and then old "pitch, tar and turpentine" must give way to the woodman's axe, and leave their native soil to the occupancy of the beautiful invader. The nut of the Italian pine is somewhat similar to the English walnut in taste, but of a more tender texture. The word "buttery," so often applied to pears, describes it very nearly. It is smaller than the almond. The tree, you know, is an evergreen, and may be seen in the pictures of Salvator Rosa and other great landscape painters.

H. M. J.

PECAN NUTS.—The shell of the pecan nut raised in Texas is so tough, and the kernel so compactly wedged in between the bitter dividing membranes as to render the work of opening them, even when provided with nut crackers, absolutely unpleasant at times, to say the least of it. The Louisiana pecan nut has a much softer shell, and the kernels do not cling so tenaciously to the bitter membrane. The Louisiana pecans are said by connoisseurs to be less rich than those grown in Texas, but in our market they are preferred for the

reasons we have given. We saw yesterday, in the Crescent Fruit Store on Canal street, a small sample of Louisiana pecans, grown somewhere on the coast, the shells of which are as thin as paper and as soft as the almond. This variety is said to be scarce, but if it could be introduced generally the nuts would doubtless command a very high price. The flavor of the "soft shell" pecan is very delicate and delicious.—*N. O. Picayune.*

Hops.

"Dell Pilot," in the *Prairie Farmer*, gives the following reasons why Hop culture will not be profitable in this country:

First, as to the cause of the decrease of demand, the hop is mainly used in the manufacture of lager beer, which is not only inessential to the support of life, but is an artificial, intoxicating drink, having at the present time a strong and growing moral sentiment waging war against its use, gradually and surely decreasing the demand for hops. This feeling is liable to change as temperance movements are more or less periodical in their nature.

Secondly, the hop loses its strength so rapidly that its value is reduced about one-half in a year from the time it is picked, so that it would become almost worthless before the end of two years, so that a surplus at the present cost of labor, etc., would naturally have the effect to reduce the price below the cost of raising.

Thirdly, by reason of the ravages of the louse and other diseases, the hop is one of the most uncertain crops, there being failures in important localities nearly every year to diminish the supply, thus losing even the present indications upon the fickle foundation of less than half a crop.

Fourthly, a deficient supply thus creates an unnatural price, giving a profit greater than almost any other product, by which large numbers are enticed into the business, (it being natural to leave and rush into a business offering better profits than the one engaged in,) thus quickly producing a surplus, resulting in a price often below the cost of raising, followed by a decrease of product, giving in a short time the demand the opportunity of gaining the ascendancy to create another big price. And so on from one extreme to another, to and fro, like the pendulum of a clock, the price goes up and down, seeming unable to find its level, there being too little knowledge with action, based upon the principle herein explained, the majority apparently being guided by common indications.

With a knowledge of the reactive principle described, let not growers flatter themselves that by the decrease of acreage that should follow this crisis, it will give them an opportunity of preserving their own individual yards, to take the advantage of the opposite reaction.

But as many growers are beginning to understand and work by this principle, reactions will become so much modified in their extremes, that under the most favorable circumstances, hop growing in the future will gradually become less profitable; since these reactions are the result of the business being abandoned when a surplus occurs to destroy the profits, and is taken up again when the demand makes it remunerative.

Were all conversant with this law, with the accessible statistics now to guide us, the price of hops would seldom deviate far from its proper level, except

from almost entire failures in the main hop districts of the world, which could hardly be possible, since remedies are being discovered by which the ravages of the louse and disease can be prevented, apparently rendering it impossible to ever again realize the prices that have prevailed. As the commercial, agricultural and mechanical world becomes more scientifically methodical and systematic, the price of articles and products will naturally tend to its proper level in proportion to real costs, and thus lessen the chances of accidentally stumbling on to fortunes or on to the almshouse.

I am satisfied that raising hops will be the poorest business that can be engaged in for at least three years. It is estimated that the yearly consumptive demand for the United States is about 100,000 bales, where really it does not exceed 80,000 bales, and there are over 50,000 surplus bales on the market; besides which, a large quantity has been exported to England.

Thus the temperance movement in progress, and the gradual loosening up of the tariff on alcohol, which will for a time decrease the demand for hops, and the fact that not more than 20,000 or 25,000 bales, with the present surplus, will be required to supply our next year's demand, in addition to the fact that by the addition of last year's planting—about 50,000 acres for the United States—there is a sufficient average of hops in our country to produce, with less than half a yield, should half be cultivated, about 400,000 bales, we ought to be satisfied that it will be poor business to raise hops for a long time—say three or four years.

With what I have said in merely giving my views of the matter, as I have done before in the *Prairie Farmer*, let growers judge for themselves, and be governed by their own judgment. My recommendation, however, would be that last spring's yards be reduced in size so as to avoid any outside expenditures, if possible; while old improved yards, with no demand for expense in building, etc., ought to be reduced to one or two acres, as may suit the grower's means and desire to stake labor and capital against chance.

Experiments with Potatoes.

Messrs. Isaac Hicks & Sons, Old Westbury, L. I., send to the *Country Gentleman* an account of some potato experiments in the summer of 1868. The soil is a light sandy loam; previous crop, corn in drills on inverted sod; 10 two-horse loads of city horse stable manure spread to the acre. The corn stubble was spread with cow-stable manure and ploughed under about nine inches.

Planting was begun April 13. Rows were marked 3 feet apart and furrowed out with a plough; a 6 foot evener enabled one horse to walk in the drill last made, the ploughman having no obstruction in seeing ahead and making very straight and parallel drills; the plough was run twice in each drill, to throw a furrow each way and to straighten if necessary. Six two-horse loads of city manure and 1½ tons of fish guano were scattered in the drills per acre—the latter broken up fine on rainy days and scattered by pouring it slowly out of baskets while walking fast. This having spoiled the shape of the drills, a small double mould board plough was run through them, which straightened them and left neat marks of even depth to drop in, and stirred up the manure, fish and soil, so that the potatoes seldom touched a lump of manure or fish.

The sets (large potatoes cut to 2 and three eyes each* on rainy days, two or three weeks before planting, excepting a few new varieties cut to single eyes,) were dropped 14 inches apart and covered with a plough 4 inches deep, the horse not allowed to walk in the drill.

On May 20 (Early Rose just breaking through,) the ground was harrowed; in four days the Early Samaritan and Early Goodrich came up; in six days after, the late varieties began to show, when they were again harrowed. June 10, Phifer's sulky plough was run through the rows with only one plough on each side of the drill set to plough very deep. On the 15th, a cultivator hoe, Ross' patent, with a guide that kept it very steady, was used twice in a row, running within an inch or two of the plants; what weeds were left were cut out with a hand hoe. Then a hilling cultivator, Burke's patent, was used once in a row; it consists of two long and narrow mould-boards, made of saw-blade steel, which can be sprung out to the width of row; this took soil from the middle and pushed it up under the vines, leaning the vines over a little and leaving the field neat and smooth. The potatoes were again cultivated before they were in bloom. The straight and parallel rows permitted the use of the cultivators almost to the exclusion of hand hoeing. Three men hoed two acres in one day. The potatoes were very clean, and their culture did not cost half as much as if planted and worked out in the old way.

June 23, Early Rose in bloom; the largest potato found in four or five hills was 1½ inches in diameter; that of Goodrich, ¾ inch; and Samaritan ½ inch. July 4, Rose large enough for market: July 20, Goodrich about same size. The turnip fly ate and killed the vines of Goodrich and Samaritan, without touching the row of Rose, which was between the two, or any of the other varieties. July 22, a few barrels of Goodrich were dug and sold at the village stores for \$6 per bbl.: in two days the price fell to \$4.

August 1, many of the Early Rose were found exposed to the sun and a few sprouting again. A bushel was carefully removed, cut to two eyes, wilted in the sun one day, and planted. It had been very dry for two weeks, which stopped the growth of the early potatoes; then a heavy shower washed away some of the soil around the vines, leaving them exposed to the sun. One-tenth of the second planting came up; the season was dry and short; the largest of the second crop weighed four ounces, and less was dug than had been planted. A neighbor planted a few a week earlier with better results.

Two rows were 186 yards long—1-20th of an acre; nine consecutive rows, with one variety in each, were dug when fully ripe, with the following result, allowing 60 lbs. to the bushel:

	Per acre.		Per acre.
Early Goodrich.....	188 bush.	Gleason.....	254 bush.
Early Samaritan.....	96 do.	Vanderveer.....	227 do.
Early Rose.....	235 do.	Gardner.....	215 do.
Harrison.....	265 do.	Peachblow.....	196 do.
Calico.....	267 do.		

All were dug before the middle of September. The Peachblows (which would have been better if new seed from a distance had been procured,) were beginning to rot, and were sent to Washington Market (New York) as fast as

* An experiment two years ago showed that large potatoes yield the most, but cut potatoes are the most profitable, saving much more seed than the extra yield of large whole potatoes.

possible; three or four Gleasons in a barrel were found rotten—the rest all sound, and all kept well except Peachblows. These brought in Washington Market \$3.75 a barrel; Gleason, \$2.50 a barrel; Goodrich, \$2.25; Calico and Vanderveer, \$2.50. The peculiar season and the turnip fly caused most of the Goodriches raised near New York to be very poor for cooking.

In eating quality, our correspondents rank Mercer and Peachblow A No. 1; Early Rose and Sebec, No. 2; Vanderveer, Calico, Whipple Seedling, Early Samaritan, Chili Red, Harison, Prince Albert, Jackson White, Gardner, Dykeman and Cuzco, No. 2—the last not as good as the first. Sebecs do not cook well; Vanderveers are very sweet, but not mealy. The Early Rose and Harison are the smoothest and handsomest potatoes they have ever raised. In a patch of Harisons among raspberries, highly manured, a few hills gave over 5 lbs. each—one, 5 lbs. 6 oz.

In regard to profitableness:

Peachblow, 196 bushels at \$3.75 per barrel, gave.....	\$268 50
Calico, 267 bushels at \$2.50 per barrel, gave.....	242 50
	266 00
Profit per acre in favor of Peachblow.....	\$26 00

These (Peachblows) would not have brought half so much if they had not been marketed as fast as dug—an uncertain crop for those who live far away from a good market.

Fish guano with manure does not give as good results on potatoes as on corn. City manure at \$5.25 per two-horse load, and fish guano at \$27 per ton, were compared, equal costs of each applied in two rows. The row with manure yielded nearly one-half more than the row with fish guano.

Transplanting Raspberries and Blackberries.

Nurserymen, of course, understand a great many arts that are unknown to ordinary cultivators: hence, in giving some facts that may benefit the latter class, I do it without any reference to the instruction of the former. However old my suggestions may be, I only know that they are not generally practiced by the mass of fruit-growers; and if I can show that they are not difficult to adopt, and that it is excellent economy to do so, I may accomplish some good.

Most persons who attempt to cultivate such raspberries as propagate by suckers allow the suckers to stand during the current season, under the mistaken impression that they cannot be safely removed until the season's growth is completed. Then they are transplanted, cut back, and must grow another season before fruiting. The result is, that two years elapse from the time the young plant appears before it fruits.

But there is a better way than this. In the spring, when the sucker appears an inch or two above ground, take a round-pointed shovel, and cut it out, and carry it, with the adhering earth, to the place where you desire it to grow. The ground and the hole should be previously prepared, the latter just about large enough to admit the ball of earth without allowing it to fall to pieces; slip it from the shovel carefully, draw the loose earth up with your foot, press it down slightly, and the work is done. In general, the young plant will not wilt, even if the weather is warm, and will continue to grow as if nothing had happened to it. Perhaps one in ten may wilt. But it is not an alarming symptom at all: it will almost always recover at night. Occasionally, the ex-

tremity of a plant may wither after some days; but even that is not a dangerous indication: cut it off, and, in a week or so, three or four branches will start from near the earth, and you will usually have a better and more symmetrical plant than if the single stem had gone on growing and thrown out branches near the top. In fact, though I have not yet generally practiced it, I am prepared to recommend that every plant—of the Philadelphia at least—be pinched or broken off at the distance of a foot or less from the ground. Probably it would be best to do this at transplanting; certainly, if the plant is six inches or more in length. It induces the growth of side-branches from near the base of the plant, makes more wood for fruiting, and the plant is better able to withstand high winds, exactly as is the case with a pyramidal tree.

My experience with raspberry plants grown from suckers is confined almost exclusively to the Philadelphia variety; but the Clark, though a stronger grower, seems to be similar in its habits, and the same treatment will no doubt answer for it.

My experience, too, in transplanting, has been mainly in the mode explained, because I considered that *certain* of success: while the loosening of the plants from the earth about them, and the exposure of their tender roots to the air, seemed to be dangerous. But, occasionally, a plant will be shaken loose in spite of the utmost care; these I always plant: and the result, with an occasional experiment in the same direction, leads me to conclude that, if there is no unnecessary exposure of the roots to the air, no serious danger need be apprehended. Keep the roots moist by plunging them into water or mud, or by covering with moist earth; waste no time in getting them to their places; cut or strip off most of the foliage, and, ordinarily, there will be no serious losses. The gain of this mode over the first mentioned is in the saving of labor and time, as the carrying of a ball of earth with each plant, if only for a few rods, will not be an amusement after a few hours.

Blackberries can be transplanted the same way with perfect success. With due attention at the time of starting a plantation of either of these fruits, the labor of carrying the young plants any great distance may be avoided, even with a ball of earth adhering. It is customary to set them about four feet apart in the rows, and the rows from six to eight feet apart. At eight by four, an acre will require thirteen hundred and sixty-one plants. If the cultivator, for any cause desired to start an acre from one-fourth of this number, he would need only to scatter his plants over the whole acre, but at regular distances, so that the vacancies and the plants would be duly proportioned. Then the labor of carrying the balls of earth long distances would be avoided, as well as the possible risks of the other system.

Raspberries and blackberries transplanted in this way will bear a fair crop the *second* year; that is, the second year of their existence. Treated in the usual mode, they never bear until the third year; and, so far as I can see, are no better.—PHILIP SNYDER, in *Journal of Horticulture*.

Vineland, N. J., 1869.

Angers Quince.

A writer in the February number of the *Monthly* expresses *indignation*, or says it is expressed against persons that have sold Angers Quince for fruiting. I will leave others to settle this—I write to state a few facts:

Twelve years ago I tried, in vain, to find out the fruiting quality of the Angers, but nobody in this country could tell. I then wrote to M. Le Roy, of Angers, France, who sent me a drawing—a copy of which is enclosed—and the following as to the fruit:

"We consider this kind as the best one, as to the productive quality and size of fruit. This is cultivated on a large scale in our country as being the most advantageous for the market fruit."

I will further state that we have a good many bearing trees that were grafted with pear, but failed. These are now about 15 years old. They were from Ellwanger & Barry. They bear as well as Orange, but vary much in size and quality and earliness. Some of them are much superior in quality to Orange, and about equal in size. We see no difference in the hardness of tree.

Some are small, some are a little later—but take the whole lot, perhaps 25 trees, they do not differ much from Orange. One thing is certain, that a selection could be made from them that would surpass Orange in quality very much.—J. H. CREIGHTON, in *Gardener's Monthly*.

Tap Roots.

L. S. B., *Chicago, Ill.*, in a recent number of the *Gardener's Monthly*, remarking on roots, I was interested in what you say about tap roots. You seem to place very little value on them. I have been led to believe them very essential, and always give my gardener as my advice, to save the tap roots, when we are transplanting anything on our lawn. Was your remark intended to have the weight it seems to bear, or a slip of the pen? I have read so often of the great value of tap roots, that I want to be sure I understand you. It would seem as if nature would hardly make them, if they were of no use."

[No one disputes the last point—"nature makes everything of some use." Beards are of some use; perhaps to exercise our industry to keep them shaven away. As to tap roots, our correspondent understood us correctly to say that they are not of the slightest service towards the nutrition of the tree. The shortening of a tap root is of no more injury to a tree than is the shortening of the finger nails to a man. This matter was settled by Senebier and others over a hundred years ago. Their experiments we have repeated, and no intelligent man teaches any other doctrine.]—*Gardener's Monthly*.

[We are surprised to learn that any one ever supposed the tap root to be a feeder. Such parties must be very "dull of comprehension."]—EDITORS.

Theory of Grape Rot.

I was reminded of the old saying, that "one story is good until another is told," when reading an article in the *Cleveland Herald*, of the 2d inst., under the above head, and purporting to be a letter from Dr. Schroeder, of Bloomington, Ill., to W. L. Curtis, of Catawba Island.

The writer assumes that the cause of the grape-rot is now discovered; that it is owing to the age of the vines; that rot is sure to appear after the vines have been in bearing a certain number of years: and concludes by saying that the grapes will begin to rot next year in Cleveland and along the shore eastward.

Now, it must be patent to all who have given the matter attention, that when the rot prevails, it is found equally in vines just coming into bearing and those of the oldest growth. I have in my vineyard Catawbas which have been in bearing twenty years, and also vines which have been set almost every year during the whole of that period. In my experimental vineyard, where the first vines were set, I continued to add about fifty vines a year for a number of years. In this vineyard there is a difference between the first and the last planted of at least fifteen years; and, when the rot prevails, the latest planted suffer equally with the oldest in bearing. If there can be said to be any difference, it would be in favor of the oldest, since we have always found our best grapes on our oldest vines.

It may be, and observation seems to warrant the belief, that in certain localities, perhaps in all where the Catawba has been cultivated a sufficient length of time for the cause, whatever it may be, to develop itself, it is found more subject to rot than when just planted in that particular locality; but the theory, that the age of the vine has anything to do with it, observation and experience show to be as utterly without foundation as all the other theories which have been advanced, every one of which, so far as I know, have been demonstrated to be false by facts within the reach of all careful observers. Whatever the cause of the rot in the Catawba may be, it is yet to be discovered; until that time, the cause assigned by one of the oldest grape-growers, as the only one which would cover the whole ground, will stand good—"pure cussedness."—G. C. H., in *Ohio Farmer*.

Kelley's Island, October, 1868.

Iona Grape.

[Having said all we could against the Iona Grape, we submit the following in its favor, that our readers may see we are willing to hear both sides.—Ed. S. P. & F.]

After seeing the recent attacks on the Iona Grape, which seem to come from parties prejudiced, or else those who have not given it a fair trial, I deem it my duty to give you a statement of the result of my experience with four hundred Ionas obtained of Dr. C. W. Grant, and planted in the spring of 1866. They all grew vigorously, averaging canes from four to six feet in length the first year, with perfectly healthy foliage. The second season, 1867, every vine was living in its place, and made vigorous canes for fruiting the year following. The third season, 1868, the canes being pruned three to four feet in length for bearing, set fruit from every bud. Some of the canes produced as many as forty-two bunches of beautiful clusters, perfectly sound, without any mildew or rot. The result was far better than I obtained from Concords planted at the same time, and receiving the same culture; the Concords having the advantage of having extra layers. Now, I only wish to say, since enjoying the Iona Grape, that I consider it superior to all other native grapes with which I am acquainted. I also intend to have a larger and better crop of grapes next season from the same vines. The Iona, with proper culture, I consider a success.—R. B. STEVENSON, in *Journal of Horticulture*.

MR. WILLIAM DAY has invented a patent "velocipede" cultivator and strawberry scuffle hoe combined, for which he claims the following merits:

It will plough and harrow the ground both at once, thoroughly pulverize the soil from 3 to 10 inches deep *at the will of the operator*, and do this without turning any furrow or covering the smallest plant. It will adjust to any width between rows from 1 to 4 feet; is easy of draught—strong and not liable to get out of repair. It will do the work better and faster than 15 men could do it by hand in a given time. It will work up the soil between rows of onions, corn, beets, parsnips, carrots, turnips, cotton, tobacco or strawberries, as soon as the rows can be distinguished. It is *not possible to clog it*, working equally as well in fine garden mould or a stiff clay. It leaves no lumps. Any boy that can plough can work it.—*Gardner's Monthly*.

THE GREELEY GRAPE PRIZE.—Mr. Greeley does not seem satisfied that his \$100 prize was awarded to the Concord. At a public meeting in New York, he recently said, "All my money did, was to advertise a grape already known; thus improvement was checked—not stimulated. I am a little discouraged by the result, and do not propose to offer another bank-note for a plate of common grapes."—*Gardner's Monthly*.

Big Apple-Tree.

Probably the largest apple tree in Virginia is now standing, in a dilapidated condition, on the farm of Mr. O. W. Purvis, in Albemarle county, three miles south of the Southwest Mountains, near the three-notched road to Richmond, and two-and-a-half miles from Keswick Depot. The soil that produced this noble old patriarch is leamy, of a mulatto color, and a littled mixed with small yellow gravel-clay subsoil, and immediately over the only bed of lime stone between the ocean and the mountains. This tree is upwards of three feet in diameter three feet above the ground—it has three main prongs branching off some five feet above the ground, and its present height is not less than thirty-five feet. One of its large branches has decayed and fallen off. The tree still bears fruit of medium size and indifferent flavor, but makes good cider. It has two or three neighbors standing near at irregular intervals—all are much decayed, and one, fully as large as the one I am describing, has fallen, and its bulky ruins still remain. All these trees are evidently *seedlings*. An old dwelling once stood near them, which was built and occupied by the Sharpe family, who were among the pioneers of this section. The scope of the writer's recollection is some fifty-five years, and these trees were good old specimens at his earliest recollection. They are probably not less than one hundred years old.

"All that has life must perish and decay,
Mix dust to dust, though long or short the stay.
Oft has dread lightning quivered o'er thy head,
And raging tempest rock'd thee in thy bed;
And winds less rapid oft have sprud around
And cast thy fruit all pattering to the ground;
Where man and beast the benefit received,
And thou wert of the bending load relieved."

The Pomologist may infer that the soil above described is the very best, and most suitable for the growth of the most valuable of all fruits—the apple.

J. F.

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RICHMOND, VIRGINIA,

MAY 1869.

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Editorial Department.

An Example of Rotation of Crops.

We are frequently asked some very embarrassing questions. Without knowing more of the means and circumstances of the querist than we do, and without knowing much of the relation of the subject to surrounding circumstances that ought to influence the answer, we find ourselves called on for advice, when to give it judiciously would puzzle sounder counsellors than we can pretend to be.

This is most frequently the case with persons seeking to know what is the best rotation of crops.

The most important consideration connected with the whole subject is to be found in the pithy observation of a late friend of ours from the county of Rockingham, a gentleman who made all his money by his land; and starting in debt, became, at the age of fifty, the largest land owner in his county. "A rotation," he once remarked to us, "is a very good thing for a fool, who will break his neck if he gets off of the beaten track; but all a man of sense wants is a convenient division of fields, which he will then crop or graze according to the fitness of things."

But even this remark requires modification; for as the land improves, or circumstances change, the fields will require subdivision, or possibly enlargement. Thus we have known a gentleman who, beginning with a rotation of four fields, was induced gradually to enlarge his system to five, then six, then seven, and lastly eight fields.

In a word, so much must be left to the judgment of the farmer, that it is perhaps better to state leading principles, and work them out as it were by an example, than to lay down any absolute plan.

The old notion used to be that the same crop or class of crops should not be grown necessarily on the same field. But later practical and more accurate observation shows that in some cases and kinds of crops it is best to do so. For instance, we have often stated, and repeat, that oats may succeed oats in the same land for at least eleven years—our own experience runs to seven—with a progressive improvement of the land; and we have seen in Jefferson county,

near Charlestown, the sixth successive wheat crop on the same land, and that crop estimated at twenty bushels per acre.

The propriety of such practices is not now the point, but the fact is stated to show that when other considerations render it expedient, there is nothing in agricultural principles that should forbid it.

The object of all farming is profit; first, and directly, in the revenues that the crops produce; second, in the increased production, and as a measure of the market value of the land; which, as a general rule, may be said to be sold not less than once in every twenty years. Upon a calculation of his life, and supposing him to live for his children as much as for himself, the man who does not seek to increase the market value of his land in our society is a fool, both present and prospective. The true point is to make both profits coincident and progressive. But as, no matter how rich the land may be, naturally or artificially, it will fail to produce its full yield, if not properly cleansed, so that no extraneous vegetation shall rob the crop, we think the final object is that the land shall be cleansed. To do this economically, it must be cultivated in cleaning crops, which should, at the same time, be made to pay a profit on the cost of cultivation.

This being attained, the next point is to cultivate crops of such kind as will yield most in proportion to the labor employed to procure them. But it must be remembered that this labor is represented not only by that bestowed manually in the growth of the product and its preparation for market, but also by the cost of transportation to market. Thus a man may grow tobacco in one place when it would be folly in another man differently situated to attempt it; one man may grow hay for market, when another man would be brought in debt by it, and yet ought none the less to have grass. These disadvantages, though, will be found to have more or less of compensation in the greater economy in the purchase of foreign, or the application of home made, fertilizers; and, in Virginia, will ultimately come to be represented by the price of lands; whose relative values are now so far reversed that those farthest from market actually sell for the most money.

But it may so happen that the land may have certain preferences for the kind of crops grown. It may, for instance, be good for clover and grass, but not so well adapted to grain; or very fine for corn, but not good for wheat. These and all other idiosyncracies the farmer must of course know and provide against. Still our general principle will be found to run through nearly all soils except barren sands and very rich alluvions, and that is, that they require for their highest development an alternation of grain and grass.

With these preliminary remarks we submit for examination the following formula, to which we invite criticism. It is assumed as a fair average production of fair land under the system prescribed. We know that it meets the experience of our own farming as to every item, though we have never ascertained them in this precise rotation, which we did not practice before the war, because the land was not in order for it; nor since the war, for want of funds. It will be observed that the value of each crop per acre is stated, though it must be borne in mind that the profits are very different; thus the timothy hay crop is valued at \$40 per acre, whilst the corn crop is put, including the shucks, at \$44 80. But when the difference in labor and exhaustion of land is considered, the preponderance will be greatly in favor of the hay.

We have stated the values in this market, and we have made no allowance

for the freight, because that varies in each locality, and the intelligent reader will make the proper corrections to adapt it to his own case.

We have omitted the cost of teams, because they are supposed to be already provided; and we make no estimate for feeding them because of the different value of forage in various places.

For the same reason we give the value of the bought manures in this market. We have also restricted ourselves to the standard manures now in use, and have omitted all notice of the potash manures now coming into vogue, because they have not yet been sufficiently introduced, and because when they are, they can substitute an equivalent value in the fertilizers specified. We specify lime because it suits tidewater Virginia; but its value can be invested in other things better suited to the upper country.

We know that in some cases cleansing crops must precede the introduction of the small grains and grasses to a greater extent, perhaps going as far in some cases as three hoed crops in succession. These and many other things must be left to the judgment of the reader. But the main point remains, and that is that with capital judiciously employed in manures properly applied, there is to-day more money in agriculture than in any other business we know except *shaving*; and there is far less risk than in that. Assuming the land in the case supposed to be worth \$100 per acre, then the advance for manures, \$1,443 73, is only about 5 per cent.; whereas a man with his capital employed in commercial pursuits requires for its highest development a capital never less than 25 per cent., and frequently exceeding 50 per cent.

But really land capable of such results is worth generally in market very much less, which is all the more in favor of the investment.

The next question is, How can the money for such investments be had? This, as the present article is long enough, we propose to consider in the next number of our paper. It is entirely practicable if our people and legislature would only be *practical*, which is the weak point in our case; for of all people, ours we fear are the most unpractical; and if future legislatures are no wiser in such matters than our past have been, why then God save the Commonwealth.

With these remarks we submit our example of rotation of crops:

Estimate of Products and Cost of Working 300 Acres in Eight Fields.

PRODUCTS.

1. 37½ acres corn and 200 lbs. Phos. Peru. Guano.....	300 barrels.
2. 37½ acres oats and 400 lbs. Bone Dust.....	93,750 lbs. in sheaf.
3. 37½ acres clover and 10 bushels of lime.....	75,000 pounds.
4. 37½ acres wheat and 400 lbs. Phos. Peru. Guano.....	750 bushels.
5. 37½ acres timothy and 10 bushels of lime.....	150,000 pounds.
6. 37½ acres do. do.	150,000 do.
7. 37½ acres do. do.	150,000 do.
8. 37½ acres do. do.	150,000 do.

VALUES.

300 barrels of corn, at \$5 per barrel, or \$40 per acre.....	1,500 00
93,750 lbs. of oats, at \$1 per 100, or \$25 per acre.....	937 50
75,000 lbs. of clover hay, at \$1 per 100, or 20 per acre.....	750 00
750 bushels of wheat, at \$2 per bushel, or \$10 per acre.....	1,500 00
4 crops timothy hay, at \$1 per 100, or \$40 per acre.....	6,000 00
1,800 lbs. shucks from corn, at \$1 per 100, or \$1.80 per acre.....	180 00

\$10,867 50

Values brought forward, \$10,867 50

MANURES.

200 lbs Phos. Peru. Guano, at 3½ cts. per lb. on 37½ acres.....	202 50
200 lbs. Bone Dust, at 2½ cts. per lb. on 37½ acres.....	375 00
400 lbs. Phos. Peru. Guano, at 3½ cts. per lb. on 37½ acres.....	525 00
Lime for 5 crops, 10 bushels each, at 15 cts. per bushel on 37½ acres, each crop.....	281 25
	<hr/> 1,443 75

LABOR

6 hands, (including extra hands,) at \$240, (not estimating horses,)	1,440 00	
	<hr/>	2,883 75

Net proceeds..... \$7,983 75

Cost of bought manures.....	\$4.81 per acre.
Cost of labor.....	4.80 "
Gross produce.....	36.26 "
Net produce.....	26 65 "

Pressed Fish.

Messrs. Gresham & Shanks, of Norfolk, have sent us an advertisement, too late for admission into the advertising columns, stating that they will fill orders for pressed fish. As we have heard persons inquiring into this matter we take this mode of answering them.

The Religious Herald.

The agricultural editor of the *Religious Herald* says in the paper of April 23d, some very kind things of this paper, for which the editors return their thanks. If the other Christian newspapers, and the secular too, for that matter, would employ, as the *Herald* does, a practical and educated farmer to make agricultural contributions, it would, we think, be a good thing for them all. So far from fearing rivalry, we are sure this course would in time create a demand for more of the same sort of information, and so help the *Southern Planter & Farmer*.

Book Notice.

HIGH FARMING WITHOUT MANURE. Six Lectures on Agriculture. Delivered at the Experimental Farm of Vincennes. By M. George Ville, Professor of Vegetable Physiology at the Museum of Natural History, Paris. Boston: Press of Geo. C. Raud & Avery. 1866.

We have received from Messrs. West & Johnston a copy of the above book. It is one of the most remarkable books that has appeared since Liebig's celebrated work, or perhaps we should say the invaluable experiments of Messrs. Lawes & Gilbeck, of Rothamstead.

As the price is only fifty cents, and the book 108 pages, we hope it will be universally bought and read by intelligent farmers. We are having it reviewed and criticised by a gentleman who we think is fully competent to the work: the first part of which will be found in this number of the *Planter*.

Correspondence of Southern Planter and Farmer.

INQUIRIES TO WHICH WE ASK FOR RESPONSES.

Messrs. Editors.—Although you are frequently plied with questions by inquisitive correspondents, you not only submit with philosophic forbearance, but send out very useful information in reply, from yourselves and other experienced farmers. I am influenced by this commendable patience on your part, and the desire for information on mine, to ask you some questions also, viz:

1st. What is the minimum number of acres that a farmer may have in wheat and in grass, that will justify him in purchasing a machine to reap and to mow?

2d. What is the best machine combining the qualities of both reaper and mower?

3d. What number of acres in grass, yielding from 1,000 to 2,000 pounds of cured hay per acre, will justify the cost of a hay tedder?

4th. What is the best plan for saving hay with the assistance of a tedder and gleaner?

I am satisfied from my own experience that our farmers can, with the proper care and effort, not only raise enough hay for home consumption but a surplus abundantly sufficient to supply all our cities. I have heretofore saved clover hay according to the admirable plan of the late Edmund Ruffin. But this plan requires from four to six days time before the hay is sufficiently dry for housing. I have no doubt but that by the use of improved machinery, hay can be cut and secured in a shorter time.

I will be grateful to yourselves or to any correspondent for information upon this subject.

Very respectfully,

March 25th, 1869.

GEO. E. HARDY.

FERTILIZERS.

Messrs. Editors.—Enclosed you will find \$2.00, my subscription to the *Planter* for this year, and a small parcel of ground Plaster of Paris or Gypsum, from the banks near the Salt Works in the county of Smythe, to which I invite your particular attention. You will find on the application of sulphuric acid to the enclosed specimen, which has been ground at the mill of Messrs. Bonsack & Kizer, a *decided* but not *great* effervescence, indicating the presence of carbonate of lime. Thinking it not to be *pure Gypsum*, several of my friends in Bedford have abandoned the use of this Gypsum from Smythe and are now using the Nova Scotia. Last year my neighbor, Mr. Copland, and myself together used seven tons, applied to soils that I knew to be well adapted to the use of Gypsum. On one of these fields of forty acres, fifteen years ago I made 2½ bushels of clover seed to the acre and frequent heavy crops of clover hay. But last year neither of us could discover any benefit from the plaster in any of our fields to either the first or the second crop of clover. We could discover no marked spots of thin and yellow clover indicating the missing of the plaster by the hands in sowing, which I never failed to notice before. I wish you would have the enclosed specimen tested and its constituent parts ascertained.

The application of sulphuric acid will show you by the *effervescence that ensues that it is not pure*. I tried in the presence of several gentlemen of intelligence, at the same time, using Gypsum from Nova Scotia, sent up by the

canal from Richmond, in which we could not detect the least effervescence. I had determined last year never to use any more from Smythe, but was induced to make another trial this spring upon seeing at Bonsack's Depot what seemed to be a very fine lot in the hands of Mr. Kizer. Mr. George Shaver discovered the effervescing of this Smythe plaster a few days ago, after buying some and witnessed by several persons. Messrs. Bonsack & Kizer who brought it on from Smythe and ground it, are gentlemen of character and standing, above *all suspicion of any fraud or trick*. They have been, no doubt, deceived like others. Years ago I got good Gypsum at the Salt Works and tested it alongside of the Nova Scotia with no perceptible difference found in alternate lands through the fields. This is a matter that concerns the whole community and I wish you to publish this communication, or so much as you think essential, under my name.

Yours respectfully,

WM. M. RADFORD.

Amsterdam, April 21, 1869.

[The sample of plaster sent will be tested and the result noticed.—Eds. S. F. & P.]

DEAR SIR,—* * * I have always held that it was the duty of the farmers and planters voluntarily to contribute any information in their power which might likely advance the general welfare of the agricultural interest. I will, with pleasure, endeavor to meet my obligations in this regard, whenever I may find anything that may suit the columns of the *Southern Planter and Farmer*.

As I see there is an interest manifested touching the application of manures to corn, I herewith send you a brief account of an experiment I accidentally met with. In July, 1867, on returning from church through a neighboring farm, I approached a small field which had been cleared of the pines in the winter by a freedman. The land by nature and by cultivation was miserably poor, and I was surprised to see that any one had undertaken to clear and cultivate it. As I drew near the corn, I was struck with the green and thrifty appearance of some half dozen rows just midway the field, while the corn on each side, would not pay for the cultivation. On inquiring of the proprietor of the farm as to the cause of the difference in the appearance and growth of the rows of corn, he knew nothing of it but referred me to the freedman. On the last of August or first of September, while chasing a fawn with a party of gentlemen, I was carried just by the cabin of the freedman and observing that the half dozen rows of corn above referred to still kept its superiority over the others, I rode up to the cabin and asked him to explain the matter to me. He informed me that the proprietor of the farm had given him some guano to put on his tobacco land, and after he was done there remained some lumps which he beat up and on throwing the earth from the corn at its first working, he threw a little of the guano on each side of the corn, followed with the hoes weeding, and afterwards threw the earth back. In all respects the cultivation of the whole field was the same. I requested him to take notice of the corn in the half dozen rows when he gathered the crop and let me know the difference. The matter had escaped my mind till the recent discussion of the mode of applying manures to corn, caused me to recur to this experiment and I resolved to find the freedman if possible, and report the result. It so happened a few mornings after, he happened at my gate on other business. He informs me that he failed to measure the corn separately, but is satisfied that the half dozen

guanoed rows yielded at the rates of six barrels of good large corn per acre, while the remaining portion of the field made very little and that very indifferent. I have only further to say this negro is truthful and sensible, so far as I know and believe. If the above will fit a corner of the *Planter & Farmer*, you can use it, or so much of it as you may think proper.

Respectfully &c.,

R. P. ATKINSON.

Brook Dale, Dinwiddie, Va., April 21st, 1869.

Messrs. Editors.—In the article on the Chesapeake Phosphate, there is a mistake as to the price of this fertilizer. It is \$60 per ton, and pays the farmer well at that price. Please be so good as to insert this correction in your May number and greatly oblige me.

Respectfully,

STERLING E. EDMUNDS.

News Ferry.

Messrs. Editors.—Please find enclosed two dollars, to pay my subscription to your most excellent paper to January next (1870). I make this remittance most cheerfully, and am sorry that I have not been able to do so sooner. I consider it the very best expended money in my whole catalogue of expenditures. Each number of your paper is more and more interesting and useful; the last (April) number is worth the whole two dollars. I am truly glad to see the course that you are taking on fertilizers. Stand up manfully, and “Lay it on, Macduff.” Two thirds of the miserable and abominable stuff now offered in the market are nothing but swindles and frauds practiced upon the innocent and unpretending farmer, who being honest himself, thinks that every body else is too. You call attention to the law in regard to the vending of fertilizers in the State of Massachusetts; but, gentlemen, haven't we got all the protection now that we need if the laws of Virginia were faithfully executed? I am neither a lawyer nor a doctor, but I am told that there is a law on the statute book of Virginia punishing any man who obtains money under false pretences, by a service in the Penitentiary; and if selling a fertilizer and setting forth that it contains this, that and the other, and representing that it will do thus and so, and it turns out not to be what they say it is, is not obtaining money by false pretences, then I do not know what is; and I think an honest jury would so say. I may give my experience with fertilizers for twenty-five years past, and especially since the war, for some future number of your paper. Wishing you God speed in the good work,

I am, very truly, &c.,

R. H. ALLEN.

Oral Oaks P. O., Lunenburg county, Va., April 20, 1869.

CROP PROSPECTS IN GEORGIA.

Messrs. Editors.—Here we are—a Spring later than since 1849, when wheat was killed April 15th. On the morning of the 13th instant we had a heavy frost and considerable ice. Still wheat, which was very promising, was not killed. There is more wheat sowed this year in Georgia and Alabama than I have ever known before in the South, and it looks better. I have about fifty acres sowed late in October and early in November that averages knee high. Next to wheat our farmers are preparing to plant largely of cotton, and in the Southern counties of Georgia and Alabama, of cotton to the neglect of

grain. The negroes are working very well; in fact, I have never seen more, if so much, energy displayed by the planters and farmers of these two States, as has been this year in preparing for a crop.

Very respectfully, &c.,

F. C. TAYLOR.

Summerville, Ga., April 16, 1869.

SORGHUM SYRUPS AND SUGARS.

Messrs. Editors.—You have been pleased in your most excellent magazine to notice my effort to introduce to the farmers of Virginia the great Southern process for making sugar from sorghum canes. It has been the means of exciting much interest on the subject in different parts, the editors of the *Republican* having received many letters of inquiry. As you have taken some interest in this matter, I take the liberty of enclosing to you a pamphlet which I have just gotten up containing a more accurate estimate of the cost of machinery, &c. I likewise enclose you a sample of sugar, such as is being made every day, and can be made with entire certainty by any one owning and properly instructed in the use of our process. * * *

Very respectfully,

TH. S. PRESTON.

Lynchburg, Va., March 29, 1869.

[The sample of sugar sent with the above communication is a sufficient attestation of the superiority of the process by which it is made, and will bear favorable comparison with the best samples of unrefined brown sugar.

Mr. Preston is sole agent for the Southern Process of Manufacturing Syrups and Sugars from Sorghum Canes, and is prepared to furnish a pamphlet explaining the process and the economic advantage of making your own sugar. Address, Lynchburg, Va.—Ems. S. P. & F.]

Col. F. G. Ruffin—Dear Colonel,—Please pardon me for troubling you so much; but as I am a young farmer and you are one of long and successful experience, I write to seek information in regard to the treatment of bones. I have a large lot of them, and wish to know the cheapest way to reduce them to powder, &c.

Your early answer to the above will greatly oblige yours truly, ———

April 16, 1869.

["Look at your book," as the schoolmasters say. See pp. 252-3, April No. *So. Planter and Farmer.*]—Ems. S. P. & F.

Premiums for New Subscribers.

We are sometimes asked, Why don't you offer premiums for new subscribers to the *Southern Planter and Farmer*? We answer, so we do. We offer seven hundred and sixty-eight pages of choice reading matter, neatly printed on fine book paper, bound in strong thick covers and neatly trimmed, at a very small fraction over one-fourth of a cent per page. The only additional premium we pay—an involuntary one, it is true—is the premium on delinquency we pay to our subscribers who withhold our dues without interest, whilst the market value of money is at least one and a half per cent. per month. We once saw a man selling a pod of black-eye peas for sixpence, and give the purchaser a premium of half a pint of mean whiskey on each purchase. The result was a marvelous increase of "black eyes" towards evening.

THE SOUTHERN PLANTER & FARMER,

DEVOTED TO

Agriculture, Horticulture and the Mining, Mechanic and Household Arts.

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

CH: B. WILLIAMS, EDITOR AND PROPRIETOR.
FRANK G. RUFFIN, Co-EDITOR.

New Series.

RICHMOND, VA., JUNE, 1869.

Vol. III---No. 6.

ADDRESS OF W. T. SUTHERLIN,

PRESIDENT OF THE STATE AGRICULTURAL SOCIETY.

To the People of Virginia:

At a meeting of the Executive Committee of the "VIRGINIA STATE AGRICULTURAL SOCIETY," recently held in Richmond, it was made my duty to prepare and publish an address to the people of the State, in behalf of the interest of agriculture, and especially in explanation of the objects and aims of our society in relation thereto, and its consequent claims to a hearty and universal public sympathy and support.

I feel the embarrassment of endeavoring to turn the minds of our people from their political troubles, to a due consideration of the useful and ennobling pursuits of agriculture; but the exigencies which make the duty difficult, make it also the more imperative.

Both in climate and soil, Virginia is the most favored of all the States of the Union; and when her boundless resources shall be fully developed by skillful agriculture, and by a judicious system of railroads and canals, she will be to her sons the richest patrimony, and present to immigrants the most inviting field, to be found on this broad continent.

Proper effort by her people is all that is needed by Virginia, fore-

most in material prosperity and wealth, as she confessedly is in political fame and historic renown.

Her great lines of internal improvement once completed, we may expect to hear in every quarter the inspiring hum of machinery and the merry ring of the anvil, while we shall be cheered by the plentiful harvests and countless herds which will everywhere gladden the sight throughout her rich valleys and fertile fields.

Let those who have in charge those grand improvement enterprises put forth all their wisdom and energy, lest others of more sagacity and diligence baffle us by rival schemes, and rob our agriculture and other industrial interests of the great advantages at stake. Who can fix a limit to the prosperity of Virginia when these undertakings are fully consummated and the results realized? There is enough in the prospect to cheer the heart, revive the hopes and stimulate the energy of every true son of our noble mother.

In former days the "Virginia State Agricultural Society," was the pride of the State and the admiration of her neighbors. Why may it not be so again? The field for its usefulness is much larger, and the necessity for its benign influence much greater than ever before. One of the chief means upon which it relies to promote the material development of the State is the collection for exhibition once a year of improved implements of every description, calculated to lessen the cost and increase the product of labor. At these exhibitions are to be seen also improved breeds of all kinds of domestic animals to serve as models for the breeder, and often to secure dissemination by sale and purchase. But, perhaps, a still greater good is accomplished by annually bringing together the wisdom, patriotism, energy and skill of the State in grand *mass meeting* for consultation and mutual improvement, when the man of science, the mechanic and the farmer, can meet here in free and untrammelled intercourse and work together for the common good. No test oaths will confront us, or prevent our rallying under this peaceful banner. Here we may, in reality, "beat our swords into plow shares," and our "spears into pruning hooks," and thus endeavor to give fresh impulse to the industry and enterprise of our people.

We cordially invite all Virginians to meet us at our next annual Fair, to be held in the city of Richmond on the 2d, 3d, 4th and 5th days of November next, and to unite with us in our efforts to revive the fallen fortunes of our beloved State.

Fellow-citizens, we need and we earnestly invoke your aid; we entreat you to help us in our endeavor to remove the hindrances and lighten the burdens of our people, and thus to contribute to

their independence, prosperity and happiness. Meet with us at our coming Fair, and permit us, in welcoming you on that interesting occasion as fellow-laborers in our noble cause, to compliment your zeal and purpose of continued co-operation, by investing you with a badge inscribed, "Member of the Virginia State Agricultural Society;" it will be, indeed, a badge of honor.

To maintain a proper zeal in seeking her improvement, we desire that our people should feel that, come what may, Virginia is their home during their natural lives—a home which they will never willingly abandon under any circumstances. They should impress this devotion to their native State upon their children, and should teach them, by their example as well as by precept, that *industry* and *economy* are among the cardinal virtues, which insure respectability, usefulness and happiness. While thus we impress upon the sons of Virginia the duty of clinging to their birthright, we gladly welcome to her borders the citizens of our less favored sister States. To all who would seek homes under our mild skies, and reinforce our industries with their habits of thrift and diligence, we would proffer the offices of friendship and of neighborly kindness.

In cultivating their farms, close observation, active and intelligent thought and frank inquiry are indispensable. They must be ever ready to abandon an error, however venerable and antiquated, and to adopt new modes and embrace new ideas whenever they are seen to be better. For all so disposed what could be more profitable than to meet and confer with the best farmers in the State, engaged in like pursuits and inquiries with themselves, and testing various plans in search of the best? The most advantageous succession and variety of crops and the best fertilizers for each, the best kinds of grains, of fruits, of vegetables; the best modes of ploughing and of draining; these and many other questions of extreme importance to the producer will have shed upon them a flood of light by just such conferences as our annual Fairs are designed to secure, a knowledge of the good points of domestic animals, the best breed of horses and other stock, all very necessary to a farmer, can best be obtained by observation of the superior specimens always exhibited at our Fairs.

Our Society has for one of its objects the arousing of our people to the importance of increasing the skill of our labor, and enlarging the variety of our products. So long as we buy our horses, mules and bacon from the West, and so long as almost every article used on our farms or about our houses, from a threshing machine to an axle-helve, and from a dress coat to a tooth-pick, comes

from New England, we may expect to groan under the evils of poverty, which we will doubtless be always ready to attribute to our *bad luck* rather than to our bad management.

The diligent and judicious cultivation of the soil is now our main hope; whatever else may succeed, this cannot be neglected without bringing desolation upon our cities and towns, as well as upon our rural districts. We regard the reorganization of the State Agricultural Society at this time, therefore, as a most important move toward warding off the danger that threatens us, *and we cannot afford to fail.*

Come to our Fair and witness all that genius, science and skill can accomplish to lighten the burdens and cheapen the cost of farming. Come and see the great improvements which have been made in machinery of every kind, by which one man is enabled to do the work of ten. Come and feast your eyes on the collection of improved breeds of horses, cattle, sheep, hogs and poultry of every kind that will contribute to the interest of the occasion. Come and examine the steam plough, the portable engine for farm purposes, the corn shucker and sheller, the ditching machine and every other improved agricultural implement by which your labor may be lessened and your profits increased.

We desire to see there the old men and the young, the mothers and the maidens from every section of our State. They will all be benefitted by the exhibition; they will return to their homes better and wiser than when they came; they will be more hopeful, more cheerful, more useful, and will live longer, and be happier than they who neglect to avail themselves of the benefits, as well as the pleasure, which will be thus afforded.

We feel warranted in expressing the confident opinion that our next Fair will equal, if not surpass, in interest and in the variety of articles on exhibition, as well as in the number of persons who will be present, any ever before held in the State. We expect to see there many persons from other States, and we cordially invite them to contribute of their industry and skill to the interest of the occasion. We desire that they, as well as our own people, shall witness what Virginians and Virginia soil are capable of doing.

The exhibition of the Horticultural and Pomological Society (which will unite with us in the Fair) will of itself amply compensate the ladies for a trip to Richmond. From the known ability and energy of its managers, it cannot be doubted that their exhibition will far surpass anything of the kind ever witnessed in Virginia.

It may not be uninteresting to state that the General Govern-

ment has established at Washington, upon an enlarged scale, an *Agricultural Bureau*, under the management of Hon. Horace Capron, a most accomplished and polite gentleman, who will always interest such of our people visiting that city as may call on him. On a recent visit to the capital of the country I saw Virginia represented nowhere else. I doubt not that this important bureau will prove of immense value to the country.

We have observed with much pleasure the suggestion through the press to revive the *Mechanics' Association*, which, for many years, reflected so much honor upon the city of Richmond, and also to erect a large hall on the Fair Grounds for the exhibition of various articles of Virginia manufacture. I feel assured that every necessary facility will be afforded for the encouragement of such an undertaking.

Our Society desire not only that this valuable organization shall be re-established upon a prosperous and enduring basis, but they would be rejoiced to see that, through its influence, thousands of our boys who are now growing up in idleness shall learn useful trades, and so become useful men of business as well as respectable and useful members of society.

The press, in times past, contributed greatly to the success of our fairs. Skilled, as its conductors have always been, in the art of exciting public interest in behalf of any enterprise which they may favor, generally men of public spirit, commendably desirous to contribute to whatever tends to the development of the resources of the State, it was naturally to be expected that they would exert their talents and influence in the cause of Agriculture.

We will not suppose that they will do less *now*, when all the patriotism and all the effort of all our people are required to carry us successfully through the troubles that are upon us.

We earnestly invite the cordial co-operation of all kindred societies in the State in our efforts to revive the time-honored institution committed to our charge. Let us labor together for the common benefit of all our people, and a better day will soon dawn upon us—when the cloud which now overshadows us shall give place to the bright sunlight of a day of prosperity and gladness.

As in no other important undertaking which looks to the improvement of our condition, so neither in this can we hope for success without the co-operation and aid of Woman, who is ever ready to engage in every good work. Her superior energy, tact and fortitude are well known and cheerfully confessed. We may yield to difficulties and give way to despair—she, ever unappalled by the most

adverse circumstances, undismayed by any difficulty, rises superior to every obstacle, and triumphs even in defeat. We invoke her encouragement and support in our labor of love and duty. We ask her not only to grace our fairs by her presence and her smiles of approbation, but we solicit liberal contributions of her handiwork for exhibition on that occasion.

Agents will be appointed in the various portions of the State to canvass for members for our Society. Twenty dollars will constitute a person a life member, and two dollars will confer annual membership. These sums are so small, and the interest to be promoted so vast, that we confidently appeal to every professional man, every mechanic, and every commercial man, as well as to every farmer in Virginia, to enter his name upon our roll of members.

Arrangements will, in due time, be made with the various railroads, steamship companies and other lines of travel, to furnish transportation to persons and articles to and from the fair on the most favorable terms. A very liberal spirit has been manifested by the companies with which we have already communicated.

To ensure the success of a fair we must have not only an attractive exhibition and a large attendance, but promptness and dispatch in the management of its business. In order to have the most suitable persons on the several committees of awards, upon the proper discharge of whose duties depends in so great degree the success of the exhibition, their selection has been specially assigned to a special committee, who, it is hoped, will be able to compose these committees of competent persons, representing every portion of the State.

In conclusion, we would once more impress upon our people the truth, too often disregarded, that whilst Providence has been most lavish in His bounties in bestowing on Virginia a genial climate, a fertile soil, boundless forests, and water-power sufficient to turn all the spindles of the world, these gifts bring blessings to us not when we are sluggards, but when we are diligent to turn them to our own profit and use.

On behalf of the Executive Committee.

W. T. SUTHERLIN, President.

“Rashness is the fruitful parent of misfortune.”

“Set not every one’s dial by your own watch.”

“Three may keep counsel if two be away.”

Farming as a Profession.

It is a serious question with the sons of farmers whether they shall remain on the old homestead and thoroughly learn farming, or go into some other business. This question has two sides to it, and the young man possessed of a good education and smart natural abilities, has strong, powerful reasons for quitting the farm and trying his fortune in some other avocation.

In the first place, the old homestead, in most cases, will not support more than one family; and where there are several grown-up sons upon a farm, it becomes a *necessity* for some of them to engage in other business. They may not become rich, but the world is before them, and if they are industrious and economical they will always succeed in obtaining a living; and in many cases will rise to stations of high merit, and also become wealthy.

If there be but one or two sons on the farm, and the parents are old, and the farm large, and the business prosperous, out of debt, &c., it may be well for the sons to remain and work it, if they are strong and healthy, and have no particular aversion to farming; but if they "hate farming," and take but little interest and pleasure in growing the various crops of a farm, the sooner they leave it the better, provided that they find some honorable employment, with a compensation that enables them to live respectably.

Some farmers' sons leave home to become clerks in village stores, frequently some petty grocery or saloon, or bar-keepers in hotels. This is the worst step that they can take. To be a clerk in a respectable country store, however, is not objectionable, as it may lead to a partnership in the business, or to setting up business for one's self, and becoming an honorable, useful member of society; but to accept a situation in a "saloon" or "bar-room," or petty shop, would be the worst act a young man could do. The chances for rising in the world—obtaining better situations—would be small; because nothing is so damaging to the character of a young man as the fact that he is employed in a disreputable business. A "saloon" may be a respectable place; so may be a petty grocery store; but when a smart, active, honest young man is wanted, he is seldom or never taken from such places.

The best thing a farmer can do for his sons, at the proper age, is to give them a thorough education. Send them to some good college, if you can afford it, and if they improve their time at such an institution, by learning all they can, you will never regret sending them there. They may not become clergymen, lawyers, physicians, &c., but they will be the better fitted for any avocation in life, and

no vicissitude or fortune can ever take away the education thus acquired.

In brief, all farmers' sons cannot be farmers, because there are not farms enough for them to work, unless they go upon the Government lands at the far West, which is not a proper place for any young man until he is married; and then but few can endure the hardships of a life far away from society and friends. It is better for farmers to prepare their sons by education for other avocations in life, retaining *one* to work the old homestead when they are passed away, and allow the others—where there are several—to seek other honorable and useful pursuits of life.

It is true very strong arguments can be adduced to show that farmers' sons should remain farmers for life. Horace Greeley says:

“The demand for intellectual labor or its products, and even for mercantile capacity, is exceedingly capricious. In a season of commercial prosperity, a great city affords employment to thousands as clerks, book-keepers, teachers of music, languages, etc., etc., who will nearly all be left high and dry by the ebb of the tide. War, pestilence, a bad harvest, a business revulsion, throws them suddenly out of employment, and no merit or excellence on their part can avert the catastrophe. I would have every one so armed and equipped for the battle of life that, if suddenly unhorsed, he can fight on efficiently and undismayedly on foot.

“The professions are fearfully overcrowded. A Western village is half peopled by doctors, lawyers and clergymen, who have rushed in ahead of the expected flood of immigration. Like miners in the Sierra Nevada or Rocky Mountains, they have severally staked out their claims, and are waiting for others to come in and help develop and work them to mutual profit. But ‘while the grass grows the steed starves.’ Whatever may be their fortune ten or twenty years hence—and events are constantly interposing to blast their sanguine hopes—doctor, lawyer, minister, are often winning but a meagre, precarious support for the present. ‘I cannot dig; to beg I am ashamed,’ is the plaint which many would utter if they could afford to be frank and outspoken. Thousands suffer and stagger on, oppressed by want and ever-increasing debt, who would gladly take refuge in productive industry if they had been trained to familiarity with pitchforks and plough-handles. They would outgrow their present embarrassments if it were not for the *new* doctors, lawyers and clergymen annually ground out to compete with them for practice or parishes, and whose training is as helplessly one-sided as their own.”

This is all true; yet, as we have already said, all farmers' sons cannot be farmers. To work by the month on a farm but barely keeps soul and body together, and few farmers can furnish land to support all their sons.—*Rural American.*

Care of Hogs in Summer.

As a rule, the only care hogs receive is confined to the narrow compass of a few weeks before slaughtering them. During this brief period they make up in stuffing for the time that was lost in the starvation period. From October to Christmas they enjoy a perpetual thanksgiving to compensate for the protracted Lent, which occupies the remainder of the year. It is not wonderful that an Irishman, who observed this practice for the first time, should write to his friends in the Emerald Isle, "that in America they drive in a hog from the woods where he has been for a year, feed him twenty bushels of corn at night and kill him the next morning." It is true the account was exaggerated, as most stories are that are told of things at a remote distance, but after all, it had its foundation in fact.

This neglectful method of raising swine, has been occasioned heretofore by the large number of hogs which were in the country, the ease with which they were raised, and the small price they brought when fattened and sent to market. It is true a little attention might have saved many a litter of pigs from being crushed, drowned or devoured at the season of farrowing, but then this saving of a dozen young porkers was not considered worth the trouble of furnishing quarters for them or of staying out in the rain a few hours. It is true that many thrifty farmers, who delighted in seeing their other animals in prime condition, would let their hogs make both night and day hideous in their cry for food, and would console themselves with the reflection that it was in the nature of the animal to squeal.

But the time has now come, if it never did before, when it will pay to take care of hogs through the entire stages of their existence. Pork has changed from a drug in the market to a luxury.—And this article of food that is only furnished at the price of out-of-season luxuries happens to be one that is regarded by many as one of the essentials of life. With us in the West pork has been so long one of the staples in the farmer's bill of fare, that we cannot well substitute anything else for it; while in the South we are informed that every attempt to supply the colored laborers with other food in the place of pork has proved unsatisfactory.

How, then, shall we bring up our hog crop to anything like the amount it was in former days? Evidently by giving to the hog something of the care and attention that is ordinarily bestowed on other animals. No man would think of turning a brood mare out into the highway or wet pasture, with no food except what she is able to pick up, for a week or two before and after the time she drops her colt; and yet this is a frequent practice in relation to the breeding sow, a creature which bears not a single animal at a birth, but often ten or a dozen. Will farmers never think that the foetal growth of so many young requires more and better sustenance than an animal as badly constructed for locomotion as the hog is, particularly at an advanced stage of pregnancy, can possibly pick up in a small pasture, or can secure by racing or fighting with others of her kind in a yard where corn is thrown to them? To raise good pigs, as to raise other animals, boys and girls included, it is of prime necessity that attention be given to the wants and condition of the mother.

Again, pigs require sustenance after they are born, and this they derive, as other young animals do, from their mother. Now, who has thought, or spoken, or written on the subject of the supply of milk—sow's milk—for young pigs? And yet it is a matter of prime importance, since the milk of no other animal is identical in composition with that of the sow; and even if it was, the young pig is not able to take its supply of nourishment, except through the teats. We need, therefore, in order to become successful pig raisers, to give attention to making the sow a fine milk-producing animal. We need to study, as the dairy farmer does, how to secure the largest amount of the richest and most nutritious milk, and how to continue its yield to the longest period, to the end that the numerous hog-gish brothers and sisters may have for a considerable period, an ample supply of the nutriment which is best adapted to their growth, and which alone contains all the elements needed to their complete development. That this is not the case ordinarily, every one who has had experience in breeding pigs must have noticed. The calf, lamb, colt and kid often fill themselves to repletion and scamper off before the dam's udder is drained, but with rare exception, the swine mother is obliged to drive away her tender offspring or "turn them the cold shoulder" long before their appetite is appeased, as is evidenced by their piteous and unmelodious cries. In this manner the pigs are stunted, their childhood clouded, and their fair prospects darkened at their very outset in this world of care; for every one knows that a stunted pig is not likely to make a first-

class hog. Hog-breeders might learn much that would be of advantage to them by reading the proceedings of the dairymen's conventions, and seeing the kinds of food they recommend for producing and keeping up the supply of milk. They will find out, if they do not know it already, that damp, dirty quarters, a stinted amount of food, and that, mostly dry corn, are things unfavorable to producing much milk, or that which is of a very good quality. On the other hand, they will learn that clean, dry quarters, pure water, bran, middlings, oil-cake, tender grass, clover and young corn are reckoned among the requisites for producing rich milk, and that in abundance.

After weaning time, which, in our judgment, should not be hastened, unless the sow is regarded as of more value than her litter of pigs, the food should be such as to develop muscle rather than to cause a deposit of fat. The hog, then, should be supplied with materials that abound in nitrogen, rather than with those which are rich in carbon. On this account clover is excellent, as are green corn stalks, root crops and any portion of the cereal grains. Skimmed milk, too, and buttermilk are among the best flesh formers, but in this respect whey is nearly valueless, as nearly all its nitrogenized elements have been removed in the curd.—*Prairie Farmer*.

[A Shot into the Citadel of Humbuggery]—New Seeds and Plants.

To the Editor of The Tribune :

Sir,—You and all your intelligent readers are no doubt familiar with the name of my venerable ancestor, the celebrated traveler, Mr. Gulliver. About two centuries ago one of his sons emigrated to this country, and although he did not come over in the Mayflower, as he should have done, his family has ever since held a prominent rank among the most industrious and progressive of American citizens. As sometimes happens, the idiosyncrasies of my great progenitor, after slumbering through several generations, early reappeared in me. The love of foreign travel, which was so conspicuous in him, I began to feel in my very boyhood, and I have spent the greater part of the last twenty years in visiting distant lands. My distinguished progenitor traveled chiefly, however, to gratify a laudable curiosity and make himself acquainted with the different races, and the manners and customs of mankind. Living in a better age, I have traversed almost the whole habitable earth for the nobler purpose of discovering and transferring to my beloved country whatever in the animal or vegetable kingdoms could

contribute to its material prosperity, or add in any way to the welfare and happiness of my fellow-citizens. While I have been abroad in the earnest pursuit of these objects, my brother, Benjamin Franklin, has been as earnestly experimenting with whatever I had the good fortune to meet with in foreign lands that I deemed worthy of notice, and determining how far they might be adapted to American soil and climate. It was myself, you may remember, who introduced the Shanghais and Burmah-Pootras, and several other varieties of the gallinaceous tribe.

And now, having said so much of myself, by way of introduction, I beg leave to bring to the notice of my fellow-citizens, through your columns, some of the fruits of my recent efforts. At present I mention only a few of the most useful seeds and plants which my tireless industry and enterprise are about to confer upon the agricultural world. My labor, I beg you to understand, has been eminently a labor of love. All I ask of the great country I am about to enrich is the public gratitude, which I am happy to see is not withheld from any one who, in the most accidental way, makes a useful discovery or adds a new means or incentive to improvement and progress. With these preliminary remarks I now proceed to mention three or four only of my truly wonderful discoveries. And

First, I would call attention to a new and remarkable variety of the potato—one of the most useful of vegetables, the common blessing of the rich and the poor—which I had the good fortune to meet with on the plains of Quito, South America. It is of good size, though not a monster, of very handsome form, in color a pure white, very fine for the table, astonishingly early, and immensely productive. It will give ripened tubers in eight weeks from planting, and what is remarkable it continues to throw out and ripen new tubers till the very close of the season. We have cultivated it now in a small way for three years with the highest success. Last Spring I gave my neighbor, John Smith, Esq., a single eye, and the following note, received from him immediately after the final harvest, will show the result. Mr. Smith, I may observe, is one of the most intelligent and successful farmers, and President of our Agricultural Society, whose word is as good as his bond:

“MR. GULLIVER—Dear Sir: The single eye of your *Quito potato*, which you had the goodness to give me last Spring, I planted in my garden on the 20th of April. It came up and grew well. I gave it no better cultivation than is generally accorded to potatoes in the garden. On the 17th of June I could not resist the tempta-

tion to look into the hill. Carefully opening it, judge of my surprise to find several beautiful potatoes of good size and apparently ripe. I took six, and then closed the hill as before. My wife cooked them, and I never ate finer potatoes. Without losing their form they were like the most delicious flour. A few days after I opened the other side of the hill and took out thirteen. They made us two meals. At various times afterward I took out from five to fifteen, so that, before the final digging, I had gathered 111 good sized potatoes. Last Monday, as the frost had killed the vines, I thought I would take up what few might remain, and, would you believe it? I dug three pecks and more, weighing 49 pounds and 11 ounces! I shall save these for seed, and shall want a barrel more, if you can possibly spare them, for my wife says, next year let us have potatoes enough and to spare. Yours truly,

“JOHN SMITH.”

Of these really marvellous potatoes we have only 200 barrels, which, for the purpose of making the widest distribution possible, I offer at the following very low prices, viz :

1 oz., containing at least one eye.....	\$ 5
1 pound.....	50
2 pounds.....	75
Half peck, or 7½ pounds.....	200

I regret that we cannot offer them by the barrel, or at least by the bushel, but we do not wish them to get into the hands of unprincipled speculators. Already this class of men have offered us \$1,000 per barrel for our whole stock, but we are resolved to confer a great benefit on the public, and therefore shall sell in quantities no larger than half a peck. Introduced as extensively as we propose, the effect of this potato on the wealth and agricultural interests of the country must be incalculable. After the second year's cultivation we may bid defiance to famine, and were all Ireland to be precipitated upon our shores in a single month, not a son or daughter of Erin would want for potatoes! Let me add that I have ventured to name this king of potatoes the Quito Imperial.

Second. In my last visit to the Island of Formosa, I was so fortunate as to make the acquaintance of Prince Linn, who, by the way, is a most intelligent and enthusiastic horticulturist, second to no one probably in the world. He takes great interest in our country; subscribes for all our agricultural papers which have attained the circulation of a hundred thousand copies, and is introducing into Formosa all our wonderful improvements. He showed me many civilities, and as a small return, he said, for all the benefits we were conferring agriculturally upon his beloved island, he gave me

from his own garden a single plant of his favorite Strawberry, which I have named after its donor, Prince Linn. It is a strong grower, with robust fruit stalks, and so prolific that a single healthy stool is sufficient for an ordinary family. The fruit is a beautiful cone of a brilliant color, with flesh firm, yet melting in the mouth, and of so delicious a flavor that he who has once tasted of the Prince Linn will never wish to eat again of the acid Wilson, or the insipid Agriculturist, or, indeed, any—even the finest of our fashionable berries. The sweet and the sour in its marvellous composition seem to be so admirably blended that any addition to either would only mar its superlative excellence. Sugar is never used with it, and cream would only detract from its unparalleled deliciousness. It has only one fault, if, indeed, it is a fault, for on this point alone can the judgment of men differ: it seems to me a trifle too large, especially for ladies to eat without dividing, since ten or twelve will ordinarily fill a pint basket. I ought to remark that this strawberry keeps in full bearing for at least ten weeks—a consideration not to be overlooked by the lovers of this delicious fruit. Unfortunately, we have only 15,000 or 20,000 of these remarkable plants, which I propose almost to give away at \$20 each, or \$150 a dozen.

Third. From Kamschatka I brought, four years ago, a new variety of Oats, that on our experimental farm has proved a wonderful success. In weight and productiveness it far surpasses, I will venture to say, every other kind of oat in the known world. The kernel is very plump and large, white, with a tinge of yellow, with a hull so thin and transparent that one is with difficulty persuaded without trying his teeth that it has any hull at all. Their average weight is $57\frac{1}{2}$ pounds to the bushel, and I hardly dare tell you of their product lest you should suspect me of some little exaggeration. But facts are facts, notwithstanding unworthy suspicions and incredulity. Last year we sowed upon our farm here, on corn stubble, ordinarily manured the previous year, a single acre, carefully measured by Squire Jones, one of our county surveyors, who, also, at my request, attended to the harvesting, thrashing, cleaning and measuring of the crop, and whose affidavit is now in my possession; and he makes oath to the astonishing fact that from that single acre he measured up of remarkably clean and handsome oats 297 bushels, 3 pecks, 1 quart and $\frac{1}{2}$ pint! I have this whole crop, and about 500 bushels from another field, now for sale; but, in justice to all my fellow-citizens, must sell in no larger quantities than one gill to each purchaser, and this I will send by mail, neatly

and securely done up, on the receipt of \$1, and four cents in postage stamps. I should observe that these oats grow with such vigor and tiller so wonderfully that a peck of seed is amply sufficient to sow an acre. For making Scotch "porritch," Scotch cakes, and, indeed, every kind of bread, these oats have no rival. If they cannot be raised in Scotland, then all Scotland must emigrate to this more fortunate country. I call these oats the Royal Kamschatkas. Beyond all doubt, they can be successfully cultivated in Alaska, and will give a new and an immense value to those recently acquired possessions. Indeed, it will be no betrayal of confidence to say that my suggestion of this fact determined the purchase of this territory by the United States Government. Had I whispered the thing to my friend, the Emperor of Russia, \$50,000,000 would not have tempted him to sell that attractive country.

I was about to speak of some other valuable acquisitions I have made, but fear I have already trespassed too far upon the columns of the *Tribune*. Hereafter I may call attention to some other of the wonders of our experimental farm. By the way, Mr. Greeley or your agricultural editor must come and see what we have here. The sight would well repay the time, as it would show, as no newspaper article can do, the enterprise, the energy and the success that have marked the long career of yours, with great consideration,

GEORGE WASHINGTON GULLIVER.

Gulliversville, N. Y., May 1, 1869.

P. S.—I should be doing an injustice were I to omit saying that during all my foreign travels I have always been supplied with excellent tea and coffee, "of full strength," from the Great American Tea Warehouse, and have preserved my health in all climates by carrying a box of Dr. Ayer's celebrated Pills, with a bottle of his Cherry Pectoral, and for an occasional tonic making use of Hostetter's Stomach Bitters, with now and then an odd glass of the old Plantation 10X1860.

Will you have the kindness to inform your numerous readers that I am in want of several thousand agents in all parts of the country, to whom I will pay, without regard to age, sex or ability, \$47 83 per day, and expenses. Please reserve for me five pages of the *Tribune* for advertising from the 10th instant to December 24.

G. W. G.

"Rule the appetite and temper the tongue."

"Revenge not injuries, but forgive them."

Redonda Guano.

The April number of this journal contains an article with this caption, which affords a rare opportunity to correct certain injurious views that it seems many farmers entertain with regard to the certificates of chemists and others about fertilizers. Although the author (Mr. James) is a stranger, his intelligence and assumption of "tentativeness" as a characteristic, encourage the hope that he possesses a corresponding magnanimity, which will readily prompt him to retract his error, if it can not only be easily demonstrated to be an error, but also easily demonstrated to be not only erroneous but injurious to the cause we advocate.

Mr. J. will no doubt shrink from the position in which it is necessary to exhibit the deductions he has made and published. Every one is familiar with the fact that such are published every day with regard to Peruvian Guano; indeed, while riding with a very intelligent and educated gentleman this morning, he remarked that a certain guano excelled Peruvian in his neighborhood—but I replied by calling his attention to the fact that the guano to which he referred was *manufactured*. I have met with "strong minded," practical farmers whose expectations from Peruvian Guano had not been realized in their own experience in the use of it. One remarkable case I published in the "*old American Farmer*" to illustrate the false impressions frequently received in the use of manures. On the Eastern Shore of Maryland my intimate friend and relation spread the same Peruvian Guano before and after a rain on the same field of corn, the result being all of the difference in the crop, and, perhaps, much more than Mr. James records. But the experience that is most proverbial and hard to bear (like a "wounded spirit") sometimes—because attended with *self-reproach*—is the failure of a second crop on the same land, in the use of the same Peruvian Guano, with exaggerated expectations and more liberal expenditures, and most ruinous and entire failure. I regard Peruvian as the most perfect of all *natural* fertilizers, and never have been disappointed or deceived in these views. In the case reported by Mr. James the guano is held responsible for all the mischief.

The Peruvian Guano enabled the first crop to exhaust the soil of *one* element, which is equivalent to *all* elements of the plant food in the soil that are available. Consequently, as one link breaks the chain (for all practical purposes) as much as seven, the use of a double portion to ensure a double crop was just as empirical as the use of Redonda—one element of Peruvian—without being sure of the co-operation of any of the other, either in the soil or the man-

ure. Redonda contains one of the elements of Peruvian in much larger proportion, according to the testimony of some of the most reliable experts in Europe and America, and this accounts for its superiority to Peruvian *in some localities* where the soil is not as defective as Mr. J's. seems to be; but these certificates of reliable farmers and chemists should no more be invalidated by one or even a dozen defective soils than the idiosyncrasies in certain persons should condemn our standard medicines.

We pay \$50 per ton *insurance* on Peruvian, viz: the cost of the ammonia; and I wish to show that all other natural guanos can be insured for less than half that price, but must defer this for another communication, which will, I hope, prove that every farmer who can spell his primer can detect the absence of any element of soil plant food from his field more certainly than any chemist, and with less expense of time and labor. The empiricism of agriculture is remediable, but that of medicine is irremediable, chronic, and abounds among the classes who have the most leisure and least ability to comprehend its absurdity.

DAVID STEWART, M. D.

April 23d, 1869.

Fish as a Fertilizer—Swamp Muck.

RICHMOND, VA., April 27, 1869.

Editors Richmond Dispatch:

Gentlemen,—I notice in your issue of yesterday a note of inquiry from Mr. D. H. Foster, of Matthews, as to how our tide-water farmers may apply fish to the greatest advantage in the production of crops, followed by an invitation from yourselves to “any gentleman who is able to answer” to do so through the columns of the *Dispatch*. I avail myself of this invitation to offer a few remarks in reply to Mr. Foster's inquiries.

The great value of fish as a fertilizer has long been recognized and appreciated by the people of most of the regions in which it is abundant—its use being, of course, confined to districts bordering on the sea or other large bodies of water. Some years since Professor Way, then chemist to the Royal Agricultural Society of England, in the hope of devising some method by which fish might be gotten into such form as to admit of its transportation for long distances, made some very elaborate analyses, from which he found that the natural fish contains nitrogen sufficient to yield a little more than two per cent. of ammonia, and a little more than two.

per cent. of ash, of which the leading constituents are phosphoric acid, lime and potash.

“The most striking characteristic of fish which analysis has furnished, and which, indeed, is the only one that the practical man of enlightened mind will require to enable him to form a correct estimate of the office and utility of fish in farm practice, is the fact that the composition of fish is, in many instances, nearly similar to that of some of our most important cultivated crops. Wheat contains about two per cent. of nitrogen, and so does fish. On this point Mr. Way says : 100 pounds of wheat require about one pound and three-quarters of ash, about one-half of which is phosphoric acid and one-third potash. One hundred pounds of fish (sprats) contain two pounds of ash, of which two-fifths is phosphoric acid and one-fifth potash. Supposing that in the production of wheat no loss of manure occurs, what manure would be more fit to produce a bushel of wheat than half a hundred weight of sprats.”*

Direct applications of the fresh fish to the land seems to be the most common mode. For wheat and the other crops of small grain, the fish are spread broadcast and ploughed under ; for corn they are usually put in—or rather under—the hill. All writers agree, however, in recommending their use in the form of a compost with good rich earth. The earth absorbs the ammonia given off in the fermentation of the fish, and in a few months the whole mass falls down to a manure which retains all the virtue of the fish, and in which all trace of fish is lost. Plaster might be used with decided advantage in such a compost, but lime should be sedulously avoided, for the reason that wherever it comes in contact with the salts of ammonia, the latter is set free, and, being volatile, escapes.

In some parts of New England composts made of swamp muck and fish are found to be of great value as fertilizers ; and I call attention to this fact in the hope that some of our tide-water farmers may be induced to make available in this way some of the inexhaustible stores of fertility now lying dormant in the numerous swamps and marshes of this region. Experience demonstrates that applications of muck are of little value, and sometimes are positively hurtful, without having first been long exposed to the ameliorating effects of the air, or made into composts with stable manure, animal refuse, fish, &c. When composted, the animal matter, for example fish, the latter enters into decomposition or fermentation at once. The muck absorbs such elements of fertility, as ammonia, that might otherwise be lost, and at the same time commences itself

*Morton's Encyclopedia of Agriculture.

to ferment, by which its nitrogen is transformed into ammonia, and other changes take place, whereby it becomes a valuable fertilizer, independent of the fish and other matters that may have been used to quicken the process of amelioration.

The following, taken from Professor Johnson's essays on peat, muck, &c., may not be out of place in this connection. One of his correspondents, who uses fish and muck extensively for composting, says:

"We vary the proportions somewhat according to the crop the compost is intended for. For rye, we apply twenty to twenty-five loads (of twenty-five bushels) per acre of a compost made with one load of fish; and with this manuring, no matter how poor the soil, the rye will be as large as a man can cradle. For oats we use less fish, as this crop is apt to lodge. For corn, one part fish to ten or twelve of muck is about right, while for grasses or top-dressing the proportion of fish may be increased.

"We find it best to mix the fish in summer, and not use the compost until the next spring and summer. We usually compost our first arrivals of fish in June for our winter grain. After the pile has stood three or four weeks it is worked over thoroughly. As the pile is worked over, a sprinkling of muck or plaster is given to retain any escaping ammonia. By September the fish have completely disappeared. The effect on the muck is to blacken it, and make it more loose and crumbly. As to the results of the use of this compost, we find them in the highest degree satisfactory. We have raised thirty to thirty-five bushels of rye per acre on land that without it could have yielded but six or eight bushels at the utmost. This year we have corn that will give sixty or seventy bushels to the acre that otherwise would yield but twenty to twenty-five bushels. It makes large potatoes, excellent turnips and carrots."

Yours very truly,

WILLIAM GILHAM.

To Prevent Cows from Kicking when Milked.

Take a small chain, put it round her just back of the fore legs, and twist it. Every time she kicks add a turn or two with a stick; she will soon stand easy, and after a few trials will not need it at all. We consider it a good thing, and, as far as I have heard, it is universally successful.

ANOTHER METHOD.

Take a leather strap, pass it round one of the hind legs of the cow just above the hock, cross it between the two hind legs, then buckle or tie it on the outside leg in the form of the figure 8, and it will be found to be effectual.

The Phosphate Beds of Charleston.

At the country meeting of the State Board of Agriculture at Amherst, Professor Agassiz spoke with regard to the recent discovery of phosphate deposits near Charleston, S. C., and we find his remarks reported in full in the report of the State Board of Agriculture just issued, as follows :

I have seen and known something of these deposits of lime in South Carolina. Some fifteen or eighteen years ago, when delivering some lectures in the medical school in Charleston, I saw some specimens of this phosphate of lime, which, however, was not considered of much importance then ; and it is perhaps well that it should be understood why, because, otherwise, the fact that no application of it has been made might raise a prejudice against it. This article, known so long, has acquired importance only recently. When it was found, it was found in connection with the Charleston marl. At that time there was a gentleman greatly interested in the progress of agriculture in the Southern States, Mr. Ruffin, who advocated manuring with marl. That gentleman had great influence all over the South, and he brought the Charleston marl into such credit it drove every other consideration out of thought. Marl was the manure then, and it prevented any experiment with the new article ; and I have no doubt that Mr. Ruffin, while he introduced a very valuable manure into the agricultural districts of the South, prevented an appreciation of this deposit, which was known eighteen years ago.

This deposit, as a geological deposit, is of great interest, because we have nowhere else in the world anything like it. It is of very recent origin, and rests upon marls. It is a very superficial deposit. I have no very decided opinion to express about it, but only a suggestion to make. All over the southern parts of South America, in the pampas, especially in the Argentine Republic, there are deposits of very recent geological formation, which have been known for half a century to scientific men, containing an immense amount of fossil remains—bones. The museum at Buenos Ayres contains a vast amount of these curious relics, all of them belonging to extinct races. A few of them have been sent to Europe, and have been the objects of admiration for their perfection. Now, these deposits are so full of these bones that if they had become decomposed they would have formed phosphate of lime similar to this South Carolina deposit. A few bones are found in this phosphate of lime, which are the bones of extinct animals, also, and I should

not be surprised if the progress of discovery should show that the phosphate of lime bed in South Carolina is equivalent to those of South America, and that the phosphate itself is the result of the decomposed bones, which, in the South, are preserved, to give us an idea of what were the animals of those times. That is all I can surmise concerning the origin of that vast deposit, and there is such a similarity between the superficial deposits of South America and North America, that I think this is probable. I have lately made an examination of our prairie, of which I shall perhaps say something this evening in my lecture, and I have had an opportunity to compare it with the deposits of the Amazon, and the similarity is so surprising that this, to my mind, is an additional reason for believing that the deposits of South Carolina will prove similar to those of the Argentine Republic, and thus give a clue to this very curious material.

Northern Capital Coming South.

We learn from the Savannah *Advertiser* that the schooner Florence H. Allen, which arrived at that port from New York on Tuesday last, consigned to Messrs. Joseph A. Roberts & Co., brought among her freight the entire machinery for the working of a large manufactory, which is to be established at Midville, No. 9 $\frac{1}{2}$, on the Central Railroad. The machinery was manufactured at Patterson, New Jersey. The water-wheel is but 8 feet in diameter, of the Chase pattern, which is said to be superior to all others, it being adapted to the smallest heads of water, and has a capacity of sixty horse-power under a fall of only sixty feet of water. The factory, it is expected, will be ready and in operation in about three months, at an entire cost of about \$30,000, and will be the means of giving employment to upward of one hundred hands. In addition to this establishment for the working of the raw material into fabrics of every description, we learn that it is the intention of the Company to shortly erect, as an adjunct to the present projected establishment, machinery for carding wool and manufacturing cotton warp and wool fillings. The gentlemen connected with this enterprise are, S. D. Gould and W. H. Munson, of Patterson, N. J., and J. McKinne, of Emanuel county. Messrs. Gould and Munson are gentlemen of theoretical and practical experience, having been connected with some of the largest and most widely known factories in the Northern cities, and having a desire to invest

their capital South, they made a tour of several of the Southern States, and finding that Georgia, from her geographical position and resources, offered superior inducements and facilities to manufacturing interests of every kind, have concluded to locate the site of their intended enterprise on the line of Emanuel and Burke, having selected that location for its convenience and adaptability, there being a splendid pond, formed from several small lakes, which is of sufficient power and fall for the operation of their machinery. We learn that it is the intention of several other gentlemen from the North to seek an investment for their capital in the South, and have concluded to erect similar manufactories in other portions of the State.—*Augusta Chronicle and Sentinel.*

Plaster and Salt for Clover.

This last year I tried an experiment on a field (all clover) which was intended for hay. It was in thirty feet lands. To the first land I applied plaster, sown broadcast, at a rate of two bushels per acre, at a cost of one dollar per acre; to the second land I applied, in the same manner, two bushels of common ground salt, at the cost of two dollars and a half per acre; the third land I applied in the same manner, a mixture of salt and plaster (one bushel of each), at a cost of one dollar and seventy-five cents per acre, and so on all over the field. Throughout the whole Spring any novice in the art of farming would have picked out every third land as the best; next the first ones, to which the plaster was applied. Having long been an advocate of plaster for clover, I was very careful to note every circumstance, however trifling, which could in any way affect the experiment, and am now very thankful for this case, as it enables me to communicate several important results which otherwise I could not have accounted for. The times of sowing the substances, on the whole field, extended over two and a half weeks; a short time elapsed between each patch of the three lands. The result is that I find the same amount of plaster does best when the clover is two or three inches high, and when it is sown on the leaves when they are wet with dew. The salt did best when a warm rain fell just after it was sown. The action of the mixture is plain; we apply in one stimulant the four ingredients most needed by clover, viz: sulphuric acid, lime, chlorine and soda. (?)—*German-town Telegraph.*

A Sled for Hauling up Hay.

FRIEND RUFFIN,—In response to your note, requesting me to give you, for the ensuing number of the *Planter* an account of my mode of hauling hay from the shock to the stack, I proceed, at the first leisure moment, to give you briefly the result of my experience, and my last, and, I think, my best plan. In the first year of my residence on the Chickahominy (hay being one of my staple crops) I commenced to haul up the shocks of hay in a common farm wagon, aided by one or more one-horse dumping carts. This, I soon found, was a very slow process. Next, I adopted the plan of some of my neighbors, and used the grape-vine. This consisted in tying each end of a large vine, about 12 or 14 feet long, to the ends of the trace chains of common plough gear, and throwing the vine over the shocks of hay, taking some pains to fix it well near the bottom of the shock, and haul it off to the stack-yard with the aid of a horse or mule. This, as you perceive, carried but one shock at a time, and if the stack-yard was not close at hand, which was not the case with me, was also too slow a process to suit my views. Lastly, I adopted the slide, which I have continued to use ever since, believing it infinitely preferable to any other plan. In making my slide I selected two good white oak planks, 16 feet long, 12 inches wide, and $1\frac{1}{2}$ inches thick. These planks were then reduced to 6 inches in width, except at the front ends, which were made to curve after the fashion of a common sleigh. They were then fastened together in front by a strong white oak or hickory cross-bar, 6 feet long, to the middle of which a common double-tree was secured. Four other bars or slats, much smaller than the front one, of the same length, were *let in* three feet apart, and secured in their places by pins or strong nails. The floor of the slide is then covered with some light, thin plank, and the slide is complete. Hitching a pair of mules to this slide, the driver, mounting one of them, proceeds at a brisk trot to the hay field, and driving close to the shock dismounts, and with his pronged fork, (only two tines, if you please), with the assistance of another man, (who should remain among the shocks) inserting their forks on opposite sides, throw the whole shock on the slide at one effort. A slide of the dimensions given above will carry from six to eight shocks, weighing 150 pounds, at a load. Arriving at the stack-yard, the driver and stacker, with their forks on the same side, easily empty the slide in half a minute.

The slides very soon become as slick as glass, will cross large

drains or even ditches with no difficulty, not even jostling the load. With one of these slides, one driver and a pair of mules, I am confident I can haul as much hay as four mules and as many riders with the grape-vine. With my best wishes for your health and happiness, I am,

Yours truly,

JOHN R. GARNETT.

Richmond, May 18th, 1869.

The South and the West.

Referring to the Memphis Convention, and the objects it is designed to promote, the *Boston Post* says: "The South is evidently about to start afresh on the race for wealth and power. In the next ten years, beyond a doubt, we shall find that the fifteen States which comprise the Valley States, and whose interests are wholly agricultural, will be the wealthiest portion of the Union. * * * The South is to become rich and prosperous by developing immigration and laying hold of the great assisting enterprises of the age. Establishing direct commerce with foreign ports; laying the rails of an unobstructed road to the Pacific; redeeming and securing rich lands that are rendered valueless by inundation; encouraging the steady flow of immigration, and diversifying the objects of industry to the largest extent; these are the means by which that section of the country is to become restored, and, once being restored, to take its place in the Union with the influence that legitimately belongs to it. The West and the South together, both being agricultural in their fundamental interests, will very shortly throw two-thirds of the votes in Congress; and these being backed by such material prosperity and growth as the world never before saw, it is not necessary to emphasize the inference which so naturally follows. A full Convention at Memphis on the 18th of May will go far to develop a groupe of facts in the economy of the national resources which have never yet received that attentive consideration which they so strikingly deserve."

A correspondent of the *Bee Journal* plants catnip along the fences and out of the way places, where weeds ordinarily grow, for forage for bees. He says bees work on it in all kinds of weather. A slight frost does not kill it as it does other flowering plants, and it is in bloom from the time it first makes its appearance until killed by the frosts in the fall.

Report on Specimen of Plaster submitted for Examination to the State Agricultural Society's Chemist.

Messrs. Editors,—I have carefully examined the specimen of Virginia plaster sent you by Mr. Radford, and find it to be almost pure—much purer than the generality of Nova Scotia plaster. It effervesces slightly, it is true, showing the presence of carbonate of lime, but the latter is such a constant attendant upon plaster, that to find a sample without it may be regarded as the exception rather than the rule. So constantly is it present in plaster, that some farmers test the quality of the latter with acid, *and if no effervescence takes place, condemn it.* In the present instance, the effervescence is very slight, showing the presence of but a minute proportion of carbonate, so small as not to impair the value of the plaster in any appreciable degree.

The Virginia plaster is unquestionably as pure, and in all respects as valuable as the best Nova Scotia, and I trust the day is not far distant when it will come in direct competition with the latter in every portion of the State.

Very respectfully, your obd't serv't,

W. GILHAM,
Chemist Executive Committee Va. Agricultural Society.

The Horses of America.

THEIR PRESENT VALUE, WITH SOME SUGGESTIONS AS TO BREEDING FOR SPEED, FOR THE ROAD AND TRACK.

Among the great industrial interests of this country the horse may be considered as standing in the foremost rank of animal productions. For many years he has been constantly increasing in numbers and value so rapidly, and with such constant accretions, that the number of horses now in the United States will fall little short of 8,000,000 in the aggregate, and representing in money value the enormous sum of upwards of \$2,600,000,000, nearly equal to the whole amount of our national indebtedness, and more than the whole gross amount of the gold product of California, and probably of the world during the time which has been occupied in raising these animals. Few who read this article have ever imagined that the annual value of any animal product in this country should so nearly approximate the vaunted resources of our gold fields, which politicians are ever parading before the public as the means of paying our national debt.

Fifty years ago the standard price of horses was very low, \$100 being considered as much as a first-class animal was worth, unless in exceptional cases, notwithstanding we had very much the same quality of horse then as now. Subsequent breeding has developed his powers in a different direction, and the galloping saddle nag of that day has been transformed into the trotting horse of the present. We had at that time in this country some of the highest blood that had ever been imported from foreign parts. It was then rich and fresh and became widely disseminated throughout the country by such horses as Diomede, the winner of the first English Derby in 1789; his descendants, Sir Archy and Duroc, Messenger, and that most capital horse, Old Medley, to say nothing of others that have left a favorable impress on the horse of the present day. The descendants of Diomede to this day are the ruling spirits of the race course, as they have been principally bred for that specialty, in the same way as those of Messenger have been bred for trotting. The Southerner, having no trotting vehicle, and the roads being universally of inferior description, did the best he could under the circumstances, and trained his horse for saddle purposes. The North, where good roads and greater mechanical talent prevailed, soon possessed itself of fine road vehicles, and the horse, instead of being taught to gallop and to amble, was encouraged in his trot until he became as conversant with that gait as he had been with other paces. Now, had the relative positions of Messenger and Diomede been reversed, the descendants of Messenger would have become gallopers and those of Diomede trotters, and the name of Messenger would have been heard of among trotting circles as little as that of Diomede is at the present day. A further impetus was given to trotting blood by the importation of the Arabian Grand Bashaw, who was a natural trotter himself and imparted that peculiarity in an eminent degree to his descendants, and, in addition, communicating a graceful movement to a gait that had previously been considered not very elegant.

For a long time it was considered advantageous to cross a well bred horse on the Kanuck, or Canadian, as he is indifferently termed, with the view of getting that knee action which is deemed essential in the trotter. The result of that description of breeding was, as might have been anticipated, too much action in front and a deficiency of propelling power, accompanied by that lack of endurance consequent on low breeding and great expenditure of muscular action. Another great objection to this cross was found in the deterioration of general appearance visible in horses of this class.

However, as time progressed, and these evils became more palpable, attempts were made by breeders to correct the mistake into which they had fallen, and recourse was had to horses of higher blood and superior excellence, and with such success that many of the trotters of the present day so closely resemble the running horse in general appearance as to deceive the uninitiated. With the creation, as we may term it, of a superior trotting horse, at once beautiful, speedy and graceful, and the great accumulation of wealth in the community, the value of the trotting horse has advanced correspondingly, until now the prices paid for particularly fine horses are such as would never have been dreamed of twenty years ago.

We may say that the value of every other class of horse has appreciated within the past few years, with the exception of the French Canadian, for whom there is very little demand—in fact, none at the price it would cost to import them from Canada. As the demand in this country has decreased they are not so numerously bred as formerly, as here was the great market for that description of horse until a few years ago, when it was discovered that he was found unequal to the business requirements of the community. The abolition of the reciprocity treaty with Canada had also something to do with lessening the demand, as it imposed a heavy tariff on his importation, and increased his cost in this market about 100 per cent., or to about \$160 through the gold premium and duty combined, which is more than he ever was worth for any purpose. We shall see very few of these horses in future, and very glad we ought to be of it, as his introduction into this country has been rather prejudicial than otherwise. The Canadians themselves see the inferiority of that class of horse for anything else than mere drudgery, and are endeavoring to improve their stock by the importation of well bred horses from the United States—a number of thoroughbred stallions having been lately purchased for that purpose.

All over the country the value of the horse has increased in a ratio corresponding to the high price of every other product, and may be set down at about double what it was before the war, with no prospect of a diminution. As respects very fine horses, they show a constant increase in price.

At the commencement of this article we stated that there were about 8,000,000 of horses in this country at present, as near as the facts could be arrived at in the absence of any census enumeration. In 1850 the number of horses in all the States and Territories

amounted to 4,136,620, and in 1860 the computed number was 6,249,174. Notwithstanding the great loss sustained during the war and the almost entire cessation of breeding in some of the States of the South during that time, the natural increase has been so great as to fully reach our estimate of 8,000,000. The following table will show the number of horses in each State and Territory at the period alluded to above:

NUMBER OF HORSES IN THE COUNTRY IN 1850 AND 1860.

<i>States.</i>	1850.	1860.
Alabama.....	128,001	127,063
Arkansas.....	60,107	140,198
California.....	21,719	160,610
Connecticut.....	23,879	33,276
Delaware.....	13,852	16,562
Florida.....	10,318	13,446
Georgia.....	151,331	130,771
Illinois.....	267,653	563,736
Indiana.....	314,292	520,677
Iowa.....	38,536	175,088
Kansas.....	—	20,344
Kentucky.....	315,682	355,704
Louisiana.....	89,514	78,703
Maine.....	41,721	60,637
Maryland.....	75,684	93,406
Massachusetts.....	42,216	47,786
Michigan.....	58,506	130,917
Minnesota.....	860	17,665
Mississippi.....	115,460	117,571
Missouri.....	225,319	301,874
New Hampshire.....	34,233	41,101
New Jersey.....	63,955	79,707
New York.....	447,014	503,725
North Carolina.....	148,693	150,661
Ohio.....	463,397	625,340
Oregon.....	8,046	36,772
Pennsylvania.....	350,398	437,654
Rhode Island.....	6,168	7,121
South Carolina.....	97,171	81,125
Tennessee.....	70,636	250,882
Texas.....	76,760	325,698
Vermont.....	61,057	69,071
Virginia.....	272,403	287,579
Wisconsin.....	30,179	116,180
Total.....	4,128,297	6,224,056
<i>Territories.</i>	1850.	1860.
District of Columbia.....	824	641
Dakota.....	—	84
Nebraska.....	—	4,449
Nevada.....	—	541
New Mexico.....	5,079	10,066
Utah.....	2,420	4,565
Washington.....	—	7,772
Total.....	8,323	25,118
States.....	4,128,297	6,224,056
Grand total.....	4,136,620	6,249,174

Owing to the neglect of the census enumerators of the periods

above, we are unable to give the value of the horses at that time ; but we believe we are correct in saying that they have more than doubled in price, and that a hundred dollar horse in 1860 would bring above \$200 in this market now. It is, however, difficult for census enumerators to give the value of horses in any other than a general way, as none other than an expert in horse flesh is competent to classify them in such a way as to indicate their true worth. Ohio, Illinois, Indiana, New York and Pennsylvania took the lead as horse raising States, and the probability is that they still retain it. The next great breeding sections are Missouri, Kentucky and Texas. The war drew heavily on these States, but having had four or five years to recuperate, there is no doubt they will show a favorable amount of increase. Iowa, Michigan and Wisconsin were also large breeding States, and are yet so, their numbers having nearly doubled since 1860. In the Southern States, notwithstanding the devastations of the rebellion, there are more horses now than are required. There never has been a scarcity of ordinary horses. Much of the best blood, however, was captured during the war by the Union troops, and by this means many of the finest horses of the South found their way into the Western and Middle States, where they have been turned to most profitable account in improving the ordinary local or sectional stock. The Pacific States have also contributed their share to the general aggregate, California having in 1860 but 100,610 horses, whereas now she numbers probably 500,000, the effects of the war on breeding not having reached that remote region. Owing to the introduction of very fine stallions at a very early period of her history, a large proportion of the horses bred in that State are very superior animals. A great many horses were drawn from the Eastern States at the commencement of the war, which was an advantage to them, as by that means they got rid of a great deal of worthless stock. Since then they have been breeding a better class of horses, and with so much energy that it is believed the aggregate number in those States far exceeds that of 1860. The attention of breeders has been turned particularly in the direction of trotting stock, and by the introduction of better bred stallions than they had formerly they are now producing some very fine horses, although there is still room for great improvement, particularly in the staying powers or endurance of the speedy horse. In this connection, in the breeding of trotting horses, we may here remark that too much pains can not be taken in the selection of stallions. Great discrimination should be used in the size of the horse: for it is a well known physiological

fact, which should always be kept in view by breeders, that the small or medium size stallions invariably get the best proportioned stock. The produce of small or medium sized mares from large stallions are generally long-legged and deficient in that symmetry of form which it is always desirable to see in the animal under consideration. It must be borne in mind that while the propelling power of the horse is in his hind quarters, his lifting ability lies in his fore parts, and that where there is more weight in front than is necessary for the purpose intended, it is a decided disadvantage to the speedy horse. This is the case with the Canadian and some other coarse bred horses, who have so much to lift that they tire before they have gone any great distance. Every unnecessary pound in front of the withers tells forcibly against progression. Breeders of the running horse appear to understand these facts better than the breeders of trotters. Breeding from the thoroughbred horse is the very best means of eradicating the defects in the trotting horse, when too heavy in front, by lightening those parts which impede his action. This form of the blood horse is one of the reasons that has made the Bashaws so successful throughout the country in the hands of breeders of trotters.

With the view of further elucidating the subject of values, we give the following analytical table, compiled with great care, and believed to be as accurate as it is possible to make it with the data before us :

THE NUMBER AND RELATIVE VALUE OF THE HORSES IN THE
COUNTRY.

<i>Number.</i>	<i>Rate of Value.</i>	<i>Total Value.</i>
1,000,000, averaging	\$50.....	\$50,000,000
2,000,000, averaging	100.....	200,000,000
2,000,000, averaging	200.....	400,000,000
1,000,000, averaging	300.....	300,000,000
700,000, averaging	500.....	350,000,000
500,000, averaging	750.....	375,000,000
400,000, averaging	1,000.....	400,000,000
200,000, averaging	1,500.....	300,000,000
100,000, averaging	2,000.....	200,000,000
50,000, averaging	2,500.....	125,000,000
20,000, averaging	3,000.....	60,000,000
1,000, averaging	5,000.....	5,000,000
100, averaging	10,000.....	1,000,000
7,971,100		\$2,660,000,000

It will be seen by the above analysis that five millions, or five-eighths of the whole number of horses in this country are animals devoted to the ordinary drudgery of horse life, and whose individual value ranges from fifty dollars up to \$200. There are two more classes, the first of which we will designate as horses of general

utility, and the second as fancy stock, the latter comprising the fast horses of the land. The first of these, the horses of general utility, comprise nearly three-fifths of the whole, for they are not only the fast and stylish, but they are horses adapted in a majority of cases to most of the useful purposes of life, including the coach, the express wagon and the road. This class of horses we have ranged in value from \$300 to \$2,000. The third and fancy class is a comparatively small one, numbering about 70,000, and includes the running and the trotting horse, with values ranging from \$2,500 to \$10,000, with exceptional cases where they bring as high as \$30,000 or \$40,000—the latter figure having been paid for the race horse Kentucky before he fell lame, and \$33,000 for Dexter, with \$35,000 offered and refused for Bashaw, Jr. Within the past year Goldsmith Maid sold for \$20,000, Lady Thorn for \$17,500, with \$20,000 refused for George Palmer. The stallions Fearnaught, Rhode Island, George Wilkes and Draco Prince, all of whom have trotted better than 2.25, are individually valued at over \$20,000. As might be expected from our table of valuations, the horses designated as fancy horses are by no means all horses that appear on the turf, such horses being merely the selections, while the great mass are the private horses of gentlemen of wealth and leisure, who seek recreation, excitement, and sometimes notoriety on the road. The action of agricultural and other societies in offering the large amounts they do annually for horses to compete at their exhibitions operates as a powerful incentive to the breeding of fine horses, every breeder hoping to be able to exhibit a Dexter, a Pocahontas, a Lucy, or a Bashaw, Jr., to the gaze of admiring thousands, and carry off a premium which will enrich him for life. All this tends to greatly increase the number of horses bred and the great accumulation of national wealth in that specialty. The following are about the prices paid for speed at the present day: A horse that can trot in 2:45 will bring from \$1,500 to \$2,000; a dashing, good young animal of square action will command \$2,500 or \$3,000, while a well bred one, say a Messenger or Bashaw, for instance, that can trot in 2:35, with a prospect of improvement, will be sought after at \$5,000; and one of either of the above stock that can beat 2:30 is considered cheap at \$10,000, while for every second in the twenties \$1,000 extra will be readily given.

From all that we have said above, and which may be implicitly relied upon, as having been drawn from the best sources of information, the conclusion is unavoidable that our facts and figures indicate a rapid increase in the number and value of the horses in

this country, so great as to surprise all who have not given attention to this subject, and whose only opinion has been that of mere conjecture.—*New York Herald.*

Mammoth or Sapling Clover.

Messrs. Editors,—In the April number, of the *Planter and Farmer* you publish a correspondence between two highly respectable citizens of this county on the subject of Mammoth or Sapling Clover. I can add thereto some little experience on the same subject.

A year or so ago I was passing through the farm of one of my neighbors. It is one of those "old worn out farms," which you will find here and there, in almost every section of the State. I found my neighbor gathering in a field of clover, the appearance of which very much surprised me, when I took into consideration the general quality of the land. It was then some time in the latter part, I think, of the month of August.

I was rather green in farming myself, having had but a year or two experience at it. I had never seen the so-called Sapling Clover until then, and asked him what sort of stuff that was he was gathering. He told me it was a kind of clover they called big clover, or sapling clover; that like timothy, you cut but one crop of it, either for hay or seed; that he was cutting that for seed, and that he liked it better than "the other clover," because it suited poor land better. I told him I rather thought it did, for I did not think that on a greater portion of his land any kind of clover would grow.

Having some land of pretty much the same stripe as my neighbor's, and wishing to get it down in grass the next spring, it being then in wheat, I concluded to try some of the big clover. The truth is, I doubted whether it would not be almost equivalent to a waste of seed to sow the so-called "little clover" on a portion of the field which was a good deal more worn than the rest. The crop of wheat had no fertilizer on it.

I had plenty of the old fashion clover seed, and got my friend to exchange a bushel or so with me. The sapling clover seed I sowed on the poorer land as far as it would go, driving stakes in to mark the division. The rest of the field—most of it comparatively new ground—I sowed down at the same time with "the other clover" seed.

So it rested until this Spring, when I went out to have plaster sown on the field. But I found it was no use to have put in stakes.

The difference showed for itself. The hands could tell by the clover whenever they crossed the line. The sapling clover had caught best; the bunches were of a deeper green and more luxuriant growth. I was satisfied the sapling was *the* clover for thin land, and I shall save all the seed of it I can this summer.

I hope to make a good deal of the little clover seed this summer, and some for market; but I shall sell none of the sapling clover seed. I have no axe to grind in that line. Having a considerable quantity of old land which I wish to get down in clover, I expect to need all the sapling clover seed I shall make for several years to sow on that.

For my strongest land I prefer to hold on yet to the old fashion clover. It makes two crops—hay and seed. It can be cut before harvest, when you have time to do so; and I still think it best for hay, the stem being of less rank growth, and consequently more tender. In fact, I fear the sapling clover would grow too rank on strong land—Mr. Leech says seven feet. That clover would be a little too “tall.” There would be rather too much stem about it for good hay. But for thin land, I feel satisfied that the sapling clover will prove a good thing.

It is an advantage to have at least part of your hay to cut after harvest. You are thereby not so much crowded, and in that way, if you cannot save your hay before, you can after the harvest season. Timothy by itself is played out. It makes mighty good pasture and hay, but with it your land gets no rest—being a greater exhauster than cropping the land.

As I hear a good deal of inquiry about this new kind of clover, I send you these few lines of my experience. I am told it was in use in this section a good many years ago. It is only an old thing revived, and I think you may depend upon it, that it is no humbug.

A ROCKBRIDGE FARMER.

Rockbridge county, Va.

Straight Ditches.

Messrs. Editors,—An article in your May number on bottom lands and crooked ditches, suggested, we presume, by an article from us in your number for March on the same subject, in which we incidentally urged the propriety of having ditches as straight as practicable, is so little in accord with the views therein expressed by us, that we must ask your further indulgence for a few lines.

Your subscriber suggests the advantages of allowing our small

streams to continue in their zigzag, meandering courses, and to give our new ditches the same meandering curves, as the means of keeping them open. This may perhaps do very well where the bottoms are given to grass, and the proprietor an enthusiastic admirer of nature unsullied by the hand of art; but in this utilitarian age, does not suggest itself as appropriate to the mathematical eye of the agriculturist, and we are unable to detail its advantage upon any principle of hydrodynamics. We can very readily understand how the banks of a stream, after having been cleared of their growth, may become more liable for a time to be washed down, and the channel to fill up to some extent, especially if it be made too wide in the effort to straighten its banks, for we have observed that if a stream be widened in any section of its course to a degree disproportionate to the regular calibre of the stream, it will be certain to fill up and assume its normal capacity. We have not observed, however, that streams naturally straight are more liable to fill up than crooked ones; on the contrary, it would be more natural to infer that a straight stream would be more liable to keep open, on account of the greater force of the moving column, and the greater fall acquired by the straight short stream over the long meandering one. But if the streams are left in their crooked condition and the bottom lands cultivated, their soil will be washed away in the natural effort of the stream to pass over them in a straight course during the freshets, but where the streams are straight, the force or momentum of the current keeps in the straight channel, and the water which spreads over the banks is eddy and comparatively harmless. While it may be very true that in straight ditches the land may be more liable to fill up the channel, because there is no lateral force to throw out the washings upon the banks, as would be the case in a crooked current, yet it will be found that the force of the current in such cases will take off more soil during the cultivation of the land than it will return in sand while it remains in grass or uncultivated.

There is no question but that much money has been fruitlessly expended by many farmers under the mistaken idea that a creek which is subject to overflow may be made to contain all the water by being very much widened. On the contrary, it will be almost sure to fill up with washings till its capacity is reduced to the normal calibre of the stream; but if the banks could be diked at the same time that the channel was widened, we have no doubt but that the momentum of the current during freshets would drag out the sand very effectually.

But for fear of worrying your patience with what may seem to you and your readers a subject of but little importance, we will close by urging the owners of our bottom lands not to despair of their value, for we have noticed that our prospecting immigrant farmers look upon our broad bottoms as wistfully as the manufacturers do upon the varied water-power of our dear old State, both of which, we have no doubt, will come up most nobly some day to her recuperation from her present low estate.

Now, Messrs. Editors, though you have doubtless put us down as not belonging to that prudent class of persons who never go into the water till they can swim, we trust you will pardon our temerity in thus asking the honor of another insertion in your valuable journal.

J. V. B.

Halifax, Va., May 19, 1869.

Lynchburg Agricultural Society.

From the *Lynchburg Virginian* we extract the following proceedings of the Lynchburg Agricultural Society:

Pursuant to adjournment, a meeting of the Agricultural and Mechanical Society was held last evening, at Masonic Hall, for the purpose of completing the organization, Dr. Payne in the chair.

The following letter from the President elect was read by the Secretary:

BUENA VISTA, May 8th, 1869.

Alexander McDonald, Esq.:

DEAR SIR,—Through you I present my thanks to the members of the Agricultural and Mechanical Society of Lynchburg for their very kind and flattering testimonial of me in electing me the President of the aforesaid Society. With diffidence and distrust of my ability I accept the same, trusting that an efficient Executive Committee will more than supply all deficiencies on my part.

Wishing that the Society may prove a success,

I remain yours, very truly,

GEORGE P. TAYLOR.

The chairman of the committee appointed to recommend suitable persons for officers submitted a report, which, on motion of Mr. William E. Foster, was adopted, as follows:

Vice Presidents—R. J. Davis, Judge William Daniel, John H. Bailey, Lynchburg; C. H. Lynch, Campbell county; Benjamin Donald, Bedford county; William M. Radford, Botetourt county;

Peter Saunders, Jr., Franklin county; Colonel R. T. Preston, Montgomery county; James Cloyd, Pulaski county; Gordon C. Kent, Wythe county; Joseph W. Sheffey, Smyth county; George W. Palmer, Washington county; General Rees T. Bowen, Tazewell county; Colonel Robert E. Withers, Russell county; William Eggleston, Giles county; Jesse Adams, Amherst county; Patrick H. Massie, Nelson county; Thomas W. Johns, Appomattox county; Walter Coles, Pittsylvania county; D. C. E. Brady, Rockbridge county.

Executive Committee—T. C. S. Ferguson, John R. McDaniel, Ambrose B. Rucker, Thomas H. Early, Dr. E. H. Murrell, James M. Booker, H. C. Wilkes, Dr. J. J. Terrill, Robert C. Burkholder, William H. Hall, Joseph Pettyjohn, Robert W. Crenshaw, John M. Payne, John S. Langhorne, John Otey Taylor.

Secretary and Treasurer—Alexander McDonald.

The committee also recommended the adoption of the following resolution:

Resolved, That the Executive Committee be requested to appoint as speedily as possible local auxiliary committees of three for each county represented in the Society, whose duty it shall be to solicit life and annual members, encourage farmers, mechanics and others to prepare and send forward to the Fairs articles for exhibition, and in every way that to them may seem proper and advisable co-operate with the Central Executive Committee in promoting the objects and interests of the Society.

After the adoption of the report, there being no other business, the Society adjourned subject to the call of the Executive Committee.

IMPORTANT INTERNATIONAL EXCHANGES.—The Commissioner of Agriculture, Hon. Horace Capron, has completed arrangements for exchanges of cereals, rare seeds, and medicinal and other plants, with various institutions and several Governments of different divisions of the Globe. The arrangements include the Governments of Austria, Prussia, China, Japan, Guatemala, and British Honduras; the Botanical Gardens of Melbourne, Australia, and of Kew, in England; the India Museum, in London; and the Cape of Good Hope Agricultural Society.

The hearty co-operation of scientific men representing these Governments and institutions has been secured.—*Nat. Intelligencer*.



Horticultural Department.

JOHN M. ALLAN,

EDITOR.

Special es.

We believe in them. There is such a thing as carrying too many eggs in one basket, but there are more frequently too many baskets with too few eggs in each, to make the carrying either possible or profitable. Especially is this true in horticultural pursuits, and we fear it will prove the reef on which many new beginners will make shipwreck. Our people feeling the necessity that compels them to work less land than they have heretofore done, and reading the glowing accounts of the profits to be found in horticulture, turn to it with most extravagant anticipations, and attempt to truck, grow fruits, make wine, and do all else pertaining to this branch of industry as though it were but one business. That many will fail is a certainty, and none need expect to succeed eminently. Trucking, fruit growing, and wine producing are distinct avocations, and each one is capable of numerous subdivisions. All are profitable if properly managed, but it is an extraordinary man that can do justice to them all. They all necessitate the culture of the ground, harvesting and shipping at the same time, and thus conflicting, some are apt to be neglected, while none will be so well cared for as if the attention were centered on one. Our advice is to fix upon one of the three branches enumerated, being controlled in the selection by circumstances of soil, location, convenience to market, and taste, then choose from the particular branch a few varieties of vegetables or fruits, (as the case may be,) selecting so as to give succession in planting and harvesting, cultivate these with diligence and care, and the results will probably equal one-half of what the papers tell you can be done; if they average one-third you will have no reason to complain, and will certainly grow rich at a sufficiently rapid rate. But if the desire for gain leads you to attempt all, you will but employ yourself in killing the goose that lays the golden egg.

Among all the successful horticulturists and pomologists of the country, we know of none who have not confined themselves to select branches of the business. Of course we would not have any one stake their whole capital and labor on one crop, such as potatoes or tomatoes. But let the vegetable grower be distinct from the fruit grower, and again, let three or four vegetables or fruits be as many as one will undertake to grow largely.

Experimental Gardens.

Editors Southern Planter and Farmer,—In the May number of your magazine, while defending Nurserymen and Florists against the charge of a dispo-

sition to keep the masses in ignorance with regard to horticultural matters, you say "that there is no way of protecting the public against the innumerable humbugs which are daily practiced upon it by scoundrels and charlatans." Now it may, and doubtless will be difficult, if not impossible, to stop charlatanism in this or any branch of industry, but it seems to me that a great deal can be done to lessen the evil, and I desire to call your attention to and bespeak the influence of your journal for one very important step in this direction. We need a State Experimental Garden. Give us this, under the control of reliable and competent parties, and its imprimatur will soon be necessary to the successful introduction of all novelties, and thus an effectual bar will be put upon the efforts of quacks to vend their worthless wares. For it being the duty of the managers of such a garden to procure and fairly test all the new varieties of fruits, flowers and vegetables, and to publish regular reports upon them, all could, and the vast majority of persons would await these reports before investing. The proposition commends itself as much to the professional Nurseryman and Florist as to the community at large. The honest dealer is as anxious to sell as his customer is to buy nothing but really good articles, and yet he is compelled, under existing circumstances, to procure at high prices and cultivate all the novelties which annually flood the market, or risk falling behind his confreres if he does not. These he sells on the recommendation of the originators, and while not responsible for any deception that may exist, he is aiding too frequently in the dissemination of worthless trash. To the honest grower an experimental garden would be an assistance and protection, and I doubt not all our professional friends will yield a hearty co-operation in establishing one in our State. To do this will not be very difficult. In the first place, we are to find some organization to undertake the management, and then to secure the requisite funds, and this is already at hand. Let the State Horticultural and Pomological Society take the control. It is appropriate to the aims and objects of that Society, and there can be no doubt of the ability and capacity of its officers and members to conduct it. The next point may seem more difficult, but it is not insurmountable. The capital required at the outset would not be large, and with proper management the grounds could soon be made self-supporting by the sale of their productions. If you, Messrs. Editors, agree with me in the desirability and feasibility of this undertaking, will you not develop some plan by which it may be put in operation at an early day, as well as enter more fully into the details of the subject? You are familiar with these matters, and can doubtless suggest the best course of action.

N.

[We heartily endorse our correspondent's suggestions, and call upon the Horticultural and Pomological Society to take steps to test the practicability of establishing an Experimental Garden. We think it feasible. We know it to be desirable. As to a detailed plan of operations, we beg leave to say that our correspondent is best fitted to give this, and we hope he will in our next develop such a plan. In the meantime we shall be glad to hear from our florists, vegetable growers and nurserymen on the subject.—Eds. S. P. & F.]

Roses.

June, with its wealth of roses has come again, and every day develops new beauties, as we watch with intense interest the unfolding of old and new sorts.

Among the latter there are some striking varieties, some, to be sure, of not very recent origin, but new to us because we were deprived of access to the rose world for several years. The list of remontant roses has been largely increased, and in dark colored kinds perfection seems almost to have been attained. From the brightest scarlet to the darkest maroon, every shade may be had, and that in roses of perfect form and habit of growth. In this class, the following list would seem to comprise everything that could be wanted: Dieul de Prince Albert, Emperor Morocco, Maurice Bernardin, Richard Smith, Vulcan, Prof. Koch, Senateur Vaise.

There is not so much improvement in remontant roses of lighter colors, but some of the older varieties can hardly be surpassed. Augusta Mie, La Reine, Henry IV, Madam Victor Verdier, Oderic Vitale, and Triomphe de Versailles have no superior in their class. For the finest white roses we are obliged to leave this class entirely, and even then the list is a short one. So few, indeed, are the kinds of really fine white roses, that they are always scarce and high priced. Until fully expanded, Lamarque is pure white; Mad. Plantier among the noisettes is this season doing remarkably well, and promises to be a fine bloomer in this climate. Washington is also a fine rose, but becomes a little ragged. Among the tea scented roses, there are many that are *nearly* white, but few that are *purely* so. Bride of Abydos, Camelia, La Belle, Devoniensis and Sombreuil usually pass for white, though not entirely so. Apropos of tea roses, we must not forget to mention the old "Flavescens" redivivus. This has been almost overlooked for years past in the universal search after new kinds, but in our whole collection (over one hundred varieties,) we do not hesitate to pronounce it unsurpassed for the beauty of its bud and its exquisite coloring.

About many of the valuable standard roses hardly anything need be said, for most probably all our readers are well acquainted with such kinds as Souvenir de la Malmaison, Luxembourg, White Daily, Safrano, Hermosa, &c. These are or should be in every one's collection, being perfectly hardy in our climate, and giving a continuous and profuse bloom throughout the season. Our people should distinctly understand one thing, viz: that the long list of roses with florid descriptions usually found in catalogues from the North contain for the most part only those kinds which will grow without protection in the open air in *that climate*, while they barely mention all those more delicate and much more beautiful varieties which stand our milder winters without covering of any kind.

MILDEW ON ROSES.—*H. C. H., McGregor, Iowa.*—"Will you please to tell how to rid my rose bushes of a white mould like substance that comes on the young leaves and stems. Soon after its appearance the leaves wither and will crumble to the pressure of the fingers. Have tried syringing with water, with soapsuds, and with sulphur mixed with water, but all to no purpose."

[Mildew is very often the consequence of disease—in roses particularly so. You will most likely find, on examination of your rose roots, that the *fibres* have been destroyed by over watering. The best remedy will be to take them at once out of the sour soil, re-pot in sweeter earth, and be very careful about watering, until the pots get full of new roots. Sulphur in water or soapsuds will frequently cure mildew when it spreads without much root disease.—*Gardener's Monthly.*

Tomato Sugar.

Editors Southern Planter and Farmer :

GENTLEMEN,—On page 175 of the March number of your paper is an extract from the *Gardener's Monthly*, headed "Tomato Sugar," in which the writer says the tomato will yield 1,000 bushels per acre, and 100 bushels will press 4,000 to 5,000 gallons of juice, which, if distilled after the "proper ingredients" are added, &c., will make 500 to 700 gallons of good proof spirits, &c. Now can you tell me what the "proper ingredients" are, and the quantity to be added? I am planting a small crop of tomatoes with a view to test the experiment, and will be very greatly obliged if you will inform me on this subject, either by letter or through the *Planter and Farmer*.

R. H. ALLEN.

[We clipped the article referred to by our correspondent from the *Gardener's Monthly*, and are totally ignorant of the process of manufacture. If it is not a secret, or if a patent has not been applied for, perhaps the Editor of the *Monthly* can give the desired information, which we shall be happy to publish.
—Eds. S. P. & F.

Machodoc Farmers' Club, Westmoreland, Va.

REPORT OF THE COMMITTEE ON FRUIT GROWING AND TRUCKING.

MR. PRESIDENT,—Your committee being themselves inexperienced in the art of trucking and fruit growing, and being unable to get sufficient data from the experience of others in this section of Virginia, from the fact that none of our neighbors have ever given their attention to raising fruits or trucks for market, beg leave to embody in their report the following article on the subject under consideration, from the pen of Mr. Edmond Morris, of New Jersey.

"The conditions necessary to prosperity in rural life are various. In horticulture especially, the primary one is that of *being as near as possible to the largest market*—one which no supply can glut. There are hundreds of villages in which the product of two acres of strawberries would prove an overwhelming surfeit! but New York and Philadelphia have never yet been glutted. Thirty odd years ago, before the railroad between these cities was built, we had the same teeming sandy loams that we now have, as ready then to yield up a generous fruit crop as one of corn or rye. But no market was at hand. Philadelphia, only twenty miles away, was too far to wagon to it the perishable fruits. The distance, already great, was made greater by reason of roads intolerably sandy. It was therefore useless to produce fruit which it was impossible to deliver promptly to the consumer.

"But the opening of the great railroad between the two cities quickened the whole fruit region of New Jersey into a golden life. It traversed that peculiar belt of land in this county, which has since become famous for its fruit crop, and created a market for whatever it could produce. It supplied the sole want of our location, by letting out our products, and letting in a stream of wealth from distant cities. Heretofore we had glutted every little village community with strawberries at sixpence a quart; but now we were left free to grapple with the great city appetites, whose consuming voracity we had no means of estimating. Our warm and genial soil, moreover, ripened all the

fruits a week or ten days earlier than New York or Boston had been accustomed to; and prices went up encouragingly under the new demand upon us. Sixpence ceased to be the standard for strawberries. Even the heretofore surfeited villages were compelled to advance with the improved tariff. Demand stimulated production. Production was found to be exceedingly profitable; it brought in an enormous aggregate of money, with which manures were purchased, land was enriched, better houses and fences were built, and splendid gravel turnpikes superseded the old sandy thoroughfares. The foundation of this remarkable transformation lay in that unlimited market which the railroad brought to our doors. Without it we had been a hissing and astonishment to the world; but with it, if the hissing has ceased, the astonishment continues.

"Looking over a recent agricultural paper, I came upon the following paragraph from the pen of a Vermont farmer: 'My farm consists of a hundred and twenty-five acres, and had been let for many years, and was generally considered run out. Sales of produce and stock amounted to \$1,699.88. The increase of stock was enough to balance the sales. Expenses of all kinds, together with \$300, which I charge for my own work, \$967, leaving a balance for profit of \$732 68. This I think is better than money at six per cent., and answers the question as to whether farming is profitable.'

"I admit that up to the advent of the railroad the Vermont example of eight dollars an acre may have been thoughtfully occupied by hundreds of cultivators in this vicinity. They, like the Vermonter, could do no better, and were contented, for they also counted even that a success. But that generation has left the stage of active life, and been succeeded by another, which, like our horses, has been educated to the railroad.

"Within twenty years, rye has given place to asparagus, which we plant in fields of from twelve to twenty acres. Well planted, it will cost a hundred dollars to set an acre; but it will continue productive for twenty years, and if properly cared for, will clear two hundred dollars annually. It comes gratefully into market, directly after the ground is clear of frost, and is eagerly sought after in every market. There are men all round me who have made small fortunes out of this single article.

"Then comes the strawberry, for which there is the same ever recurring public impatience. I have seen patches of this fruit, from which the runners had been carefully cut, and the plants covered with coarse manure in winter, from which a clear profit of \$500 per acre had been realized. I know there are hundreds who do not clear one-fifth of this per acre; but the difference does not lie either in the soil, the berry, or the market, but exclusively in the man. It is not muscle that produces the strawberry crop which carries off the top price in the market, but brains. Yet so wonderfully hardy is this plant, and so generously does it bear even under the unkindest treatment, that the veriest sluggard has been known to greatly exceed the Vermont standard of eight dollars per acre. Thus one acre of strawberries can be made to produce as much as two of asparagus. These continue in bearing until the raspberries come in. Two acres of raspberries will require no more labor to keep them in condition than one of strawberries; yet it is an every year result to take three or four hundred dollars' worth of fruit from a single acre. The reasons for this are conclusive. The plants do not blossom until after the very latest frost has fallen. The improved varieties are enormous bearers, making the aggregate receipts from an acre so large as to be almost incredible. Even from the com-

mon purple cane variety I have known sixteen hundred dollars' worth to be sold from a field of three acres. From all the facts occurring around me, it would seem impossible to suggest a more advantageous investment than that of raspberry culture. This fruit has hardly disappeared from market, when the blackberry comes in to gratify with a new sensation the still unsated appetites of the millions who reside in cities. Many varieties of this fruit are competing for public preference. The *Dorchester* and *Lawton* are most generally known, and have been longest tested. Last year one of my neighbors sold \$800 worth of the *Dorchester* from the first week's picking of two and a half acres. If not bearing so profusely as the *Lawton*, its earliness brings up the difference in the cash results. Two acres in this fruit will require less looking after than one of strawberries. But the grower of one berry should have all three. As they ripen in succession, not interfering with each other, a continuance of cash receipts is secured until peaches and grapes come in. The same boxes answer for the three crops. If one of them should be shortened by rain or drought, the others will be quite sure to escape. Thus our eggs being in different baskets, we can afford a smash up in one of them without a ruinous result.

"Here are say seven acres devoted to asparagus and the berries, planted and cultivated as a specialty. There will be no really hard work in properly attending to them. It is care, attention, with brains, that is required—more head working than hard work. How astonishing! the contrast between the product of such a field and that of the Vermont farmer, who toiled over a tract of a hundred and twenty five acres to secure a return of only seven hundred and thirty-two dollars."

But changing off from fruit to truck, let us give some items from the note book of a small trucker. He marketed a hundred dollars' worth of tomatoes from one third of an acre; from a quarter acre of cantaleups, fifty dollars; from a quarter of an acre in early cabbage, fifty dollars; from two and a quarter acres in turnips and tomatoes, four hundred and eighty-eight dollars and fifty cents; and from the fortieth of an acre in onions and peppers, twenty five dollars—making a total of seven hundred and eleven dollars and fifty cents from less than four acres of extremely light land, or within a trifle of the gain upon thirty times the same number of acres devoted to grass and grain in Vermont. True, the Vermont farmer is not alone. Even the choicest Pennsylvania land, within thirty miles of Philadelphia, sometimes affords an equally meagre return. A Pennsylvanian came here recently in search of a location among us. He owned a farm of a hundred acres, worth fifteen thousand dollars, and mentioned that the County Agricultural Society had awarded him the premium for the best cultivated farm in his county. Here was the endorsement of competent judges that he understood his business. But he admitted that his profits at the year's end had only once amounted to five hundred dollars. Statements of similar unpromising character have been made by strangers from the North and West. These cases are cited only by way of contrast with the results of fruit growing and trucking in a region where the markets are so large that everything that is produced commands the highest price. But it must not be supposed that all fruit growers succeed; such is not the fact. Nor do all lawyers, or doctors, or storekeepers. These several occupations are intrinsically desirable, and we see that men grow rich by pursuing them. But success depends as much upon the man as upon the occupation. A careless, idle, inattentive horticulturist will fail as certainly as a shiftless

storekeeper or lazy doctor. Success comes of industry and brain; without them, one need not hope for even eight dollars per acre.

While the profits of fruit growing and trucking, as here recorded by Mr. Morris, seem to us, unaccustomed to such large profits, to be very encouraging, we must bear in mind that this is written of New Jersey, a thickly settled country, in easy access of two of the best markets in the world. And while we have as good soil and climate as any on the earth for trucking and fruit growing, yet we would be rather sanguine to expect such great results, certainly in any very short time. We have many difficulties to contend with in changing our system from grain growing to trucking and fruit growing. In the first place, Mr. President, we would have to confine our operations to a much smaller surface, with fruits and trucks exclusively, than under our present system of *large farms* and mixed husbandry. And then, Sir, what becomes of the surplus lands? We would undoubtedly have to leave it to the tender mercies of briars and broom sedge, or give it up to worthless tenants, probably the worst of the two evils. Another difficulty in the changing from our present system to fruit growing and trucking is the work of transportation. We now have a *tri-weekly line* of steamers to Baltimore and Washington. We think that to make trucking and fruit growing very profitable, it will be necessary to have at least a daily line of steamers to those cities. Gentlemen may say, raise the fruits and trucks; the steamers will come. Be that as it may; but your committee are of the opinion that it would be well, at least to have some assurances of daily transportation to the cities, before recommending a change from our present system.

Under these circumstances, Mr. President, your committee are forced to the conclusion, that for the present, at least, and until our surplus lands are sold, the country more thickly settled, and a daily line of communication established with the cities, we, like the quiet Vermonter, will have to be satisfied with the profits of eight dollars per acre.

WILLOUGHBY NEWTON, JR.,	} Committee.
B. F. BROWN,	
S. R. JACKSON,	

Strawberry Exhibition.

The Virginia Horticultural and Pomological Society held their first fruit and flower exhibition for this season at St. Alban's Hall, in this city, on the evening of May 27th. It was a magnificent success, and we regret our inability, owing to the late date of the exhibition, to give a full report in this issue. All that we can do at present is to enumerate the exhibitors, and defer to our next a list of articles and the awards of the Committee of Examination:

Dr. J. G. Beattie, Messrs. Wm. Coulling, J. W. Lewellen, W. L. Harrison, W. W. Turner, J. E. Stansbury & Bro., L. Chamberlayne, Wm. M. Ledley, A. M. Morris.

All exhibited one or more varieties, and all of them were remarkably fine specimens. Messrs. F. Davis & Co. exhibited eighteen, and Allan & Johnson twelve varieties, most of which were very fine.

The rooms were elegantly decorated with plants and cut flowers by Messrs. Allan & Johnson and John Morton. The specimens of geraniums were remarkably fine, and a stand of cut flowers, interspersed with strawberries, ar-

ranged by Mr. Morton, was exceedingly beautiful and very much admired. Some trays, designs and baskets of cut flowers exhibited by Mrs. Clopton and Miss Webb attracted a great deal of attention and added largely to the beauty of the tables. If all our lady amateurs would only imitate the example of these, but little would be left for the professional florists to do in getting up a handsome exhibition.

Time and space prevent further remark. When the report of the committee appears, we will give with it a more extended description of this most happy exhibition. We hope the Society will follow it up with melon, peach and grape fairs in the proper season.

TEA IN THE SOUTH.—The *Tribune* believes in tea in the South. It has had some from there, and found it good. There is no doubt of this. It was proved before the rebellion. The trouble was, that even with slave labor it could not be produced as cheaply as imported from China. With free labor, now the difficulty will be still greater. Here will be another question for the politicians—whether it will or will not pay to protect this new interest.—*Gardener's Monthly*.

[Does it ever pay to have *protection* for anything? Encourage as much as you please, but the less *protecting* you do the better for all parties. We would prefer that the politicians should let horticulture alone, unless they can do better for it than most other things they undertake to manage.—Eds. S. P. & F.]

Remedy for the Striped Bug on Watermelons, and that whole Family of Plants.

Having exhausted my patience in trying various remedies I saw recommended for protection of my watermelon, muskmelon, cucumber, cymling and pumpkin plants, and losing a large portion of them by that gardener's pest, the lady bug, or striped bug, I gave up in despair; and about a week since, thinking I would try and revive a few plants of my first planting of muskmelons, I poured a pint of water on the plant just at or about sundown; the bugs having secreted themselves in the top of the hill, immediately flew out, and took to the grass and weeds; the water making their place of secretion round the stem of the plant a sort of mire, they did not return during the night, and the next morning, before the mud dried to their satisfaction, they had taken refuge from the heat somewhere else. Having repeated the experiment on a larger scale, I have not since seen but one or two plants treated in this way that have been troubled by them; and these I am not certain have suffered by the bug, as they did not appear on the hill on examination.

Respectfully,

WM. D. PEMBERTON.

Household Department.

Lamp Explosions.

Messrs. Editors,—The great number of serious accidents which occur every year, from the breaking or explosion of lamps, makes it a subject of very general interest. It may not be so with your city readers, who always have gas to burn; but with us who live in obscure places, remote from gas works, the question between a candle and a lamp—between a very poor light and a tolerably good one—between a somewhat expensive material (if we burn *good* candles,) and the very cheap oils now in use, is a question of no little practical importance. We want a good, cheap light; and, for the time being, kerosene is the most reliable, as well as the most available material for producing it. But many a one seriously asks the question, whether the danger attending its use does not more than counterbalance all the advantages it affords. I think not. It is my firm belief that nearly, if not quite all accidents that have happened from explosions of kerosene lamps might have been obviated; and that, with proper care, future misfortunes may be entirely prevented. But to do this the public must be instructed—

1. As to the nature and true cause of explosions; and
2. As to the best means of preventing them.

A little *common sense*, with the aid of a few simple chemical facts, will enable any one, who will take time to read what I am going to write, and to reflect a little upon the subject, to understand and apply practically both of the points above stated.

Let us, then, first look into the nature and cause of explosions. This requires a few fundamental facts, which have been fully established by numerous experiments, and which may be very briefly stated as follows:

1. The oils employed for illuminating purposes are never explosive, so long as they remain in a *liquid* form. They must first be converted into vapor or gas.
2. The combustible vapor which rises from warm kerosene, alcohol, camphene, or benzene, is not explosive when *alone*. It must first be mixed with oxygen or air.
3. Whenever any very combustible vapor is mingled with *air* in due proportion, it is *always explosive*.
4. The more volatile the oil, the more likely it is to form an ex-

plosive mixture with air. Hence camphene, benzine, anchor-oil, and the "crystallized oil" (so called), are all much more dangerous than the properly rectified, and much less volatile kerosene.

With these general facts before you, it is not difficult to understand the theory of lamp explosions.

Suppose, in the first place, that your lamp is entirely full when you light it. There is no room for an accumulation of air, until a portion of the oil has been consumed; and before any considerable space can thus be left vacant, the wick tube has become hot enough to produce oil vapor in sufficient quantity to exclude most of the air, so long as the lamp continues to burn. But suppose half the oil to be consumed, and the lamp to be extinguished, and allowed to cool—say it is left in that condition until the next night; in the meantime the empty portion has become filled with air. If then it be again lighted in that condition, the vapor of oil soon begins to be formed around the heated wick-tube and cap, on that part of the surface within the cavity of the lamp; and this vapor, mingled with the air previously accumulated within the same cavity, forms an explosive mixture, ready to do its work of violence whenever the flame can find an entrance.

The best means for avoiding danger is, in the first place, to procure a good quality of oil (the less volatile the better); and, in the second place, to fill the lamp entirely *every day*, so that there shall be no room for an accumulated mixture of air and vapor to create an explosion.

J. L. C.

From the *New York Journal of Commerce* we extract the following as a further caution to our readers:

THE SALE OF EXPLOSIVE FLUIDS.—A report of April 26 from Professor Chandler, chemist to the Board of Health, shows that the last ordinance of the Board concerning explosive fluids is being openly violated by numerous retailers. The ordinance was passed January 29, 1865, and reads as follows:

"No petroleum oil, kerosene oil, or other liquids having like composition or qualities as said oil, shall be kept or offered for sale as a burning fluid for lamps or any like receptacle for the purpose of illumination, nor shall such oil or fluid be purchased for use, or be used as a burning fluid for any such lamp or receptacle, or be kept for such use, unless all such oil or fluid shall be of such quality and ingredients that it shall stand and be equal to both the follow-

ing tests and conditions, to wit: 1st. That it shall not take fire or burn at a temperature below 110 degrees Fah. 2d. That it shall not evolve an explosive vapor below 100 degrees Fah."

Of a number of samples examined by Professor Chandler, not one is of the standard quality, as all evolve explosive vapors below 100 degrees Fah. In two of the samples, however, while the vaporizing point is a trifle below 100 degrees Fah., the burning point is several degrees above the standard temperature, 110 degrees Fah. He considers these two samples as coming so near the requirements of the ordinance as to warrant their passing as safe. The other samples, ten in number, are positively dangerous. Four are not kerosene oil at all; they are benzine or naphtha—the most dangerous portion of the natural petroleum, the portion which is separated entirely by all honest refiners and rejected, because as little as two or three per cent. is sufficient to render good kerosene unsafe. The benzine is generally sold under the name of "liquid gas," which very appropriate name should deter every person from using it. It is the most dangerous substance that can be employed in a dwelling, and has been the cause of all the frightful kerosene accidents, either when sold by itself or as an impurity in kerosene. Every oil that can be lighted with a match is unsafe. The public is most wickedly misled by the venders of "patent safety lamps," in which, they say, any oil, even benzine, can be burned with safety. Benzine and dangerous kerosene cannot be made safe for use in dwellings in the hands of women and children, no matter what lamp is employed. One lamp may be a little safer than another when in perfect order, but lamps will break, the oil will be spilled sometimes; the wick, too, may be carelessly left unscrewed; in numerous ways the oil or its vapor may be brought in contact with a flame. What is wanted is safe oil; with it all lamps will be safe. The samples numbered from five to ten, inclusive, are average specimens of the kerosene which is now sold generally at retail. They all contain more or less benzine, and consequently fail to come up to the requirements of the law. They are dangerous. In the report dated January 11, 78 samples were recorded, not one of which was safe; so a slight improvement has taken place, though at that time we found only one dealer who retailed benzine, while we now find four.

Most of the samples on which Professor Chandler bases this report were obtained in the region between the Bowery, Houston street and the East river.

The Louisiana sugar crop promises very well.

Canning Fruit.

First—Can the fruit the same day it is gathered. More than half the secret of having fine preserved fruit lies in this simple direction.

Second—Never can fruit without adding as much sugar to it as you would to prepare it for the table. This is imperative, else your fruit will inevitably be leathery; cook it in, I should say at the rate of one-quarter of a pound to every pound of fruit, at least; but taste and try, as I did, and when it suits your palate, cease from all saccharine matter.

And now for the *modus operandi*. Pare and extract the pit; cut into halves and plunge in cold water until ready to cook, else your peaches will be black; this, of course, does not apply to other kinds of fruit. Place your cans in any vessel where they can stand at least half way up in boiling hot water, which keep so until sealed. I usually take a large dripping pan and put it on the top of the stove at one side, while my preserving kettle is on the other. Make your syrup, and when it comes to a boil, put in your peaches and let them cook (if clings) until you can pierce with a piece of broom corn; if freestones, when the syrup boils up over them the first time, skim out and put into the cans. When the latter are full of the peaches, fill up with boiling hot syrup, wipe off the tops with a rag wet with cold water, being careful that no juice remains on them, then put on the covers, remove from the water to the stove hearth, and seal.

Everything must be hot from the beginning to the end; hot syrup, hot cans, hot fruit, hot sealing wax, and harder than all, hot and blowzy hands and faces, just when the thermometer stands at blood heat in the shade.

All small fruits are subjected to the same process, except that the rule for them is simply to allow them to come to a boil, and not remain longer in the syrup. Strawberries, to retain their color and flavor, require more sugar, and to be put into glass, stone, earthen, or anything but tin. The same is true of blackberries. Tomatoes I scald, peel, and then bring to a boil again, with a little salt added, when I put them in new tin, and seal. I have never been fortunate with glass or earthen. If stone jars are used, be sure that you buy dark colored, well baked and glazed ones, not the yellow. Further this deponent saith not.—*Farmer's Advertiser*.

The premiums offered for the next Ohio State Fair amount to \$16,500.

THE SOUTHERN PLANTER AND FARMER.

RICHMOND, VIRGINIA., JUNE 1869.

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Editorial Department.

How to get Money for Farming.

In the May number of this paper we gave an example of rotation of crops under a system which involved an average expenditure of \$4.81—say \$5 per acre in a rotation of eight years. Looking at the expenditure in other countries, and on lands of the highest degree of fertility, we consider the outlay too small. Look, for instance, at England. There, owing to the large accumulation of money, and the social advantages that attend the ownership of land, the price is so high—from \$200 to \$300 per acre—that the same party rarely owns and farms a large tract. It is most usually rented out, the landlord, whose security is absolute, getting in that way an interest of about three, and the tenant farmer making about ten, per cent. As an instance of this, we cite the case stated by Mr. Mechi, in his very interesting work, "*How to Farm Profitably*," of a tenant farmer in Norfolk, who, in a lease of twenty-five years, on a farm of 1200 acres, had expended in artificial manures and oil cake the sum of £60,000, which is about \$10 per acre per annum, and had thereby raised the value of the land to four times its worth at the commencement of the lease, and had increased the rental 300 per cent. We have one or two such cases in Virginia, and one in particular comes to our memory where the proprietor, by an application of bought manures which his neighbors called extravagant, made for eleven years [that, too, when the joint worm prevailed for a good part of the time around him,] an average of twenty-three bushels of wheat per acre, and other things in like proportion.

The whole of Eastern Virginia must do something of this sort, or the people will be crippled for years, and many of them in a very few years must be hopelessly ruined. A rapid process of disintegration is now going on; and it can be measured with sufficient accuracy to set us all to serious thinking. We have been at some pains to prepare a general statement of the case, which we think approximately true, or sufficiently near the truth to serve as the basis of such reflections as our remarks may suggest to others.

The condition of the State, at least from salt water to the mountains, is worse financially than that of any other of the South. They have recently felt

the benefit of a crop of cotton sold at extraordinary figures, and their debts have been generally settled in some way or other. Our debts still hang like a millstone around our necks. The stay law, which folly passed, but which wisdom must now treat as a fact, has but added to our embarrassments. It forced suits which otherwise would not have been brought, and induced mortgages which otherwise would not have been demanded or given. Thus we know of one small county, in which, to say nothing of judgment liens and executions, there are two hundred deeds of trust recorded; and if the case is extreme, it is yet truly illustrative of our deplorable condition. It is a fact which it were useless to deny, that poor as Virginia is, she is every day getting poorer; deep as she is in debt, she is every day getting deeper. Since 1865 the crops have failed every year in far the larger part of cis montane Virginia, and a painful interest is felt in the approaching harvest; the farmer is watching the weather like a sailor on a lee shore, and the anxious merchant asks each country acquaintance, "How are the crops?" Let us express this feeling in a definite proposition. We learn that in the best districts of the above territory it is considered fair to rent land for one half its gross produce. This means that that portion is necessary to maintain and educate the landlord's family. But in the far greater number of the farms that proportion will not do it—certainly has not done it in the period specified; for we are told that in the majority of cases wheat, corn and tobacco have shown a positive loss.

But, to begin the argument, allow that one half will answer. Then the other half is absorbed in production, and in replacing wear and tear. That half, then, represents all the productive force, except the land. That productive force is represented by cash. That cash is an advance at a rate of interest not less than 18 per centum per annum, most generally obtained on short notes; made, accepted, or endorsed by a factor, which are heavily curtailed as the condition of the credit. This condition forces premature consignments of produce; and this again operates a heavy discount on the price. Thus the difference in the price of tobacco sold in winter and in summer order is assumed at 20 per centum; the difference in wheat delivered in haste, and at leisure, is not less; and the difference in corn is believed to be still greater. Add this to the interest; and the half, which carries the whole, is taxed 38 per centum—say 40 per centum for convenience in calculation. At this rate of annual charge on production, the whole revenue of the farm is sunk in five years, and the farmer is ruined unless he can sell his land, or protract his agony by a mortgage. But as a practical question he can do neither. The present rate of sales, even at the low prices realized, is too slow to afford relief; and money cannot be had on mortgage now, as it could have been and was, readily enough, when each farm was manned with its complement of slave labor. As salt, composed of chlorine and sodium, losing its chlorine on decomposition, becomes only soda, which by no means answers the ends of salt; so the relations of land to money have become entirely changed by the abolition of slavery. "The salt has lost his saltiness" and become a very different thing. Unable, then, to borrow or sell, and certain to exhaust our credit at present rates in five years, the question for rational men is not, shall the negro vote, but shall we keep our homes—ancestral oaks included—and get bread for our families?

The near prospect of this ruin not only to our fortunes, but to our characters, (for universal bankruptcy means general profligacy,) should direct our thoughts to some practical mode of averting the catastrophe, and, if possible,

by a course which shall lead to general prosperity. If such measures of relief can, at the same time, be contrived as to render probable some reasonable compromise of the debts which now hang suspended like a sword over so many of our people, it will conduce by that much more to our complete restoration.

To this end we would suggest the passage of a law which shall make every advance from a commission merchant to the farmer operate *pro tanto* as a lien, or, if necessary, an attachment on the produce derived from the advance, and thereby secure the merchant against any losses but those resulting from the accidents of the seasons and general casualties. There can be no doubt that, in addition to other causes, the difficulty of obtaining money now is greatly increased by the risk of having the farmer's produce bound by judgments or executions, and by the fear, not wholly groundless in a good many cases, that the man who obtains an advance from one party will make his consignments to another. And if this risk can be nullified, or even greatly lessened, agriculture will be the first to feel the benefit. How great it will be, both directly and indirectly, it is not worth while now to estimate, as we aim to suggest rather than to direct. The sort of law we propose is no new thing. We heard of it years ago in Louisiana, and North and South Carolina have both adopted it.

We have taken the trouble to get a copy of the statute of North Carolina, which we here present, and commend it to the attention of our readers, with the remark that possibly it does not go far enough in the security it affords the merchant:

PUBLIC LAWS OF NORTH CAROLINA 1866-'67.

An Act to Secure Advances for Agricultural Purposes.

SECTION 1. Be it enacted by the General Assembly of the State of North Carolina, and it is hereby enacted by the authority of the same, that if any person or persons shall make any advance or advances, either in money or supplies, to any person or persons, who are engaged in or about to engage in the cultivation of the soil, the person or persons so making such advance or advances, shall be entitled to a lien on the crops which may be made during the year upon the land in the cultivation of which the advances so made have been expended, in preference to all the liens existing or otherwise, to the extent of such advance or advances. Provided, an agreement in writing shall be entered into before any such advance is made to this effect, in which shall be specified the amount to be advanced, or in which a limit shall be fixed beyond which the advance, if made from time to time during the year, shall not go; which agreement shall be recorded in the office of the Register of the county in which the person to whom the advances are made resides, within thirty days after its date.

SECTION 2. Be it further enacted, That if the person making such advances shall make an affidavit before the Clerk of the Court of Common Pleas of the county in which such crops are, that the person to whom such advances have been made is about to sell or dispose of his crop, or in any other way is about to defeat the lien hereinbefore provided for, accompanied with a statement of the amount then due, it shall be lawful for him to issue his warrant, directed to any of the Sheriffs of this State, requiring them to seize the said crop, and after due notice, sell the same for cash, and pay over the nett proceeds thereof, or so much thereof as may be necessary, in the extinguishment of the amount then due. Provided, however, that if the person to whom such advances have

been made, shall, within thirty days after such sale has been made, give notice in writing to the Sheriff, accompanied with an affidavit to this effect, that the amount claimed is not justly due, that then it shall be the duty of the said Sheriff to hold the proceeds of such sale subject to the decision of the Court, upon an issue which shall be made up and set down for trial at the next succeeding term of the Court of Pleas and Quarter Sessions for the county in which the person to whom such advances have been made resides. Provided further, that said lien shall not affect the rights of landlords to their proper share of rents.

SECTION 3. Be it further enacted, That this act shall be in full force and effect from and after its ratification.

Ratified March 1st, A. D. 1867.

Under this law the farmer or planter can get supplies to an agreed extent from his commission merchant on better terms, and to a larger amount, because the merchant will have better security than he has or can get at present.

Next in importance, is an alteration of the usury laws to conform more nearly to the daily transactions of men. We do not propose to go over the arguments on that subject; so often made; so often disputed. The fact that we daily pay at least three times the amount of interest allowed by law, and that the borrower is more anxious than the lender to break that law, the fact that the Federal Government, wanting all the money it can get, pays a higher interest in gold than we are allowed to pay in greenbacks—these are arguments which cannot be answered.

But whatever the proper measures may be, and however necessary, we can not get them without a good Legislature—one that sympathizes with the property holders of the State, and commands their respect and confidence. This we can have if we are fit to have it. But we must change from what we were in the past, before we can expect that to change. We know that it is common to decry legislative bodies; but so far as our observation goes, the truth appears to be that, as a general rule, the representative is about as good, if anything better, than his constituents, and under universal suffrage it cannot well be otherwise. If in the past, the Legislature of Virginia branded Kentucky tobacco "*Western*," and so drove it from the marts of Virginia; if the reform of the inspection laws was defeated at one time by the activity of office-holders appealing to prejudice and social influences, at another by the efforts of a very worthy incumbent who plead that political services entitled him to his office and its emoluments, and therefore it was reserved to all; if the law to allow a departure from the usury laws only to a limited extent, and for commercial purposes, and to put Virginia, that far, on a level with New York, if such a law failed because some members owed money and feared to be sold out under deeds of trust, and some members loaned money on usury and feared the imputation on the hustings that they were endeavoring to legalize extortion; if these reforms, which men of reflection knew to be salutary, were defeated by such men and such motives, it was simply because the constituent mass was, as a mass, no better than the governing body. And so long as that mass fails to inform itself, or to put itself under the lead of those who have informed themselves, so long will Virginia be weak and poor and despised. But, *she need not be*. We have a country of which the cavalier who first explored it said, that "heaven and earth never agreed to frame a better place for man's habitation, were it

fully *manured* and inhabited by industrious people." And if we have half the spirit and energy of Captain John Smith, we need not despair. Spoiled as we have been in our homes, oppressed as we are, and threatening as is now the aspect of things, we yet owe it to our lineage, and traditions, not to despair, not to flinch, not to look at the smouldering ruins of the past, but to take counsel of the present, and snatch hope from the future.

"The Pleasure-house is dust:—behind, before,
This is no common waste, no common gloom;
But nature, in due course of time, once more
Shall here put on her beauty and her bloom."

Cruelty to Animals.

A subscriber sends us the following communication on the above subject. We note what he says about the philanthropy of the North on this matter. They have a journal or two up there upon this subject, and a kind friend has sent us several samples of the paper—on which we have to remark, that if "charity begins at home," then we think kindness to folks ought to take precedence of kindness to animals. Now we think the amount of crime and pauperism in Massachusetts, from the murder of grown men to the destruction of foetal children, is admitted to be such an evil there that the churches have had to take up the subject, especially the latter branch of it, and have made such practices the subject of severe denunciations, as well as more solemn and deliberate written warnings.

But more than this, the kind hearted humanitarian who shudders at the bleating of a lamb, or the tying of a sheep's legs, thinks it his duty to put white men under the control of black men, and to bind the white man fast in the fetters he has removed from the black. We would suggest that the constitution of the Society be so enlarged as to include men, at least white men, among the animals that claim the sympathies of the merciful North; then perhaps we might not have so much occasion to say and feel as we do now—

"Man's inhumanity to man makes countless thousands mourn,"

THE MERCIFUL MAN IS MERCIFUL TO HIS BEAST.

Messrs. Editors.—Much has been done and written at the North about cruelty to animals; and the reforms proposed were ridiculed, as well as the men who ventured to condemn the cruel practices of butchers and dealers in cattle generally. But the reforms were carried on successfully, and now you see no such revolting exhibitions in New York as were everywhere to be seen before the subject was brought before the public. No more tying of feet together, and throwing into wagons, of sheep, calves or hogs. They are all carried in vehicles in a way to allow them to stand up and turkeys, geese and fowls of all kinds are kept, and carried so as to avoid unnecessary suffering. No subject connected with the supply of food for man is, in my opinion, of more importance than this, and I would be glad to subscribe, in connection with others, for the best essay on the subject. In that way it might make an impression on the public mind that no law could effect. The noble horse, the useful mule, the ox, the cow, &c., would all come in for a share of our sympathy. The useful birds would no longer be wantonly shot by cruel boys and boyish men, and even the turtle would no longer be thrown on his back, and be made to linger in torment at the restaurant doors as a show.

Give me this much of your valuable space, and see if some other and more able writer will not second the motion of

A SUBSCRIBER.

Richmond, May 31, 1869.

Calcareous Tufa.

The thing which passes under this name is a soft, porous limestone, containing from 60 to 90 per cent. of carbonate of lime. It occurs in masses sometimes as large as hillocks in all limestone regions, and abounds in the Valley of Virginia.

During the war our attention was called to it by Colonel Gilham at some iron works belonging to, and worked by, Mr. Frank Jordan, about six miles below Lexington. There it was in a large body on a hillside, so thoroughly disintegrated as to be mined by a pick and shovel. Mr. Jordan used it in his iron works, just as any other lime is used in making iron.

Several times since the war we have tried to get specimens of it for agricultural use, and have found the James River and Kanawha Company willing to make liberal arrangements for its delivery in Richmond, whence, without change of bottom, it may be easily distributed along the shores of the lower James. It can be prepared at the point of mining by burning or grinding, or the crude ore may be shipped, to be prepared by the farmer himself.

Mr. Henry Mackey, of South river, in the county of Rockbridge, has sent us two tons at the instance of Prof. Campbell, which we had ground into the consistency of fine soil at the mills of the Messrs. Magruder, in this city, and applied to corn land at the rate of twenty-five bushels per acre, selecting a spot that had never been limed before, but which was in juxtaposition to a piece that had been limed before. We shall note the result with great interest, and report it for the public benefit.

There is no reason why it should not act as well as the agricultural lime that comes from the North, and better, owing to its more minute subdivision, than most of the marls, over which it has this great advantage for transportation and diffusion over the soil—that it is perfectly dry.

With oyster shells on the Chesapeake, and limestone and calcareous tufa in the Valley of Virginia, and all the intermediate country penetrated by rivers, canals and railroads; and with marl, where these other forms of lime are not to be had conveniently, and the whole of tidewater soils demanding lime, why should we get a bushel from the North?

In thanking Prof. Campbell and Mr. Mackey for the favor they have done the farmers of Virginia through us, we wish to assure them that our apparent tardiness is solely due to the fact of our wishing to have the application made before speaking of the subject. We are very much obliged to them.

It is, perhaps, proper to say that Colonel Dillon, of the James River Co.'s line of canal boats, will probably engage in this business if sufficient encouragement be given.

Correspondence of Southern Planter and Farmer.

After a few lines on private business, our correspondent proceeds:

Most of our farmers do not attach sufficient importance to agricultural reading. They go at it "rough and clinch," and wonder that so little is accomplished. Any quantity of land is cultivated—badly—only three or four inches of the soil is brought into requisition, and that not very well prepared, and the consequence is that it is always too wet or too dry.

The Watt plough, iron beam, and others have lately been introduced into

this county, and with them, I think, there will be less complaint of the seasons. With improved farming implements, and the application of manures, the necessity of both beginning to be appreciated, we may look forward to a prosperity hitherto unknown. The dependence of the farmer being now upon the fertility of the soil, a change in his system becomes a necessity; hence the contraction of the area cultivated, and a more thorough preparation. Mr. Broadacres is ready to acknowledge the superior wisdom of Mr. Gardenspot. As an evidence of this I will mention a fact.

I accepted, a few days ago, an invitation from a friend to take a view of his farming operations, who gave me a detailed account of them. Mr. Robert A. Jenkins, to whom I allude, resides in the little town of Williamsboro', and has a large tract of land. It lies well to improve, slightly undulating, and he has commenced a system which, if pursued, will in a very few years render it extremely fertile. Last fall he purchased forty head of beef cattle and put them in a small lot which was sufficiently covered to protect them, and hauled in straw, woods litter, &c.; made boxes and elevated them two feet above the ground, in which they were fed with cut food, corn meal and bran. He sold his cattle early in the Spring at a handsome profit, and manured from them a large tobacco lot. He seeded last Fall one hundred bushels wheat, and I don't know how many oats this Spring, and seeded with each clover, timothy, herds' grass, orchard grass, and blue grass, no two, however, together. Upon these crops he applied concentrated manures, principally guano. He has a luxuriant crop of clover now growing, to which he is applying plaster. He is cultivating onions as a field crop, a new feature with us. The result I will give you when ascertained.

Mr. Jenkins is one of our most intelligent and enterprising citizens, and evidences of his liberality and generous spirit are abundant all around him. His pigs, less than two months old, are too fat to eat, and his hogs are fatter now than killing hogs generally are in December; his milch cows would make first rate beef, and his farm horses are fat as his pigs.

I have alluded to only one of Mr. Jenkins' operations. He has two other farms, one in this county, and the other in the eastern part of the State. He is a merchant, and manufacturer of tobacco and flour, having in Warren one of the best flouring mills in the country.

I have written this much that those of us who are desponding may take courage, and go to work and build up the waste places. Few of us, however, have the resources of Mr. J. He can draw on one for the benefit of another, while most of us have to rely solely on the product of the soil for means wherewith to improve it.

Human nature is not so generous as not to condemn, and my friend knowing me to be very "natural," will excuse me for calling his attention to his stable arrangement. I would substitute for his open log stables, others closer and more comfortable, with a feed room under the same roof, for convenience and economy of time; and when this is done, more comfortable quarters for other stock. His stock, however, does not seem to require it.

The "Goodwyn Club" is in successful operation, numbering now eighteen members. It was organized at a most propitious time—when we had not much interest in political matters. We, being an agricultural people, are reminded, by the course of events, that our business is farming; that, to be successful, our system must be changed; that less surface must be cultivated in corn and

tobacco, and that made more fertile, and more in small grain and the grasses; that our stock must be improved, and no more kept than can be kept well. These are some of the facts that have forced themselves upon us, and we are adopting them as fast as our ancient prejudices will permit.

Some of our meetings are very interesting. The utmost harmony and good feeling exists—our social relations much improved, and our farming much more skilfully done.

Very truly, &c.,

S. A. G.

Granville county, N. C., April 20, 1869.

Dear Sirs,—Permit me to congratulate you on the very marked improvement in your paper for the past two months especially. Really, I regard the last two numbers as by far the best I have ever seen. They are filled with valuable and practical articles suitable to Virginia, and not extracts from Northern journals, a great many of which are as well adapted to the inhabitants of India as to us. Now please don't understand me to insinuate that because you have added a really practical and good farmer to your corps, that this practical tone is given your paper, and that it is filled with real Virginia, and not New York articles; for you know as well as I, that we poor devils of farmers are not competent to give instruction in our own business, but must look to men who really know nothing of the plough, the hoe and the axe, except what they find in the books. Don't understand me to be purely utilitarian, for one of the best articles in your last, and calculated to cheer us up and do good, is by that good and really great man, Mr. Newton; but what I do inveigh against, is the custom of so many Southern farming journals making large and long extracts from Northern journals; for really, practices that are very good where winter continues more than half the year, are entirely unsuitable here. But really your last two numbers are admirable; and nothing would induce me to give up the paper.

I am cultivating quite extensively the navy bean and other vegetables of that class, and my great trouble is to be in harvesting them in the most expeditious and economical manner; and if you can put me in communication with some gentleman who is sound on these things, you will oblige me, or which I greatly prefer, if by correspondence yourself with competent parties, you will inform yourselves on the subject, and publish a plain and clear article on the subject. I assure you such an article would be very highly prized by many besides myself.

By giving us also the best and most expeditious plan for harvesting the Irish potato, you will greatly oblige many. Don't fear minutiae in detailing these plans, or otherwise they will be misunderstood, and lose more than half their value.

If I had time now I would send you a plan for a good farm gate, and will do so soon. The gate recommended in your last is defective in two very important particulars.

I do most sincerely hope that your efforts in behalf of us Virginia farmers may be liberally rewarded, and that you may not have labored in vain. There is certainly a good opening for a journal conducted like yours is now, for it is perfectly manifest to all, since the sons of Virginia have had to take hold on the plough themselves, they are much more anxious to ascertain the best plan to make every blow they strike effective.

But please exclude with an iron barrier from your paper all articles not suitable to the climate of Virginia, else what you intend as a blessing, will be a curse to us.

Yours truly,

W. C. SHELTON.

Hanover county, Va., May 22, 1869.

Messrs. Editors.—I was truly gratified with your manly and high-toned declaration of principles as to the conduct of the *Planter and Farmer* in the April number, and have been doing something to extend your circulation in our county. As a Southern man, I am gratified that we have such a journal. The guano manipulators and swindlers have not had such defiance shown them since poverty fell upon our unhappy section. Two of our farmers brought up some good sized "rocks" taken from "Baugh's Phosphate" a short time since, which they delivered to the agents.

If Mr. A. S. Lee, or any one else, could get proper freight charges on shell lime via Richmond and Danville railroad to this section, it would be a public benefit, and remunerative to the dealer.

With my best wishes for the success of the *Planter and Farmer*, which I knew well under the management of that true gentleman and Virginian, Dr. J. E. Williams, I am, very truly, &c.,

J. M. HUTCHISON.

Charlotte, N. C., May 20, 1869.

We give below a letter from a Virginia immigrant formerly of Easton, Pennsylvania, whose statements are likely to awaken the attention of our Northern brethren, when the same truths uttered by a native citizen (particularly if guilty of the crime of intelligence to the degree of disfranchisement,) would be passed unheeded by:

LETTERS FROM THE PEOPLE—AN INTERESTING LETTER FROM VIRGINIA.

The following letter from an old citizen of Easton, who has sought and found a new home in Virginia, will be read with interest, especially by our farmer subscribers:

OAK HILL, AMELIA Co., VA., April 2, 1869.

EDITOR OF THE ARGUS—Dear Sir,—I suppose some of your readers who would like to come to Virginia to better themselves, would be pleased to hear from some one that formerly lived in their county, and has tried the change, what he thinks of this State for a person to live in, and what reception a stranger will receive from the inhabitants. I purchased last Fall, in this county, a farm of over 900 acres of as good land as there is any in Northampton county, for \$10 per acre, and took possession of it on the first of February, or rather on the 7th, with my brother-in-law as a farmer for me. I brought with me seven horses and two mules, with all the necessary farming implements. On the 15th, after getting my things from the depot, we commenced ploughing, and I have to-day already planted over two hundred bushels of oats, some of them three inches high, four barrels of spring wheat, one barrel of clover seed that is already up, and have prepared ten acres of land for early potatoes, and next week will commence ploughing for corn. Flowers of all kinds are already in bloom, peaches are in blossom, and we have our garden planted with salad, tomatoes, cabbage, &c. The salad we expect in two weeks to have on the table. I am now setting out my strawberry patch with over two hundred plants. I have in the garden figs, damsons, peaches, apples,

berries of all kinds, &c. There is plenty of land in this county for sale at from \$10 to \$20 per acre, according to the improvements and the locality. Any person traveling over the railroads of this State would not be pleased with the county, for it has a most forbidding appearance, and looks as if it had been deserted. You see nothing but stunted pines and old fields worn out. But after you leave the railroad, on either hand you will find as fine land as there is in the United States. As for your reception by the inhabitants, it could not be more cordial. I care not how Radical a man may be, he is well received. All that any person has got to do is to mind his own business, and he won't find any person interfering with him in any shape, for the only wish they have is for people to come and settle among them. As for politics, you don't hear any thing of it without it is among the carpet baggers, and the native Republicans. They have got to quarrelling amongst themselves about the loaves and fishes. Last week I received from Gen. Stoneman a commission as Magistrate and Associate Judge of this county, but I declined for the reason that I did not come to Virginia for an office, and likewise for another reason, that I hold to the Democratic doctrine that the people themselves should have a right to choose their rulers for themselves. If any person wants to come down here with the view of purchasing, let him write to General Imboden, at Richmond, for information where to get a ticket at Philadelphia to Richmond. He will get a ticket for half price—that is for \$7—and by calling at their office he will get a ticket that will take him for half fare upon any railroad in the State. I would not advise any one to buy without seeing the land for himself. Let him listen to no one, but judge for himself. At Richmond he will find as good hotels as he will find anywhere, at all prices, from \$1.50 to \$4 per day.

Yours, respectfully,

JOHN A. SLETER,

Mattoax Depot, Amelia county, Virginia.

P. S.—If you wish it, I will let you know once in awhile how we get along under a Military Government.

J. A. S.

Virginia State Agricultural Society.

MEETING OF THE EXECUTIVE COMMITTEE.

One of the fullest meetings of the above committee that has ever occurred in the history of the Society, was held in this city, on the 29th and 30th of April. The committee addressed themselves with promptitude and untiring industry to the business before them, and determined upon the preliminaries for holding the Fair on the grounds of the Society on the 2d, 3d, 4th and 5th of November next. The reports of sub-committees on the several branches of the premium list, rules, regulations, &c., were received and submitted to a select committee, with instructions to digest and embody them in proper form for publication.

Arrangements were made for a trial, on the 9th of June, of reapers, mowers, and other harvesting implements for grain and grass, on the farm of Aug. H. Drewry, Esq., on the lower James. A pamphlet has been widely circulated, affording to competitors for the liberal premiums offered all necessary information with regard to the various amounts of premiums, committees of award, and the rules and regulations adopted for conducting the trials in a systematic and orderly manner.

A stirring appeal has been made to the people of Virginia and other States, by the President of the Society, whose address will be found on the first page of this number of our journal; we hope it will awaken the same spirit of patriotism in which it was conceived, and that responsive echoes will be heard from every county, city, town and hamlet within the bounds of this dear old Commonwealth.

Department of Agriculture.

We have received at the hands of Hon. HORACE CAPRON, Commissioner of this department, so many and such valuable favors, in the faithful and impartial discharge of his official duties, that it affords us peculiar pleasure to introduce to the notice of our appreciative readers the following complimentary extract from the "Washington Chronicle." It conclusively proves that the Commissioner is no mere *locum tenens*, but an active, intelligent, faithful and competent officer, than whom no other incumbent could have done more, in so short a time, for the reorganization and improvement of this important branch of the public service.—EDS. S. P. & F.

DEPARTMENT OF AGRICULTURE.

A Visit to the Grounds—Improvements Made and Contemplated—A Rare Collection of Trees, &c.

Few who have had occasion to visit this beautiful area, south of the canal and between Twelfth and Fourteenth streets, cannot but have noticed the activity displayed in the work of planting trees, transplanting of rare flowers, and various other operations tending to beautify and adorn the reservation allotted to the Department. Commissioner Capron is a close student, a progressive man, and thorough botanist, and will, if supported by the co-operation of Congress in meeting his estimates and appropriating therefor, make these grounds equal, if not superior, to similar gardens now in so much attention in other countries.

THE FLOWER GARDEN.

Immediately in front of the building a flower garden of architectural beauty is formed. This is in perfect keeping with the surroundings, and, when a stone wall is substituted for the present sodded terrace, with balustrades and vases and other decorative accompaniments on the pediments, will present a fine appearance, and afford an example of harmonious arrangement such as is only met with in the higher branches of design.

THE ARBORETUM.

One of the greatest features, however, will be the arboretum, or collection of trees. This will embrace a single specimen of every tree and shrub that will exist in this climate, and in their disposal a twofold arrangement has been kept in view, that of a strictly botanical classification of families, species, and varieties, and the production of a high degree of landscape gardening. This has necessarily involved a vast amount of time and study. The botany of all nations had to be ransacked in order to cull out every suitable plant and tree. The *fasciculi* for this arrangement covers over two hundred pages of closely written foolscap. As a collection of hardy plants, it will be unequalled by any thing in existence at the present time. To combine a strictly scientific arrangement with artistic effect required no ordinary amount of skill and foresight; years, however, will be required before the ultimate effects will be fully produced so far as the development of individual forms and combinations of growth are concerned.

THE PROGRESS OF PLANTING.

Much has already been accomplished in the planting of trees and shrubbery. With the completion of the planting of the present season about three-fourths

of the entire collection will be set out. Many of the plants, especially those of our Western States and Territories, will be difficult to procure, not being in cultivation as yet; they are not to be found in ordinary nurseries. Some of the family groups are already completed—the elms, for instance, number over fifty specimens, all distinct. Of ashes there are forty, of willows over one hundred, oaks seventy, maple about fifty, and others are equally well represented. The pines and other evergreen species are now being planted.

ADVANTAGES OF THIS COLLECTION.

The possession of this collection will enable the department to answer many important questions with reference to the value of trees for wood, rapidity of growth, &c., (a point of great importance in the treeless tracts in the West,) and the most suitable plants for live fences and other subjects of equal prominence.

To the artist it will be of great attraction. The various forms of growth, the individual peculiarities of foliage and combinations of forms will afford a delightful study, and the mere visitor will be arrested by forms and beauties of foliage such as can rarely be found available; and the student in botany can not possibly find a source of elementary knowledge at all comparable with that of being brought directly face to face with the living plant.

OTHER PROJECTS CONTEMPLATED.

Valuable and complete as this collection of plants will be, it is only a link in the chain of improvements contemplated by Commissioner Capron. Convinced that this country possesses localities and climates fitted for the growth of plants from other quarters of the globe, he is now having prepared a list of all plants whose products are used in medicine. When these are procured and their habits and requirements studied, they will be propagated and sent to such points as may be considered more suitable for their growth. The same strictly botanical classification as prevails in the Arboretum will be followed in the arrangement and disposition of these, so that scientific visitors of all nations will meet an arrangement which they can recognize. This feature of introducing systematic classification in collections of plants brought together for purely utilitarian purposes is of great moment, and must impart a degree of interest and value not generally attached to plants in our green-houses and pleasure-grounds.

OTHER PLANTS.

A similarly arranged collection of all plants employed and grown for the value of their textile qualities, for dyes, and for all purposes of arts and manufactures, will be completed as rapidly as means will admit. Of course, to cultivate and extend exotic plants, glass structures will be required. A beautiful architectural design for a series of hot-houses and green-houses has been made under the direction of the Commissioner, which now hangs in his office, and is universally admired.

APPROPRIATIONS.

The small appropriation asked for the completion of this plan not having been entertained by Congress, no progress has been made in the erection of these structures.

ECONOMY STUDIED.

One of the greatest points in connection with all these improvements is the economical manner in which everything is being managed, together with the

thoroughly substantial character of the work. Estimates of every item are pre-considered and the work done *within them*—no leaving of half finished jobs because of under-estimating the cost. The result is that an apparent finish is constantly met with and in reality exists in the various progressive details of the contemplated finished design.

EXTENT OF GROUNDS.

The extent of grounds occupied by the Arboretum proper embraces about twenty acres. This is considered sufficient to allow of free development for the trees and plants for thirty or forty years growth. It is hoped, however, that an additional space will be secured within the next ten years to allow of the removal of certain entire orders of families of the trees, which can be done without injury to the plants or to the system adopted, and at trifling cost. This addition, it is to be hoped, will be granted, as there is abundance of unimproved Government property contiguous awaiting this combination of landscape gardening and botanical skill.

These are but a small enumeration of the many projects entertained by the Commissioner for the improvement of the grounds of his department. For the system and radical changes already introduced, the Commissioner deserves the thanks of the whole country.

THE BOTANIST IN CHARGE.

Mr. William Saunders has had the general superintendence of all improvements thus far effected. Mr. S. has given this class of business his life study, and seems to be thoroughly posted, both in the requirements of a first class garden and the manner in which it should be managed.

Agricultural Fairs in Virginia.

The notes of preparation are sounding from almost every section of the State from various Agricultural Societies intending to hold Fairs during the coming Autumn. Of these we would mention the Winchester, Staunton, Lexington, Wytheville, Lynchburg and Border Societies.

We hope they will so arrange the time of holding their exhibitions as to help each other as far as possible. Let Wytheville and Lexington, for instance, fix the days for holding their Fairs so as to allow the exhibitors time to reach Lynchburg; and let Lynchburg fix her time with reference to the convenience of exhibitors designing to exhibit at the great State Fair at Richmond. The same suggestion may be made with regard to the Winchester, Staunton and Danville Fairs—that we may have the grand aggregation of them all at the Fair Grounds of the Virginia State Agricultural Society, on the 2d day of November next.

Frauds in Selling Improved Swine.

A subscriber from Georgia sends us an account of the mode in which he was swindled by a Chester county swine seller. We sympathize with him, but fear to expose his name, as he might sue us for libel in Judge Underwood's Court. The party, however, does not advertise in the *Farmer and Planter*. We hope none of our advertisers will act in this wise; and if we hear of such a case on their parts, we will send them the letter containing the charge, and try and have it investigated.

D. S. Morrison, Esq., agent for the manufacturer, Col. T. J. Noble, has presented us with a package of the LENA—Pride of Virginia smoking tobacco, for which he will please accept our thanks, and our kind wishes for the success of the enterprise which has been placed under his supervision.

Book Notices.

The "New Eclectic," for the artistic taste, simplicity and beauty of its exterior, and its typographic superiority, is abreast with the ablest of its contemporaries in periodic literature. Its contents always bear evidence of wide research on the part of the accomplished Editors, and maintain the highest standard of moral propriety and literary excellence.

The Leonard Scott Publishing Company have sent us regularly and punctually, at the respective times of their re-publication, all the Reviews, and Blackwood's Magazine, published by them.

The North British, Edinburgh, London and Westminster Quarterlies, and Blackwood's Monthly, are so highly appreciated by those who are familiar with their literary characters, that no commendation from us could increase the estimation in which they are held.

Charlottesville Woolen Mills—B. C. Flannagan, President; W. W. Flannagan, Secretary and Treasurer; H. Clay Marchant, Superintendent.

We have received from the above woolen mills a book of samples of satinets, kerseys, and diagonal and doeskin cassimeres, of various and beautiful styles, manufactured at that establishment, which we will with pleasure exhibit to dealers and others who may call to see them at our office, No. 1015 Main street.

The Death of B. P. Johnson.

This event, as briefly recorded in our last, deserves a fuller notice than the space at command will even now permit us to give. Until failing health and frequent domestic afflictions had cast their shadow over his latter years, we had few more active and efficient laborers in the cause of improved agriculture, and none more earnest and sincere than Col. Johnson. There are few American names more widely known and held in such general esteem in this department. Born, we believe, in Columbia county, in 1793, he was graduated at Union College, in or about the year 1813, and afterward studied law, entering upon and continuing the practice of his profession for many years at Rome, Oneida county, but uniting with it much attention to farming and rural affairs. He was greatly interested in promoting the cause of temperance at an early day; and, before his connection with agricultural matters was as marked as it subsequently became, he had a wide acquaintance throughout the State, possessing then, as always, a rare faculty of winning and retaining the attachment of those with whom he was brought in contact.

It will be remembered that our State Agricultural Society dates its real existence as a working body from the reorganization effected under a new constitution in February, 1841. From that day until his last, Colonel Johnson's official connection with its operations was almost continuous. He was a Vice-President in 1841, Corresponding Secretary in 1844 (the chief duties then devolving on the Recording Secretary), and President in 1845. In 1847 he was

first chosen as Working Secretary, and came to this city to fill the post in which for the next twenty-two years he was to remain. Adding to a happy faculty for the easy performance of work in the midst of the bustle and confusion of a State Fair, the no less important ability of selecting effective assistance and systematizing the work to be done, it was a position for which he was qualified in an unusual degree—answering every question with readiness and good nature, greeting every new comer with cordial pleasure, cognizant of every detail, but spending his own time where it would count to the best advantage of the whole. A ready speaker and writer, he was also a most entertaining companion in the social circle or in travel, a frequent attendant and speaker at the agricultural exhibitions of other States and of our own counties and towns, with a good word for all, and only silent where the shortcomings of others were concerned. If not as eager as he might perhaps have been if younger, in seeking for the Society new tasks and efforts, he avoided the difficulties and mistakes likely to accompany them, and, as a whole, his administration of its affairs must be regarded as judiciously and scrupulously adapted to promote the objects for which it was organized. Conciliatory in bearing, and averse to quarrels as he was, he could not be persuaded or driven from any position or decision properly taken, and was firm in the contest where right and reason required. In 1851 he was a Commissioner from this country to the first Universal Exhibition at London, where his labors and influence were of great value in the American Department, and he also attended the succeeding Exhibition in 1862, though taking a less active part than before. He was an honorary or corresponding member of several foreign societies, and indeed, his labors met with recognition abroad quite as readily as at home.

In connection with the late Elon Comstock as an associate, Colonel Johnson took the editorial charge of the "Central New York Farmer," a monthly established at Rome in 1842, but after a few years merged in the "Cultivator." He was an occasional contributor to our columns before and since.

Colonel Johnson's death has been like the gathering in of corn ready for the harvest, rather than as when it is cut off in the midst of growth and with grain unformed or imperfect. He was not well enough to attend the Society's annual meeting in February, but went out occasionally afterwards. It was not until within a few weeks preceding his death, that immediate danger was apprehended.—*Cultivator and Country Gentleman.*

Commercial Report.

We are indebted to the courtesy of Messrs. Norton, Slaughter & Co., of New York, for the monthly circular from which we make the following extract in regard to Tobacco:

AMERICAN TOBACCO.—The animation which existed at the date of our circular of 15th ult. has continued without abatement throughout the month, and the sales will sum up fully 10,000 hhds., at an advance since the 15th inst. of about 50c. on lugs, and 25@37½c. on the lower descriptions of leaf. There has been, also, some disposition evinced to purchase some of the better grades, but so far, the sales of such have been small, with the exception of rich, fleshy Clarksville leaf, for which there has been a steady demand.

In the latter part of February, we advanced the opinion freely, that the crop was over estimated, and that the receipts of the sea board would not likely exceed 80,000 hhd's, but we found no one to agree with us; gradually, however, the impression began to prevail that our estimate might probably prove correct, and buyers evinced some anxiety to secure at least a portion of that for which they had contracted; this, aided by the wants of the open markets, gave us a very active trade, resulting in sales nearly equal to the receipts.

Our calculation in our circular of the 15th inst. was based on a crop of 120,000 hhd's. (which we conceded for argument sake.) and then showed that deducting 20 to 25,000 hhd's. for England, and 35,000 hhd's. for Canada and the West, the receipts at the sea-board would not exceed 60,000 hhd's. Although tobacco holds a very strong position, we fear the Western buyers are advancing their purchasing rates too rapidly. At our present prices, the receipts of that bought recently will not pay out.

The sales of the month comprise 1,029 hhd's. N. Europe; 124 hhd's. S. Europe; 2,309 hhd's. French and Italian buyers; 1,268 hhd's. Spain and Mediterranean; 170 hhd's. England. Missouri factory dried; 1,592 hhd's. Italian and Spanish contractors; 775 hhd's. Jobbers; 481 hhd's. Manufacturers; 319 hhd's. Cutters; 51 hhd's. Boston; 57 hhd's. West Indies and Africa; 736 hhd's. export, parts unknown; 4 hhd's. Mexico; 4 hhd's. Canada; 2 hhd's. S. America, and 582 speculative account. We quote:

	Light. (Currency.)	Heavy. (Currency.)		Light. (Currency.)	Heavy. (Currency.)
Lugs,	7½ @ 9c.	8¼ @ 9¼c.	Good Leaf,	11¼ @ 11½c.	12¼ @ 13¼c.
Common Leaf,	9¼ @ 10¼c.	10 @ 11c.	Fine.	13 @ 14c.	14 @ 14¼c.
Medium,	10¼ @ 11¼c.	11½ @ 12¼c.	Selections,	14¼ @ 15¼c.	15 @ 16c.

Frosted lugs, and those much out of condition, are sold below our lowest quotation. We have now, and shall hereafter quote, low leaf under the head of common.

Receipts in May, 1869 (including 974 hhd's. Virginia), 11,262 hhd's; 1868, 10,032 hhd's. Since January 1st, 1869 (including 3,760 hhd's. Virginia, 29,297 hhd's.

Including New Orleans, the receipts of the Western crop are 37,821 hhd's., again 26,070 last year.

Exports in May, 1869, 7,795 hhd's; 1868, 3,306 hhd's.

Since January 1st, 1869, 18,338 hhd's.; 1868, 13,851 hhd's. Including New Orleans, there are 22,890 hhd's., against 16,340 hhd's. last year.

INSPECTIONS.

Stock on hand May 1, 1869,					17,695 hhd's.
Received since,					11,266 "
Total,					28,961 "
Delivered since,					6,917 "
Stock on hand June 1, 1869,					22,044 "

	1869.	1868.	1867.	1866.	1865.
Stock in Liverpool, May 1,	15,143 hhd's.	19,886 hhd's.	16,620 hhd's.	25,711 hhd's.	25,670 hhd's.
London,	1, 13,452	19,163	21,576	24,341	20,398
Bremen,	1, 1,887	3,635	3,931	4,171	7,914
New Orleans,	26, 8,615	4,987	3,114	7,597	919
Baltimore,	29, 10,469	14,048	18,104	25,434	19,437
N. York, June 1,	22,044	27,149	20,763	26,646	28,716
Total,	71,540	89,088	83,908	113,900	103,054

THE SOUTHERN PLANTER & FARMER,

DEVOTED TO

Agriculture, Horticulture and the Mining, Mechanic and Household Arts.

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

CH: B. WILLIAMS, EDITOR AND PROPRIETOR.
FRANK G. RUFFIN, Co-EDITOR.

New Series.

RICHMOND, VA., JULY, 1869.

Vol. III---No. 7.

High, Medium and Low Farming.

POINT OF MAXIMUM PROFIT.

If you ask the meaning of these terms, I reply, reversing the order above: profit is what your crops give you over and above all costs of production. These costs are: 1. Interest on the value of land; 2. Taxes, if any; 4. Value of labor done by yourself or others at the time; 4. Team work; 5. Cost of manure; 6. Wear and tear of implements and farm machinery; 7. Any other cost or costs you may think of, not included in the foregoing.

The interest on value of land must come in as part of the cost, for the reason that you cannot afford to hold land and draw no interest on its value. The taxes must come in, because if your State tax farm land, you cannot escape paying. So of every other item—all must be charged to the crop, and paid by it, before you can begin to reckon profit.

Keep accounts with your farm, and with each crop grown upon it. To farm without keeping accounts, is farming in the dark, and you may not ascertain whither it leads till too late. If you farm in the dark, you may keep on twenty years with some crop which loses you money every year, or may stop with some one which gives you handsome yearly profits, simply from not knowing which to continue and which to stop. Farmers are generally supposed to be men of sound judgment. Their employment is adapted to make

them such. They generally are such. The keeping of farm accounts, so as to throw light from this year's doings on the question, what to do next year, is not easy; but in the exercise of such a judgment as we heartily ascribe to farmers, you can keep them well enough to prevent your going blindfolded many years in courses leading to disaster, and wed you to those tending to prosperity.

By the *point of maximum profit*, I mean that point in the ascending scale from low to high culture, which gives the highest profits over all costs. This is not a fixed but a variable point, varying with the value of land, the price of the crop grown, the cost of fertilizers, distance from markets, etc. As a general rule, where land is dear the cultivation should be high, and of course expensive, for no man can afford to grow small crops on land worth \$300 an acre. Small crops would but little more than pay interest on value of land. On land worth but \$30 an acre, he might make profit, more or less, from small crops. On land worth but \$10, he might make something from still smaller crops. Where land costs but little it may be cultivated cheaply and yet pay; but let a man undertake to cultivate an acre worth \$300 cheaply, and he will inevitably find it a losing experiment. Every farmer should endeavor to ascertain at what amount for labor and fertilizers he can grow crops on his land, with a better profit, than by the expenditure of more, or less, for the labor and fertilizers; and that, if he can ascertain it, he may regard as the point of maximum profit in his case.

But what is to be understood by low, medium and high farming? Giving your land little or nothing, and expecting little or nothing in return, is low farming. If all farmers worked in this way, the soil all round the face of mother earth would wax worse and worse, till it would be equal to sustaining but half the present population of the globe, instead of becoming able, under the hand of man, as God designed it, to sustain ten-fold more than its present inhabitants. Yes, God made the land and the sea such, that, by the natural laws he has stamped upon them, this globe must perpetually become better and not worse, as the abode and life-sustainer of the human race, till ten times its present population shall be able to nestle on its bosom and feed on its bounties. The progress will be slow or fast, as man fails of his duty or discharges it earnestly and faithfully. Low farming is athwart the purpsse of the Almighty. He wishes the land to become better for each generation than it was for the last. The man who farms it in a low way, giving it little, taking less, not half paid for his labor, makes it worse.

There may be cases in which a rather low grade of farming is to be tolerated. The owner of a large farm may have reasons of his own for not selling a part of his land to enable him to cultivate the rest better. He may have good reasons, known only to himself, for holding the whole a while longer. But, as a general rule, it is folly, not to say wickedness, to go over large extents for small returns. It affords no profit; it less than pays for the labor; it is the costliest way possible for obtaining the productions of the earth; a wise man will not walk in it long; the man who is both wise and devout, will not dare persevere in it, so manifestly is it opposed to the will of the great and benevolent Designer, who never meant that the farmer should work hard, life-long, for small pay.

Medium farming may be considered half way up the ladder from low to high farming. By the low farming, of which we complain, as against God and humanity, and most of all against the man who practices it; as low as 10 to 15 bushels corn per acre, and other crops proportionally scrimped are often obtained. By medium farming, our idea is 50 to 60 bushels of corn and other crops in proportion. This, in large portions of our country, yet comparatively new, not yet densely populated, distant from markets, freights high, may just about tally with the point of maximum profit. You may perhaps say you can more cheaply win the productions of the soil at this state of cultivation than by one higher or lower. At any rate, by such cultivation as will give you 50 to 60 bushels of corn and the like of other crops, your land will not be run down, and you will not sin against yourself nor against posterity, for it will pay you and will leave those who come after you a fair chance. Perhaps this is as high a cultivation as should be aimed at by the farmers of one-half of our cultivated land.

But this is not high cultivation; it should not be thought of as such; it may be wise temporarily; but as the population increases, it must be superseded. Where population is already dense and outlets to other countries dense, and especially if land be high, larger crops must be obtained, or no great profit in the cost of production can be realized, certainly not the greatest. From 80 to 90 bushels of corn, and proportionably for other crops, should be the aim, under such circumstances, if the land be of good quality. If a failure to reach this mark be attributable to divine providence, in not giving favorable seasons, cheerful submission to a higher power becomes a duty, but if attributable to anything the farmer himself did or failed to do, he should not be satisfied with his own doings, but should try again, and keep trying, till he can grow his 80 to 90

bushels of corn, and other crops in proportion, in an average season, to set off for less in seasons that are unfavorable, that the average yield may be as high as above named, and gradually increasing, as the land, under a system of high cultivation, increases both its productiveness and its saleable value.

Medium farming pays better than low everywhere. High farming pays better than medium wherever the circumstances exist which call for it. Farming in a way that deteriorates the soil, will not pay, in the long run. Farming that improves the soil a little each year, as God made it to be improved by the brains and hands of man, will pay always and everywhere. Thousands of farmers, in all parts of our country, fail of the best rewards of farming by too low cultivation, for every one who fails by cultivating too highly. The danger of failure by going down the scale too low, is a thousand times greater than that of ascending too high. Let us strive to avoid the former, and not be over fearful of the latter.—NASH, *in the Working Farmer*.

Making Manure.

It should be a cardinal principle with every farmer to economize his manure. Upon it depends his success, and, without it, his labors must to a very great extent be without profit, if not attended with absolute loss. If it is necessary to have the barn-yard on a hill-side, it is equally necessary to have the lower side of it protected by a wall, or some arrangement by which the escape of liquid manure may be prevented. It is almost equally important to have a spout to convey rain water from the roof of the barn in some other direction than immediately through the barn-yard. It is bad enough that the manure heap should be exposed to the rains which fall directly upon it, without adding to it the droppings from the roof of the barn.

If such improvident farmers were to behold the actual value of the fertilizing material thus lost, rolling from their purses in the shape of dollars and cents, how energetically would they labor to prevent this waste. The loss of a single little gold dollar would stir them up to a greater activity than the direct waste of a hundred times that little dollar's value in the form of liquid manure. Year after year, silently, steadily, the golden streams are flowing from their purses. Tell them of their error, and they acknowledge it, but rarely does it happen that being reminded of it in a friendly manner, they make a single effort to correct it.

How many are there who, after a lifetime of steady, unremitting toil, find themselves no richer in lands or money than when they began! They cannot explain the reason. Other causes may have led to such discouraging results, but if the drain of liquid manures from their barn-yards had been checked when they began farming, very many of these unsuccessful ones would have been as prosperous as their more provident neighbors.

Every farmer subscribes to this; he knows it well; but thinks he can do no better, "under the circumstances," than to let it go. He thinks, if he had conveniences, he would like to try the effects of liquid manure; but "everything wants doing first," and it gets neglected; or, if he had any vegetable refuse at hand which he could haul to soak up the waste liquid, he would do that, but such waste he has not.

Now, one of the very best things to soak up manure water, and make into the best of manure, is common clay. It will pay any farmer well to haul clay to his barn-yard for its absorbing properties. When this cannot be had, the washing of roadsides, cleaning of ditches, or anything that comes to hand, may be used instead. There are many other more complicated ways of "making manures" by chemical ingredients, but this is a simple one, which every one can understand. All it wants is the command of labor, and this is the main point in which so many farmers err. Not to "employ much," but to do all possible one's self, and let the "rest go," is the general plan. The farmer forgets that when he buys a ton of guano he has employed sailors, ship-owners, commission merchants, and many others, at a rate at which another hand on his farm, employed at nothing else but making manure, would have produced him immeasurably more value. It is not so much what is made, as what is saved, that leads to riches; and how to economise in manure, and yet have an abundance, is one of the great secrets of becoming a rich farmer.—T. MEEHAN, in *Forney's Press*.

TO BE NOTED.—In a cloudy morning it is a matter of importance to the farmer to know whether it will be sunshiny or showery in the afternoon. If the ants have cleared their hole nicely, and piled the dirt up high, it seldom fails to indicate a clear day, though it may be cloudy until eleven o'clock in the forenoon. Spider webs will be very numerous about the tops of the grass and grain some cloudy mornings; and fifty years observation have shown the writer that these little weather-guessers seldom fail in their prediction of a fair day.

Clover as a Renovating Crop.

Some idea of the relative value of the manure made from clover, and common stable manure, the greater part of which is carbonaceous matter, may be obtained from the careful experiments of Professor Lawes. The results of his experiments have been given to the world many times through the agricultural press. I had my attention first called to them about a year ago by an article from the pen of Mr. Joseph Harris, in the *American Agriculturist*. Since then I have examined the matter somewhat carefully, and have been, I must own, astonished at the results of repeated chemical analysis of this plant, made for the purpose of showing its vast superiority over all other grasses as a hay or forage plant.

According to Prof. Lawes, the manure from a ton of straw is worth about \$2.60, taking the price of artificial manure as a basis. The manure from a ton of clover hay is worth a little over \$9. Allowing two and one-half tons of manure to a ton of straw or hay, then a ton or ordinary load of manure from straw would be worth about \$1, while a load of manure from clover hay would be worth about \$3.50. The former would hardly be worth drawing into the field. Certainly not worth buying at \$2 per load and drawing a long distance. The value of any manure depends upon the amount of potash, nitrogen and phosphoric acid it contains; the carbonaceous or woody matter being usually in excess of that required by the soil. According to Prof. Lawes, a ton of common barn-yard manure contains 8 lbs. nitrogen, 11 lbs. potash and soda, and 4 lbs. phosphoric acid; while a ton of manure made from clover hay contains about 20 lbs. nitrogen, 16 lbs. potash and soda, and 5 lbs. phosphoric acid. Nitrogen being confessedly the most valuable element, it will be seen at once how much more valuable is the manure from clover than from straw or other hay. And let it be borne in mind that while it returns so much more to the soil, it takes much less from it, and that while timothy exhausts land almost as much as a crop of wheat, clover actually benefits it, by absorbing instead of dissipating ammonia. Farmers, I believe, do not generally understand this difference. Hence, in selling hay, many prefer to sell the clover because it is "coarse." But when men understand that in selling a ton of clover hay they are parting with what if fed out would be worth \$9 to them in manure alone, besides its value as fodder, I think they will decide to feed out their clover and sell some other kind of hay, if any. Perhaps farmers will not believe these figures; but the estimates are made from careful

analysis, and are no doubt approximately correct. The prices, of course, are based upon the price of artificial manures in England. But let the price of these be what it will, it does not affect the *relative* value of clover and common barn-yard manure. If a load of the latter, a great part of which is straw, is worth \$1, then a load of manure from clover is worth \$3.50. Now the clover ploughed under, it would be worth a little more—as there is a loss of about five per cent. in feeding out, which goes to make blood, bone, muscle, &c., in the animal.

It has been the practice of many very good farmers in the Middle States for many years to sow clover to plough under; planting corn or potatoes on the clover sod. This method, when hay and its products, beef, mutton, butter and cheese were cheap, was undoubtedly a good one. But with present prices and with a scarcity of hay throughout the country every year or two, it seems to me, that now it would be a wasteful practice. I believe a much better way is to cut the clover for hay and return the manure to the soil. Surely the value of the fodder will pay for curing and carting both ways. Or, if one objects to mowing, it may be fed off with fattening sheep—oil cake or meal being fed to them at the same time—against which practice no objection can be raised, that I am aware of. In either case the loss would be trifling, and a good deal of valuable fodder would be saved. The roots, of which there are said to be from 20 to 40 tons to the acre, are of course subject to no loss at all. At present prices it seems bad policy to turn under a good crop of clover. If the crop be a light one, undoubtedly the best way is to depasture it with sheep. In this way the manure is distributed evenly over the ground. Sheep are also popularly supposed to manure the soil by simply lying upon it; imparting, it is said, nitrogen from the yolk in the wool. It is probable that there is some truth in this idea. At least the heavy rains of spring and fall must wash out portions of the yolk, which is well known to be exceedingly rich in fertilizing properties. However this may be, it is certain that land sown with clover and depastured with sheep becomes enriched to an extent surprising to those who have not practiced this method. This plan would also save the necessity of turning out sheep in the mowing fields in the fall, to their very great injury—unless covered with an abundant rowen.

“But,” says one, “my land won’t produce clover. It’s of no use to sow it—it won’t grow.”

Very true, and reason enough for it. It has been exhausted of the phosphates, and of potash and soda, perhaps, by long continued

cropping with potatoes, followed with oats or barley, without manure. At least such is the case with nine-tenths of the land that will not produce clover. But if it will not produce clover, it will not grow anything that will pay expenses of cultivating. In order to start clover upon such lands it will be necessary to use top dressing of some kind. On heavy clay soils lime or plaster will often be sufficient. These seem to disintegrate the soil and set free elements that were before locked up and useless. Lime also acts mechanically, making the soil more porous and less liable to bake; while plaster is supposed to absorb ammonia from the air. Ashes, I believe, are the most valuable top dressing for sandy land where barn-yard manure cannot be obtained. Sown at the rate of from 30 to 50 bushels to the acre, ashes produce a most marked effect upon clover. Last spring I sowed a piece of sandy land, a portion of which had been top dressed with leached ashes the previous summer, for barley, seeding with clover. No other manure was applied. Where the ashes were used the clover came up thick and stout, but where no ashes were used it could hardly be seen.

Once get a good stand of clover, and other crops may follow. Perhaps a good and profitable rotation on ordinary loamy soils, would be: 1st, clover sown with top dressing, if needed, on inverted sod; 2d, corn or potatoes, with a heavy dressing of barn-yard manure ploughed under in the fall (?); 3d, wheat or barley and clover again. The first crop of clover might be mowed or fed off with, or ploughed under, according to the previous condition of the land. If in good condition enough to produce a fair crop of hay, it might be mowed one or two years before ploughing. This would insure a good supply of roots, and the pulverization of the soil. What we want is to plough the land while the clover is large and vigorous, in order to get the benefit of the immense weight of roots. There is nothing equal to a clover sod for any kind of hoed crop.

It is evident that we must sow and *grow* more clover—not only as a hay crop, but to renovate our worn out fields. It will not do to crop with oats and potatoes, year after year, and then say, “It’s of no use to talk about renovating *my* land with clover; it won’t *grow*.” It *will* grow. It may require something to start it; but after that, being what is called a leguminous plant, it will derive its chief nourishment from the air. This is one reason, probably, why plaster acts so beneficially as a simple top dressing, as it is well known that sulphate of lime “fixes” the ammonia, which is being constantly evolved by heat, by fermentation, and perhaps by the growth of plants. Clover also acts mechanically upon the soil—

sending its long fibrous roots down into the sub-soil, and bringing up fertilizing matter before inaccessible as plant food. In this way it acts both as a disintegrator of the soil and as a conductor of fertilizing elements from the lower or sub-soil to the surface. Finally, clover is the best and cheapest known eradicator of weeds. Sown liberally upon rich soil, it completely chokes out even the strongest and most noxious of our field weeds—and in this way saves the farmer an incalculable amount of labor.

I have written upon this subject at much greater length than I intended when I began—for which, Messrs. Editors, and readers of the *Farmer*, I beg pardon—hoping that more experienced cultivators will at some future time write upon this subject.—YOUNG FARMER, in the *Maine Farmer*.

South Norridgewock.

The Farmer.

A BEAUTIFUL WORK OF NATURE AND ART.

Mr. Geo. William Curtis has given to the public the following beautiful picture, recently painted by him while summering at Ashfield, Mass. He calls it "The Farmer." It will undoubtedly be extensively copied throughout the country. He says:

But the farmer stands still nearer to Nature, and she is his immediate teacher. Nature herself gives him the broad hints of his art. The sun warms the earth; the winds sift it and dry it; roots loosen it; the dew and showers moisten it; the dead leaves and birds manure it. But this is only a vague suggestion. So the wind draws imperfect sounds from the strings of a harp. But presently man, the master, comes, and sweeping the strings with knowledge, he pours out a melody which becomes the hymn of nations. And so the farmer, following the hint of nature, is the master musician who touches the landscape with skillful art, and plays a tune of peace and plenty all over the globe.

Behold, then, the splendid scene of his labors. Sunrise and morning, the moon after the sun as the echo follows music; granite hills enchanted by distance into rosy clouds, drifting along the horizon—groves, pastures, rivers, blooming fields; the song of a thousand birds, the hue of innumerable flowers; the rustle of leaves, the hum of insects marking the changing months with varying sound; the breeze that whispers and the wind that roars; the unfailling procession of the seasons circling through the heavens—all that is grandest and most graceful, tenderest and most terrible

in nature are his familiar associations. He learns by experience what science constantly discloses, that there is nothing useless or superfluous in nature. "The whole," as old George Herbert sang:

"The whole is either his cupboard of food,
Or cabinet of pleasure."

But while this is the magnificence of his workshop, see also the direct moral influence of his toil. The earth in which he works is just and honest. If the farmer sow wheat the ground does not return him sugar-cane. If he transplant carelessly the tree, like a neglected child, will pine and die. If he plant potatoes and shirk hoeing, the weeds will shirk dying and the potatoes will shirk growing. If he be stingy of manure, his fields will be equally stingy of crops. Thus the eternal sincerity of nature giving him peas for peas and beans for beans; fair crops for patient industry and weeds for idleness, passes into his character, and he does not send his barrels of apples to market with all the large fruit on top, nor sell a horse with blind staggers to a man who paid for a sound animal.

So the necessities and fatigues of a work that can be done only by daylight call the farmer with the sun in the morning and the morning star in winter, send him early to bed and teach him regularity. Then as by his ceaseless toil he counts out, in blows of his arm and drops of sweat, every hundred cents in every dollar he earns—every penny stands for so much time and muscle, and thus he learns economy. With economy comes frugality and temperance, and so upon the farm grow the hardy virtues, like tough trees upon the rough mountain-side, and so the ideal farmer is the strong, robust, simple, sensible, truly conservative citizen, and as the spectator sees him standing crowned with content in the midst of his rural realm, he asks, as the poor clergyman asked his richer brother, as they walked through the rich minister's magnificent estate: "What, Brother Dives, all this and Heaven too?"

But look once more at a still finer spiritual result of the conditions of the farmer's life than any of these. See what pains he wisely takes to secure a perfect fruit. How cautiously he imports and examines the stock; how sagaciously he grafts and buds; how he hides the tree from the frost and nurses it in the sun; how he ponders and studies the habits and diseases of that fruit; how he toils to surround himself with perfect trees, that he may walk in the garden of the Hesperides whenever he goes into his own orchard. At last he plucks the pear in triumph. It is the glory of the fair. The dimensions of that fruit fly round the world by telegraph, over

the land and under the sea. It is photographed, engraved and described in a hundred horticultural papers and magazines; the mouth of the public waters for that pear, and it bears the name of the happy grower forever. Is that all? Is there nothing more? Look! Not yet has the farmer reaped all his harvest of success, nor tasted the finest flavor of his fruit. But when walking under his trees in the cool of the day, God meets him in the thoughts of his mind—for when a man thinks a lofty thought it is as if God met him—and says to him, “You are a tree in my garden of the world, and if you sought the sweet fruit of character and a noble life, as carefully as you trim and water and bud to produce a pear, the world would be again what it was when I walked in Eden,” then the farmer has learned the last lesson of his calling as at all other human pursuits, for he perceives that as a tree produces a flower not for the sake of the flower, but for the seed which the flower covers, and which will reproduce the tree—so it is not the wheat, though it grew a thousand bushels to the acre, nor the pears, although a single one would feast the country, but it is the manhood and moral development of the farmer himself, wrought out by perpetual contact with the beautiful processes of nature, which is the crop of lasting value that grows upon his farm, a crop whose harvest is human happiness. * * * *New York Evening Mail.*

“Knowledge is Power,”

The best capital with which a young man can start life is a sound and well cultivated mind. We hear a good deal in this utilitarian age about safe investments, and insurance against loss, but knowledge, the wealth of a well-stored and disciplined mind, is the safest investment of time and money, and the wisest insurance against the misfortunes and difficulties which we have to encounter in the tug and tussle of life. But the great effort of the mass of mankind seems to be to secure the material blessings of life, even at the expense of intellectual and moral nature, and to protect them against the disasters of change and chance by all the safeguards which the ingenuity of human invention can devise. Men spend toilsome days and nights to heap up riches for others to enjoy; to leave a princely dowry for profligate sons to squander in the beastly gratification of depraved tastes and appetites, or after having clutched and hoarded their money bags to the very last inch of time, with affected generosity, to rear up a monumental pile of bricks and mortar for the promotion of some educational or benevolent object,

in order to gloss over the stains of a mean and niggardly life. In the constant fluctuation of material values, and amid the financial and political shocks, which are ever and anon convulsing society, all mere pecuniary investments are liable to be swept away by these disastrous convulsions. Few indeed are the safeguards around property, which can stand the tide of social and political revolution. Banks and other corporations may break and stocks become worthless; bills of exchange may be protested; men may become bankrupt, and private obligations be repudiated; in fact all the representatives of material value, like an unsubstantial frostwork, may vanish under the touch of the demon change, and utter financial ruin sweep over society; but the man who has a mind strengthened by constant exercise and filled with gems of thought, gleaned from the treasure-house of ages, and a will which quails before no opposition, has a store of wealth which is unaffected by all the misfortunes which overwhelm more sordid things, and is panoplied in an armor that can defy disaster, and win success amid the wreck and ruin of all other sources of power. Let it be the first aim, then, of every young man to secure a thorough education, and having done this, he will then be qualified to take any position which circumstances may offer, and thoroughly prepared to enter with courage the great arena of life. Knowledge is in truth the lever, for which the Grecian philosopher longed, by which the world is moved. And that father who wears out the machinery of life in heaping up wealth for his children, while their intellectual and moral culture is neglected, is sadly blind to their truest interests, and thoroughly insensible to all the nobler emotions of man's nature. I know no truer object of pity than the man whose pleasures are purely material; who has no æsthetic aspirations and joys, but who surrounds himself with the base and sordid things of earth, and seeks his enjoyment in these alone. Such a man is ill-prepared to breast the tide of misfortune, and when disaster comes and sweeps away these groveling means of enjoyment, he stands, like a blasted tree, stricken by the lightnings of heaven, the poorest and most miserable of all the sons of men, being cursed with the double poverty of mind and estate.—H., in the *Deaf Mute Casket*.

A CORRESPONDENT of the *Rural World* has a very good opinion of the Harrison potato. He thinks it more even in size than the peach blow, and that it looks better and tastes better, and is seldom hollow inside. He also says the potatoes lie in a bunch in the hill.

Mr. G. C. Gilmer Working out his Problem.

Messrs. Editors,—Your May No. contains an assurance from Mr. G. C. Gilmer that he is in a fair way of working out his theory of farming, published in May No., and reviewed in June, 1868, by his "Friend Ficklin."

These opinions are assuming a serious form, since they are re-asserted as a whole, and liable to make converts to a theory it will require several years to test; and should failure ensue, it will fall heavily on the class of struggling farmers to whom his system is most applicable. He carries his eggs in too few baskets, and lets go his hold on mixed husbandry, avoids stock, and works but "two ploughmen" as a regular force and other hands as "a frolic in busy seasons." Now, four hands on a six hundred acre farm is his practice, and to do all the work the year round. One of these hands is his manager, who tells his *sanguine* employer that "he has conquered the bushes, broom-straw and briars in the field on which he had attacked them, and, with his present force, in three years more he could bury the last member of these unsightly and unprofitable pests." Stick a pin here.

Mr. G. assumes, on his own responsibility, that he will cultivate his 600 acres of open land better and cheaper with this force than he formerly did with 22 slaves; if better, then he is wonderfully reconstructed and improved by new examples of industry and thrift around him. With this increased leverage of 4 against 22 hands, he proposes "to put in 10 to 15 acres in corn certainly, not over 20," and give his four hands time "to devote to fencing, clearing up, ditching, picking up rocks," &c., for seeding rye and wheat in the fall. Why rye instead of wheat? Mr. G. theorizes what is best suited to a large body of farmers, and if they adopt his policy, who is to raise the excess of corn needed in the country around him? who to raise stock and give employment to all others than the few *magical* hands to be had of the class he employs? and who will send grist to his mill that enables him to live and raise but *garden spots* of corn? How much?—tell, Mr. G. And if your neighbors curtail in corn as you do, how much must you add to your crop to make up the toll from others?

Are you not, Mr. G., breeding from four fine mares, and had you not better increase your stock of cattle and sheep to assist in destroying the sassafras, sedge, briars and pests in their *season*, and some of your *excess* of forage in winter and early spring, as well as hogs to eat what excess of corn you *ought* to raise, since the latter

produces bacon worth now 20 to 25 cents, equal to an average of 15 cents for pork?

Lastly, Mr. G., tell us how the "100 acres in yard, barn, garden and truck patches" are managed "to pay," and favor us occasionally with reports how your theory is working out, and *particularly* your *results* from your farm, and which of the many fertilizers you are trying has done most towards these results. F.

Agriculture.

THE BEST FARMER IN THE COUNTY.

The name of the county is not material, nor would the honest, industrious man who is generally admitted to beat all his neighbors in the quantity of his crops, and the general excellence of his tillage, be pleased to see his name paraded before the great public. He lives about twenty-five miles from Philadelphia, and the fortieth degree of latitude is very near his north line. His area is a little over 200 acres. More than a hundred years ago, when Benjamin Franklin was the most conspicuous citizen and the ablest editor on this continent, the ancestor of our hero came hither from Wales. In the quaintness of those colonial days he spelled his name with a double-f and double-o. His son took the clearing, and pushed the ring fence of old oak and walnut further and further from the center. His son succeeded, and *his* son and *his* son, to the present generation. Now these ancestral acres are hallowed by the labors of a pedigree of farmers who all followed in the footsteps of one general father, earning their bread and making the bread for many other mouths by honest sweat, and wearing to their coffins the bronzed face and the calloused hands.

The soil is a light clay loam, so admixed with sand as not to hold water except on two or three low places that have been thoroughly tile-drained. There is not a stone, nor a stump, nor a log, a clump of bushes, or a nest of weeds on the place. The whole area comes under the ploughshare once in four or five years. The general surface of the region is level, but on this place are two swells, very moderate indeed, not worth noticing by one accustomed to hills, yet just sufficient to allow good drainage. We mention these details because there are thousands and thousands of such farms all over the great West—farms that could be made just as productive and as profitable. The average American farm is nearly 200 acres, and as the art of agriculture is now understood and practiced, this is the best size for regular tillage husbandry, such as the best

farmer in the county carries on. As this statement will not be received by some, and as it is wide of the catch words, "Ten Acres Enough," we will give a few reasons for the faith that is in us: 1. Except in the vicinity of cities, where the manure of great stables and breweries can be obtained, the profit of farming must depend on the use of yard composts. The quantity of this must depend on the number of animals kept, its strength on the quantity of rich food which they consume. The same attendance and labor will feed and fatten the animals on a two hundred acre farm that would be required on a hundred acre farm. 2. In the improved condition of all farm tools, it will not pay to use poor, old-fashioned implements. The progressive farmer will have the best; they cost several hundred dollars, and when bought they will do the work on 200 acres as well as 100. 3. On a large farm the fields are larger, the roads longer, not so many bouts, headlands, fence-corners, and dead furrows.

If the farmer's methods are good and his thinking sound, it costs no more to spread it over a larger area. If a man can plan well for a good crop of wheat from 20 acres, he can plan as well for 40, 60, or 80 acres.

On the other hand, when a farm is much over 200 acres in area, there will arise a grave difficulty in harvesting grain and grass at precisely the right time. The more acres one has down, the more dependent he becomes on the weather, the more risky and speculative becomes the business of agriculture.

This farm is divided into fields of not over fifty acres, nor none less than fifteen. Many interior fences he has removed, and more might be. His general plan is to have about fifty acres in grass. After cutting three or four crops, of about $2\frac{1}{2}$ tuns per acre, he turns the sod under in April and plants corn. In a few cases he allows corn to follow corn, but not often. The upturned sod is further enriched with yard manure, which is well harrowed in, the harrow teeth being small and short, so as not to disturb the sod.

When the season is a good one he gets 70 bushels to an acre, and sometimes 80, but these are exceptions. On a rich soil like his, in this climate, the tendency of corn is to run to stalk, and his difficulty is never to get it to grow tall, but to make the ears correspond to the bigness of the stalk. Here is one of the unsolved problems in our tillage. One might suppose it easy to lift an acre from a capacity of 60 to 80 bushels in corn by extra doses of manure, just as it can be raised from 40 to 60. But let the farmer try. If

the season suits he will get corn stalks that run up like fishing rods. Some of the tallest will have no ears at all, others 12 or 15 feet high will give one nubbin eight feet from the ground. With fifty acres in grass and fifty in corn, our farmer has one hundred left for pasturage, roots and small grain. Most cultivators would allow thirty or forty for pasturage; he does not. This year he has nearly fifty acres in wheat, fifteen in rye, and will put in fifteen acres of potatoes. Like Mr. Mechi, he believes in the plough, and would not keep wide reaches of old sod. Of wheat he raises from 18 to 25 bushels per acre. In this great cereal we have another unsolved problem. Any good farmer will say that by using more manure he can get a ranker growth of blade and stem, but his bushels will not be increased in proportion; for the crop will begin to lodge by the middle of June, and half of it may be flat by harvest. Are these difficulties with our grand cereals—the bars that so often stop the corn grower at 60 bushels and the wheat grower at 25 bushels per acre—are they the work of climate, of shallow ploughing, of the unskillful application of manures, or bad sowing? Our farmer understands potatoes, and can make an acre bring him \$300. Like all cultivators of rich level surfaces, he has the rot to contend with. Of the many varieties he has found the peach blow the most popular in market, and the best late potato. He plants about three feet apart each way, and cuts his seed small, so as to allow but one or two vines to a hill. When the shoots are fairly out of the ground he throws a furrow from each side so as to cover them. The potato is such a hardy and vigorous grower that it will push out from this shallow burial and so outstrip the weeds as to gain and keep possession of the surface. He never has use for the hoe, and never manures in the hill for potatoes. If it were not for the rot this crop alone would soon make him rich. He is planting the Harrison this year, well aware of its inferiority as a table potato, but he hopes with this new and vigorous variety to elude his enemy for two or three years. His sales have been of potatoes, hay, corn, wheat, rye, and rye straw, pork, and fat cattle. Experience is showing him the advantage of feeding out most or all of his hay and corn to fattening animals, and parting with no vegetable products of the surface but wheat and potatoes. Such is without doubt his true policy, and he would have been driven in that direction much sooner had there not been, at the edge of his farm, an inexhaustible bed of marl as rich in potash as wood ashes. This fertilizer he has used freely for twenty or thirty years, but of late the conviction is forced upon him that marl has made his land as rich as marl alone

can make it. Quite likely. A highly productive soil contains three or four important substances, such as potash, lime, ammonia, phosphorus. The first of these, potash, he gets in abundance when he applies marl; but for the active, concentrated fertilizers, that make the deep green blade, the long ear, and the heavy head, he must look to rich stable manure, to bone dust, and to guano. White oak is choice timber for a cart wheel, but ten cords of the best oak that ever grew, without iron for the bolts and tires, would not do the farmer as much good as a fourth of a cord *with* the iron. Just so of potash manures. Alone they cannot carry lands to the highest productiveness.

Let us calculate how far this excellent farmer, with his 200 hereditary acres, benefits society. It will illustrate the fundamental value and worth of the ploughman. His wheat crops made into flour supply 200 mouths annually with white bread. His potatoes feed 300 persons a year at the rate at which this tuber is usually consumed in families. If the grass he grows were changed to milk, it would supply 300 persons; changed to beef, it would feed 60 persons. His corn transmuted to pork would give 200 consumers full annual rations. Why should the man who can do *this* aspire to the degradations of local or of national politics? Why hanker after the gambling uncertainties of traffic? Why rasp his temper between the endless chafing of other men's quarrels?—J. B. L., in *New York Times*.

Rye for early Green Food.

The importance of a supply of green feed for stock in the Spring, is very often realized at that time, but generally overlooked at the proper season of preparing for it. Experienced graziers know the value of an early bite. Cattle, horses, and all stock thrive faster for an early supply of green food. Youatt says of the horse: "The Spring grass is the best physic that can be given to a horse. To a degree which no artificial aperient or diuretic can reach, it carries off every humor that may be lurking about the animal. It fines down the roughness of the legs, and except there be some bony enlargement, restores them to their original form and strength." To horses that cannot conveniently have a run at grass, it is especially important that a supply of green food be duly provided for.

There is no plant which so readily offers a supply of this as rye, and we suggest the sowing of a lot either for early pasturage or for

cutting. It will afford a good cutting full two weeks before the clover, and so far as we know the use of it is attended with no ill effects. One of the most successful farmers we ever knew was in the habit of sowing rye in rich lots, chiefly for Spring grazing. If seeded in September, the plant becomes firmly rooted, and affords a great amount of herbage during March and April, until the clover is large enough to graze, and if the stock is then taken off, the yield of grain will be almost as good as if the crop had not been grazed.

A light rich loam is the best soil for rye. It makes a good growth of straw on ground not fit to be put in wheat. But the richer the better of course for a good yield. We would sow not less than a bushel of seed, when intended chiefly for grazing or cutting. Sow early in September.—*Rural Minnesotian*.

The Relations of Plants to their Food.

The agriculturist who would obtain the largest results from a given expenditure of time, labor, money and material, should not content himself with the mere knowledge of the nature and character of the food required for each crop he cultivates, but should also make himself familiar with the physiological action of the growing plant itself upon the various agents presented to it by the soil, manure, the air and the rain. Ignorance in this particular will lead to as ridiculous errors as that of the self-conceited correspondent of a British provincial newspaper, who having in some way or other acquired the information that nitrogenous matter was the basis of the formation of all the tissues of the body, immediately rushed into print with a furious denunciation of the extravagant habit of using bread and meat to support animal life. "What we want," said he, "is nitrogen. Why, then, adopt as the sources of nitrogen, materials which are so expensive, and which contain so much extraneous matter?" He then went into a calculation of the amount of nitrogen contained in the ordinary articles of human food, and triumphantly contrasted it with the quantity which an equal weight of Peruvian guano would supply. He then calculated the relative cost of these two varieties of nitrogenous materials, and indignantly demanded why so valuable a source of supply of the inevitable waste of living tissue had been so long neglected? He also cited numerous statistical arguments to prove the enormous saving which would result from feeding the inhabitants of the Brit-

ish islands on guano soup, instead of those ancient dainties so dear to every British stomach, roast beef and plum pudding.

Of course it is easy to laugh at the ignorance of this reform in gastronomy, and to point out the glaring errors of his theory. But is it any less absurd to undertake to feed a plant without knowing in what form it appropriates its food, and how it disposes of it when once introduced into its organism? Much has yet to be discovered in reference to this matter; but enough is already known to give important practical hints to those who will master truths already acquired, and who will add to their number by careful observations of their own.

Every one knows that there is a great diversity in the appetites of plants, some being what are commonly termed gross feeders, while others are known as moderate in this respect. Much depends, of course, upon the duration of the plant's life, and upon the size it attains at maturity. A large, succulent, rapidly growing plant like corn or tobacco, will, of course, demand more food in a given time than a smaller vegetable, which takes a longer time to reach maturity. The existence of a plant is dependent upon the time it takes to form and ripen its seed, perennials being left out of consideration. Some of our little spring flowers shoot up, expand their blooms and ripen their seed within a few days. Their task in the world being accomplished, nothing is left them but to fade and perish. Others require the entire summer for their maturity, while others again need the influences of two seasons to complete their existence.

It is not our intention at present to enter into a consideration of the varieties of nutrition dependent upon these varying vital conditions, but rather to call attention to certain facts which bear upon all varieties of growth. Every one knows that the young leaf in the spring manifests its greatest activity during the earlier periods of its existence. Chemical examination shows the same fact. Chemical activity is always proportioned—every thing else being equal—to the solubility of the agents reacting upon one another. In the ashes of the young leaves of the beach we find 30 per cent. of potash, while in the same leaves withering in the autumn blasts, but 1 per cent. remains. So, too, phosphoric acid, which existed in the proportion of 24 per cent. in the spring, has fallen to 2 per cent. in the fall. The insoluble materials, on the other hand, greatly increase as the leaf grows larger.

The truth is, the earlier part of the existence of any plant is occupied in preparations for the future. For example, the turnip,

immediately after sprouting, devotes its energies for half the period of its growth chiefly to the production of leaves. At the end of sixty-seven days, the turnip crop, according to Anderson's experiments, had formed twelve thousand, seven hundred and ninety-three pounds of leaves, and two thousand, seven hundred and sixty-two pounds of roots. At the end of the next twenty days, the leaves weighed nineteen thousand, two hundred pounds, while the roots weighed fourteen thousand, four hundred pounds. In thirty-five days more the crop was gathered, and weighed eleven thousand, two hundred and eight pounds of leaves, and thirty-six thousand, seven hundred and ninety-two pounds of roots. Of course it will be understood that these figures all represent equal areas of the same field, cultivated in the same manner. The point to which we wish to call attention is, that during the last period of growth there has been a reduction of the actual weight of the leaves, due to a transference of already elaborated material from the leaf to the root. We thus see that the turnip, during the early and more vigorous stages of its growth, has expended its energies in laying up and organizing nourishment in the leaf, which is afterward carried back to the root.

This is no exceptional case. All plants have experiences more or less similar. Thus winter wheat spends much of its early vegetative power in developing strong roots, at the expense of its young leaves. Indeed, it has been observed in the fox-hunting districts of England, that a field trampled by horses in the winter, so as to leave scarcely any wheat visible, has produced far more grain at harvest than another not subjected to so rough a system of improvement.

It is plain, then, that as a general rule it is the duty of the agriculturist to see that, at the beginning of their growth, his young crops shall be abundantly supplied with soluble plant food. There are, of course, some exceptions to this rule, which need not be here considered. The young plant needs a very full supply of food; first, because, as we have already seen, it is busy for the future as well as for the present; and secondly, because its roots being small and weak, it cannot go far in search of nutriment, but must find it on the very spot on which they are growing. A crop well started by a judicious supply of soluble manure, will grow vigorously, and maintain the advantage thus secured to the very end of the season. It is impossible to over-estimate the importance of insuring to the young crop a rapid and active growth at the beginning. More roots are formed, and they are pushed farther through the soil.

More leaves and stem rise into the air, and consequently a far more energetic appropriation of the atmospheric constituents of the growing plant becomes possible. Indeed, the strong, healthy plant is able to rob its weaker neighbor of the nourishment universally distributed throughout the atmosphere itself.—*Baltimore Leader*.

Hints on the Cultivation and Management of Tobacco.

Messrs. Editors,—Some time ago I promised to give you my notion about raising Tobacco, and now proceed to fulfill my engagement. And first, I will speak of

PLANTS.

There is no such thing as raising tobacco profitably without early plants, and yet if earlier than the first of June they will be sure to make narrow leaf tobacco. In selecting my plant land, I prefer to do it in July, for the next year, and choose a valley detached from any field, facing the southeast, on which is a growth of whortleberry and some ivy. I cut off the bushes and timber, but let the leaves and litter remain, and manure it heavily with the best manure I can get. I prefer cow manure, collected in May, and piled under a shelter to protect it from rain. This has fewer grass seeds in it than any other manure. Tobacco stalks answer very well. A little before, or as soon after Christmas as the weather will permit, I take off the leaves and other litter, and if I think there is grass seed that has not germinated, I cover the bed with dry brush, if to be had, putting the leaves on the brush, and burn them; then with grubbing hoes sunk in the ground as deep as possible, giving the handle a wrench, I loosen the ground, but not so as to bring the clay to the top; I then chop with sharp hoes, take off the roots, and prepare for sowing the seed. I prefer not to sow the seed until the 25th February, and then sow about half the quantity of seed (a table-spoonfull is common,) on every hundred square yards; a little before I think the seed is sprouting, I sow the other half spoonfull, and tread without raking. If the first sowing come up well, the second does not molest the first. Thin sowing yields more plants than thick. I prefer to tread when some of the dirt will stick to the feet; the plants grow better trod then than when the ground is dry.

When the plants are large enough, I plant, but would much prefer to set them out when the land is in good order to work; if set out when the land is too wet, the plants do not thrive well; if set out early in the season, and they are large, or if set out in

the evening, and there comes rain on them before they wilt or lap from the sun, they are apt to be narrow leafed; but this may be altered by running a coalter on each side, so as to make them wilt or lap; then it will take a broader growth.

When tobacco is cut and it rains on it so as to make it strut, and the stems turn upward, unless this be corrected the stems will rot, and the quality of the tobacco is, of course, much injured by it; the leaf on each side of the stem loses nearly all the quality of tobacco, and is hard to get soft enough to strip; if the stem be soft enough not to break, the leaf is too soft. When tobacco gets in that state, the best remedy I know of is to re-cut it. Some years past I had a scaffold of tobacco strutted as above. About 12 o'clock I went to it and re-cut one stick; an hour after I went to it; the stems of what I had cut were soft and hung down straight. I then re-cut all on the scaffold. Before night all the stems were soft and tough, and it cured well, having no appearance of ever having been strutted. Since then I have re-cut all that were strutted with good result.

CHARLES BROWN.

Albemarle, Va., June 14, 1860.

[Our octogenarian friend, who has favored us with the above article, prefers to select the ground for growing his plants in this month for his next year's crop of tobacco. For this reason his suggestions are reasonable to those who may desire to adopt his plan for regulating their future practice.—Eds. S. P. & F.]

Disappointment in Swedes and Germans as Laborers.

Messrs. Editors,—I feel it to be a duty I owe to brother farmers to give, through your valuable paper, my experience with regard to white labor. Much has been said and written on the subject, which amounts to nothing more than mere opinions. I propose to give you naked facts, leaving the reader to draw his own inferences.

In the Fall of 1868, through the medium of the Newberry Immigration Society, I ordered from New York three white single laborers. On the 20th November three stout red-faced Swedes arrived at my farm. I put them to work at once in chopping and splitting rails. They performed admirably; so well, indeed, that I ordered a Swede family from New York. (We always have to advance about twenty dollars to pay traveling expenses of each emigrant from New York, including the continued expenses of the Society.) On the 30th of December I received a "splendid" Swede family, as the agent called them, but really as mean and degraded, es-

pecially the woman, as the lowest order of free negroes. I kept them until the 3d of April, when I discharged them, after losing upwards of one hundred dollars on them. The first three determined to go to Chicago, and on the 25th of January also left me, minus several dollars.

I have never seen or heard of a people who eat so much as the Swedes. If a man has to feed them to the extent of their wants, and is not strong in purse, they would ruin him, even if he allowed no wages.

I concluded next to try Germans. On the 12th of February three good looking specimens came on my farm. They did very well for a while. One of them, however, turned out to be crazy, and I had to send him off, losing his traveling expenses. (I have heard of another crazy one in our district.) The other two staid and did tolerably well until the sun commenced shining warm. They loved the shade; would stop ploughing or hoeing, take a rail off the fence and put it across from one pannel to the other, and sit down, and if I didn't show myself they did not work near as much as the freedman on the same place. I finally told them they must work better, or I could not pay them ten dollars per month and board, as I was then doing. They proposed to leave, and with my full consent they departed the 12th of June. While in my service, they staid in my own house, ate at my table, and fared as I did.

I am now done with white labor. This Immigration Society in New York sends to us (down South) the offscouring of the earth—penitentiary birds and lunatics out of their asylums. There have been a great many immigrants brought to this district, very few of whom have been worth their board. I think this immigration business one of the grandest humbugs of the day. H. D. B.

Newberry, S. C., June 14, 1869.

SEVERAL English gentlemen who went last September to Virginia to spend some time in hunting in the Blue Ridge, were so delighted with the country that they purchased a large tract of land on the Manassas railroad, near Gainesville. A colony of English will settle on the land in the spring.

A correspondent of an exchange advises American farmers to adopt the rule of many English farmers—that is, never to allow two white straw crops, such as wheat, oats, barley and rye to follow each other.

Fertilizers in North Carolina.

A committee of the State Agricultural Society of North Carolina, appointed "to investigate the subject of producing fertilizers in this State, for sale to the farmers of the State at fair remunerating prices," addressed to the State Geologist, W. C. Kerr, Esq., a letter, stating that "the object of the Society is, first, to ascertain whether the materials exist out of which fertilizers can be manufactured; secondly, to ascertain whether they can be produced in such quantity and form as to compensate the manufacturer and remunerate the farmer," and asking any information he might find leisure to give them on the subject.

To this letter Mr. Kerr made the following reply :

RALEIGH, June 10, 1868.

Geo. W. Whitfield, Esq., Hon. D. M. Barringer, Col. John L. Bridgers, Committee, &c.:

GENTLEMEN,—I have not yet had time to give the subject of your communication the attention which its importance demands, having been wholly occupied with the survey of the Western section of the State. It is my purpose, in a few months, after completing the examination of that region, to take up, in detail, the study of the marls of the eastern counties, and, in connection with them, to discuss the whole subject of our resources of fertilization in this State, and the best methods of utilizing them. But it has occurred to me that it might be worth while, preliminarily, to call the attention of your Committee and of the Agricultural Society to some general considerations which must direct and limit our investigations and experiments in this direction.

Without going into the general subject of manures and the theory of their action upon the soil, it will be sufficient to state in general, that the principal problem of practical agriculture in our State and region is, how to *restore and maintain the supply of lime and humus* in our soils. This is so, partly because these are among the most important ingredients, and, at the same time, the most liable to exhaustion, and partly because, whatever method is adopted of supplying these, the other exhaustible elements are also restored incidentally.

The methods of supplying humus are mainly two: First, the ploughing in of green crops; and, second, the direct addition of it in the form of stable manure, peat, muck, &c.

Lime may be restored directly, as lime, or in the form of marl or

gypsum. And, still better, either or both of these may be composted with the peat, &c.

Since the process of improving soils by ploughing in green crops, however advisable, will not readily nor speedily be adopted by our farmers, and since the quantity of stock in our region is and must long remain utterly inadequate to furnish a supply of stable manure, it is important to inquire whether there are other *available* sources of supply. The immense peat beds of our coast region will at once occur to you as capable of furnishing unlimited quantities for an indefinite period. In fact, there is enough to supply for one hundred years every acre of cultivated land within ten miles of a railroad or navigable river.

As for lime, of course the marl-beds of the same region furnish an inexhaustible supply. The manufacture of lime for agricultural purposes ought to become at once a large and lucrative business. The soils of a very large proportion of the State being of granitic origin, are generally very deficient in this most important element. It might be supplied to a large part of the eastern and middle sections of the State from the marls near the coast, which are often almost pure limestone. This is one manufacture your Society would do well to encourage.

As to the matter of transportation of peat and marl to considerable distances, I have no doubt that much might profitably be done in that way. Peat, air-dried, loses from $\frac{2}{3}$ to $\frac{3}{4}$ of its weight. The marls of the coast are in many places rich enough in fertilizing ingredients, phosphates, potash, &c., to bear transportation (and where they are not, they might, in some cases, be concentrated by simple mechanical means) over large districts, along the rivers in whose banks they abound, and on the line of the railroads, as is done so extensively in New Jersey.

But this is not the enterprise which I propose for your consideration. It is the utilization of these materials, *together with the waste from the fisheries* of the sounds and rivers of the same section, for the manufacture of a manipulated manure which may be profitably transported over the whole State by water and rail. These fisheries, as you are aware, furnish thousands of tons of refuse and offal annually, which are now little better than thrown away.

Consider the composition of these materials: The marls contain, besides lime, which is the principal ingredient, iron, magnesia, phosphate of lime and organic matter, and some of them, also, potash and soda.

Here is an analysis of a stone marl near Wilmington, given by Mr. Emmons: Silex 20 per cent., phosphate 5, magnesia 4, carbonate of lime 72, organic matter, &c., 2.

When the sand constitutes a large proportion of the marl, it may be separated by simple means, so as to concentrate the more valuable ingredients, as lime, potash, phosphates, &c.

The composition of peat may be stated (as an average of many analyses) to be as follows, viz.

Humus,	84.1 per cent.
Potash,	2 " "
Soda,	1 " "
Lime,	4.2 " "
Magnesia,	5 " "
Alumina,	1.0 " "
Iron,	3.1 " "
Sulphuric acid,	1.3 " "
Chlorine,	1 " "
Phosphoric acid,	6 " "
Silix,	4.4 " "

An analysis of the fish offal gives the following, viz:

In 120 parts, oil,	20.0 per cent.
Other organic matter,	78.3 " "
Lime,	8.7 " "
Potash,	1.6 " "
Soda,	1.0 " "
Phosphoric acid,	7.8 " "
Chlorine,	7 " "
Silica,	1.3 " "

Thus it is evident that by a judicious selection of marls and peats, (and the concentration of the former when necessary,) and the addition of fish offal, (and in some cases, if desirable, a small portion of guano and gypsum,) an unlimited quantity may be made of a fertilizer superior to most of the imported articles, at a trifling fraction of their cost, and capable of transportation to all parts of the State,—a fertilizer which, besides the principal ingredients, wanting in our soils, lime and humus, contains all the other elements of stable manure, or the best guanos. Here, then, you have all the necessary materials in unlimited abundance, without cost, in immediate proximity to each other, on navigable waters, and connected with all parts of the State by railroad. It is not easy

to see what better conditions could exist anywhere for a profitable enterprise of the kind you contemplate.

It will give me pleasure to aid you in any manner in furthering such an undertaking.—W. C. KERR, *in the Sentinel*.

POSTSCRIPT.

To G. W. Whitfield, Esq., Hon. D. M. Barringer and Col. John L. Bridgers, Committee of the State Agricultural Society:

GENTLEMEN,—By way of postscript to a recent communication on the subject of manures, I enclose a brief article on composts, which was recently prepared as a general answer to inquiries on this subject, which are frequently addressed to me by practical farmers in different parts of the State.

With the view of promoting the manufacture of manures in a small way, by all our farmers, and the saving of an enormous amount of material which annually goes to waste for want of a little care and a little instruction, it is desirable to place in their hands a few simple compost formulæ, applicable anywhere in the State, and calling only for such materials as are generally accessible.

Here are two which should be prepared in summer or fall, to be used the following spring; the materials may be either thoroughly mingled and then thrown into heaps, or laid down in alternate strata:

Formula 1.	Peat,	1 cord.
	Ashes,	10 bush.

For ashes may be substituted twice the quantity of marl, or of leached ashes.

Formula 2.	Peat,	3 cords.
	Lime,	5 bush.
	Salt,	1 “

For peat may be substituted muck, leaf mold, pond mud, &c. Dissolve the salt, slake the lime with the solution, and then mix with the peat, &c.

The following may be prepared in any season, and in warm weather will be ready for use in two or three weeks; over-heating should be prevented by watering and occasional turning:

Formula 3.	Peat,	2 cords.
	Stable Manure,	1 cord.

This will give three cords, nearly as rich as stable manure itself.

Formula 4.	Peat,	10 bush.
	Night-soil,	1 “

For night-soil may be substituted the same quantity of guano (Peruvian), hen manure, cotton seed meal, fish, fish-offal, or any putrescent animal matter. A dead horse will convert 5 cords of peat into excellent manure, sufficient to enrich an acre of land.

Formula 5.	Straw,	3 tons.
	Ashes,	3 bush.
	Plaster,	1 “
	Night-soil,	5 “
	Salt,	$\frac{1}{2}$ “

The result will be nearly equal to so much guano. For straw may be substituted leaves, weeds, potato vines, corn stalks, Chinese cane, &c.

Plaster is an excellent addition to any of the above formulæ. To any of them also may be added, with great advantage, yard sweepings, scrapings of hen-house, smoke-house and privy, kitchen and chamber slops, animal offal of all sorts, soot, ashes, waste brine, &c.; all of which are turned to valuable account, instead of being allowed to pollute the air by their noxious exhalations, and to poison the wells by their leachings, as so often happens, especially in towns. These may seem small matters, but they are not so to those who look for the “causes of things,” and cannot be so regarded by any to whom the health and wealth of society are not also such.

Perhaps you will not consider it an intrusion if I add a few suggestions on the subject of the revival of Agricultural Societies in the State, and the best means of promoting the ends which your Society has in view.

I desire to call your attention to some considerations on the propriety of organizing three subordinate Agricultural Societies, corresponding to the three natural divisions of the State, viz: Eastern, Middle and Western. These regions are as diverse in their leading geographical, climatic and agricultural features as if separated by half a continent. The eastern division is characterized by the prevalence of level or slightly undulating plains, and by peaty, alluvial and sandy soils; the middle, by a rolling and hilly surface, and clayey and gravelly granite soils; the western, by a succession of lofty mountain ranges, with infinite cross-chains and spurs, intersected and divided by narrow valleys and elevated plateaus, with various soils, generally gravelly and open, often clayey. And these differences are accompanied by climatic features quite as distinctive, the western section being, in this respect, as strongly diverse from the eastern as the latter is from New York. And it

is apparent that the agricultural products, the modes and implements of cultivation, the means and sources of fertilization—in a word, all those matters which constitute the staple of the discussions of Agricultural Societies, must show a corresponding diversity. What interest, e. g., have the farmers of Buncombe in the discussion and experimentation of marls and peat, or in the cultivation of the scuppernong or cotton? And on the other hand, why should the farmer of Edgecombe or Perquimans waste his time in studying the conditions of stock-raising, or the manufacture of cheese, butter, &c.?

The suggestion I would make is, that the leading farmers of the middle section of the State—Mecklenburg, Guilford, Orange, &c.—unite their influence and efforts to form a Society for the discussion and development of those points which are common to the farming interests of those counties, such as the proper selection and rotation of crops, the best method of renovating exhausted soils, the kinds, sources, manufacture, cost, transportation and modes of use of fertilizers, &c.; while a similar association of farmers in the east take up such subjects as market-gardening, the utilization of marls, peat, &c., the cultivation of the vine, and other matters of special importance to the agriculture of this region; while in the west they will naturally occupy themselves with cattle, fruit, dairy farming, &c.

There would remain a large residuum of subjects, whose interest is as wide as the limits of the State, which would belong to the proper province of the State Agricultural Society. Among these may be mentioned agricultural education, the Agricultural College, the conduct of a State Agricultural paper, the introduction of agricultural implements and machinery; the manufacture, transportation and inspection of fertilizers, the whole matter of immigration and labor, the requisite changes in our system of farming and the like.

You will no doubt agree with me that it is time to consider these matters in a practical way, with a view to immediate and effectual action.—W. C. KERR, *in the Raleigh Sentinel*.

Will Lime Kill Sorrel?

Several agricultural papers have, during the past year, published a short and comprehensive article on the exterminating of sorrel. The method is to apply lime. The author of the article arrived at the conclusion that lime would kill sorrel, by some such syllogistic reasoning as this: Plants get their sustenance from the soil. Sor-

rel contains an acid; hence an acid is in the soil. An acid is neutralized by an alkali; hence lime will prevent the growth of sorrel. The trouble about this reasoning is, that it abounds with too glaring generalities to be of any value. Oxalic acid, which is a peculiar principle found in sorrel, is not likely to be a constituent of the soil on which the plant grows, but is produced from other substances taken from the soil or air by the action of the vital force of the plant. It is, in short, a product of the growth of certain plants, sorrel among the number, just as sugar is a product of the corn stalk, opium of the poppy, and oil of the flax seed or the castor bean. If sugar, opium and oil existed in the soil, the plants that abound in them at certain stages of their maturity would not profit by their presence since they could take them up, only after they were decomposed. We presume, too, that sorrel would not thrive any better on oxalic acid than poppies would on pure opium, while castor beans would show as much repugnance to castor oil as invalids do. Nor is it probable that oxalic acid would long remain in any soil undecomposed, as it is one of the most unstable of compounds, and chemists find it very difficult to keep it from decomposing.

A writer in the *Farmers' Gazette* contends that the growth of sorrel is caused by the presence of carbonic oxide in the air, instead of carbonic acid. He argues this from the composition of oxalic acid, which is the peculiar ingredient of the sorrel plant, and from which it derives its scientific name. According to this theory, excess of carbon in the soil and a disproportionate amount of oxygen circulating through it, would tend to develop the growth of sorrel, because the carbon would be imperfectly oxydized. To prevent this pest or to kill it out, we should then cause a free circulation of air through the soil by deep tilling and drainage. The application of quick lime would not effect this result, as it would result in abstracting the free carbonic acid from the air, and the formation of carbonate of lime. The presence of protoxyd of iron in the soil would also encourage its growth, since it would abstract oxygen from the air and become converted into the sesquioxyd or the peroxyd of iron. So, too, the presence of iron pyrites—sulphuret of iron—would tend to the same result, because both the sulphur and the iron would abstract oxygen from the air more readily than carbon does, and the two substances, becoming oxydized to different degrees, would unite to form the sulphate of iron or copperas. Similar results would take place when other sulphides are exposed to the action of the atmosphere.

According to the above mentioned theory, the application of

ashes, or any form of soda or potash, would result unfavorably to the killing out of sorrel; as their first action is to absorb carbonic acid, and to pass either into the form of a carbonate or bi-carbonate. It is true that in time, after the carbonate of lime, soda and potash have been worked into the earth, the carbonic acid may be liberated from the bases, in consequence of the action of some stronger acid, like humic acid. Thus the secondary effect of the application of alkalis, like those we have mentioned, may be favorable to the growth of sorrel, by causing a growth of better plants to spring up, which will respire carbonic acid from the air, and in turn exhale oxygen; but it must be borne in mind that this would not be the direct effect of alkalis on the growth of sorrel.

Many have the idea that oxalic acid exists in the soil, and that the office of lime or other caustic bases is to sweeten the soil by combining with it; but nothing is farther from the fact than this. And even if this was the case, it would not follow that the application of alkalis would prevent the growth of plants containing it, since oxalic acid exists in sorrel, in the form of oxalate of potash, and in lichen it is found in combination with lime. Lichens contain a larger proportion of oxalic acid than does sorrel, and still it is not unusual to find them growing in crevices of lime-quarries, and it is said that the marble pillars of the ancient Pantheon at Athens are covered, for a considerable distance, with a growth of lichens, the lime of the wrought marble obviously contributing to their sustenance.

It is certain then that the application of an alkali will not work the change that is expected of it—that it will not play the part of an antidote.

Still we think there is reason to argue that the use of any alkalis will greatly help to eradicate plants which contain the salts of oxalic acid, by encouraging the growth of useful plants. But it must be admitted that the way in which it operates to bring about this change is somewhat obscure, and that its method of action can not be pointed out with the precision that characterizes an ordinary chemical formula.

We are not prepared to indorse or to dissent from the theory that plants abounding in oxalic acid owe their development to the presence of carbonic oxyd in the air. Chemists are by no means united in the opinion that this gas is produced by the natural decay of vegetable matter; and the majority of them are, we think, opposed to the theory. There is a strong disposition in all substances that admit of several degrees of oxydation to pass from the lower

to the higher forms in the presence of atmospheric air. Thus the protoxyd of iron will pass into the peroxyd, and sulphurous acid into sulphuric acid.

It must be admitted, however, that carbonic oxyd is generated in large quantities in the combustion of both bituminous and anthracite coal, and to some extent in the combustion of other sorts of fuel. Nor do we consider it improbable that the gas may be set free from carbon during the operation of slow decay. Some time must necessarily elapse before this gas would take on another equivalent oxygen, so that it is probable that it will find its way to plants before it is converted into carbonic acid.

Admitting, for argument's sake, that such is the philosophy of the growth of sorrel, lichens, and other forms of vegetation that contain oxalic acid, let us see if we can prevent the formation of the gas on which they feed. It is plain that we can accomplish this by oxydizing the carbon of the soil to a greater degree than is now done. Mechanically, we can expect much by draining, deeper tilling, and exposing the soil to the action of the air and light.

But what can we add to the soil to produce any chemical result? We think none of the substances that have been recommended, we should have greater faith in than the application of nitric acid, or some of the salts that are derived from it, as the nitrate of soda, or nitrate of ammonia. Both of these salts have been used to some extent in Europe for agricultural purposes, with the most happy results. Nitric acid is a most powerful oxydizer, and is used for that purpose in most operations in the laboratory. These substances must, of course, be used very sparingly—the nitrates pulverized and dusted on the soil broadcast, or dissolved with much water, and applied with a sprinkler. The nitric acid should also be used very sparingly—that is, diluted with several hundred times its volume of water.—*Prairie Farmer*.

Cooked Food for Hogs.

My first experiment was with old corn, in three forms, viz: shelled and fed whole; ground and made into slop with cold water; and ground and thoroughly cooked.

The pigs, five in number, were from the same litter, and were the produce of a good common sow crossed with a Berkshire boar.

In each case the food was given them as fast as consumed, and all possible care taken to avoid any waste or irregularity of feeding; in every case of a change of food three days were allowed be-

fore the weighing for the experiment, in order that the effect of a sudden and entire change of diet might not affect the result.

I found that five bushels of whole corn made forty-seven and three-fourths pounds of pork. Five bushels (less miller's toll) of corn, ground and made into thick slop with cold water, made fifty-eight and a half pounds of pork. The same amount of meal, well boiled and fed cold, made eighty-three and a half pounds of pork.

With the whole corn the pigs had the slops from the kitchen (no milk), and for drink with the boiled mush, one or two quarts were thinned with cold water or slop from the house; in each case the house slop was used in some form or other, but all the milk was reserved for small pigs. The fifteen bushels of corn cost one dollar and thirty cents per bushel; and you will notice that while the pork made from the whole corn barely paid for the corn, that from the same amount of ground corn cooked paid the whole cost of the corn and a little more than one dollar per bushel over, and that the economy of grinding and making into slop will fully warrant the extra trouble and expense. How could it be otherwise, when the whole economy of profitable feeding consists in bursting or breaking the indigestible hull which incloses the minute particles of food?

In the above experiment the data are based upon pork at fourteen dollars per hundred weight and corn at one dollar and thirty cents per bushel; but it will apply as well to other prices.

The second experiment was exclusively with new corn, in two forms, viz: on the ear, and shelled and ground before boiling; and all in each case was what we know as "nubbins" or soft corn. The best of this class of corn was reserved for the pigs and the worst fed to the cattle. Ten bushels on the cob made twenty-nine and a half pounds of pork, fed in the usual way, on the ground. The same amount shelled, ground by horse-power, and well boiled, made sixty-four pounds of pork. Of course a portion of that fed on the ear was wasted; but it is the common plan, and forms but a fair test of the comparative merits of cooked food. I have made no experiment with sound, new corn, but may have a favorable opportunity before the season is past; but would suppose my experiment with old corn would form a good criterion to judge by.

I have found that there is economy in allowing the food to become thoroughly cold before it is fed; that in this state a larger amount will be eaten, with more apparent good appetite; that while scalding is beneficial, thorough and prolonged cooking under pressure is more economical. In more than one case I fastened the lids of the barrels down until the pressure was as high as five

pounds per square inch in the barrel and steamer, and an examination into the condition of the food convinced me that its globules were thoroughly burst, and it was all, or nearly all, rendered available. During a given time, the same pigs will consume rather more corn cooked than uncooked.—*Practical Farmer*.

Deep Ploughing in Autumn.

There is, probably, no one of the labors of the farm, about which there is so much controversy and such diversity of opinion, as that of ploughing. We believe that if the question were asked to-day of ten farmers, which method of ploughing, whether deep or shallow, in autumn or spring, they believed to be most desirable, not three of them would agree on any particular system, but each would furnish a theory of his own, that would, in some cases, be entirely opposed to those of some of the others; and this goes to show that ploughing is a labor entirely dependent upon circumstances of soil and crop, and that no arbitrary rule can be made to apply to all cases. We believe that the weight of opinion is, that in autumn, on a majority of soils, deep ploughing is preferable to shallow; and in spring that six inches is in most cases the greatest depth advisable; and when we look carefully into the matter, we readily discover why this should be.

Frost is a well known disintegrator and ripener of soils, and when they have been exposed to its action, its beneficial effect upon them has always been apparent. On all qualities of soil has this been noticeable.

Now if we have a green sward overlaying a heavy clay subsoil, if the latter were not broken, we can easily see that, acting as it does, as a perfect water shed, entirely unabsorbent, the falling moisture must, of necessity, remain collected in the upper soil, the effect of which would be to render it cold and sour; but if the clay be broken in fall by a judicious deep ploughing, (even subsoiling, if it is broken in its place, and not thrown to the surface,) we can see that, as clay when broken is very absorbent, the effect must be to warm and mellow the upper soil, and even deepen it, the frost mechanically amalgamating the strata to a considerable extent.

We do not, of course, wish to be understood as recommending deep ploughing on all heavy lands, for when they are not thoroughly drained it is undesirable, and even to be avoided; but where thorough drainage has been attained, we believe that the heavy, clayey

subsoil should be broken, and the whole exposed to the action of the winter's frosts.

At the meeting of the State Board of Agriculture at Concord, last winter, this matter of fall ploughing was fully discussed, and the weight of opinion decidedly seemed in favor of deep ploughing of heavy lands. Mr. Hubbard, of Brimfield, found in his experience in the cultivation of certain crops, that the fall is the best time to plough the ground; he thought that all will concede the fact, that the land, if it is heavy, clayey soil, can be worked much earlier in the spring by putting the manure on, and ploughing it in the fall. He did not care how soon it is put on after the crop is taken off; his advice was to "spread it on, plough it in; and so far as my experience goes, I have got a better crop in that way than by allowing the land to remain until spring, and then putting the manure on and ploughing it in."

Mr. Ward, of Monson, thought that much depends upon the ground to be ploughed, whether it is ploughed in the fall. "If you have a tough, hard piece of ground that you desire to break up, it is better to plough in the fall; the frost has considerable effect upon the hard soil, and I do not think there is any very great loss by the wind blowing off the surface soil. I think a light soil may as well be ploughed in the spring as in the fall."

Mr. Thatcher, of Lec, in speaking of deep ploughing, in describing a subsoil attachment for a plough, said; "We are now using in southern Berkshire, a plough which turns over the sod from six to seven inches, with a subsoil attachment running from two to four inches, which still does not lift the virgin soil the first year to the surface. This attachment running behind the mould board to the depth of four inches, usually stirs the whole width of the furrow to that depth after we have turned over the sod.

"Our idea is, that by loosening the subsoil by this attachment, we enable the rains to soak down through, which they would not do, our subsoil being clay, (which will not take in water unless the earth was loosened,) and our corn roots run down there to get their moisture. The effect of the manure is felt there; and the second year, when we come to plough up again after this stirring of the subsoil, we drop our plows down and throw up part of it. I think we certainly in our northern country derive a benefit by stirring the soil the first year, and very great benefit without lifting it to the surface, and then lifting it to the surface, and mixing it in the succeeding ploughing. I have in my mind now a six acre piece, which would not half feed a cow through the season. We could

not get more than four or five inches of soil before we came to a hard clay subsoil, that retained the water upon it, making the land cold, backward and sour. After ditching that land, and putting in some under-drains, (which, of course, benetted it, without ploughing,) we commenced ploughing this land in this way to get a deeper soil; not using the subsoil attachment that time, because we did not have it, but using a common plough, following the furrow afterwards, and lifting one or two inches at a time. I am speaking within bounds when I say that the second year the crop of corn paid twice over for the labor of ditching and double ploughing. It is as good a piece of land now, I think, as can be found in the town of Lee."

Deep ploughing of heavy lands, then, with clayey subsoils, is to be recommended in autumn, and a plough which turns the sod and lifts and breaks the subsoil, permitting it to fall back into its place, without bringing it to the surface, is the implement which seems most desirable.

Sward land with a gravelly subsoil may also be broken up in autumn, and it is even to be recommended; but it does not seem so essential to us as with the other.

Stirring the subsoil is also in this case desirable, although it should not be brought to the surface. It is well known that lands with a sandy or gravelly subsoil lose their moisture sooner than others, and vegetation, though languishing for the want of it, cannot send down through the hard firm stratum its tender roots sufficiently deep to be supplied. If it is stirred and loosened to the depth of five or six inches below the sward the result must be apparent.

We believe that the matter of subsoil ploughing has not been properly understood, or has too often been conducted in a careless, unsystematic manner, so that when in some cases it has produced unfavorable results, it has been condemned for all others; burying the upper matured soil, and bringing up the cold, raw subsoil to the surface, seems to us to be the great evil which has resulted from injudicious deep ploughing. If this is guarded against in the manner recommended above, we cannot see any objection against, and can see many recommendations for its practice.—*Mass. Ploughman.*

THE time is fast coming when landed proprietors will be esteemed for the condition of their acres rather than for the extent of territory.

New Fodder Plant.

M. Laslier, of Boston, has introduced and is cultivating a plant which he is confident will prove to be a great acquisition to the fodder plants now commonly grown in this country. This is the *Galega officinalis* of the botanist, a native of Spain, and first introduced into England in the latter part of the 16th century. It belongs to a genus of hardy, ornamental, perennial-rooted, herbaceous plants, of the lotus division of the composite order. The roots consist of many strong fibres, frequently jointed, stems numerous, hollow, erect, from three to six feet high. Its flowers are produced in loose spikes from the top of the stem, and bloom from June to September. The pods are erect, nearly cylindrical, from five to eight seeded, and swollen out with air. The color of the flowers is light blue, or light purple, white, or variegated. The variety with which M. Laslier is experimenting is white, we believe.

The plant was cultivated many years ago in gardens for medicinal purposes, but it has of late years been recommended as a forage plant for cattle. It yields a large bulk of produce. Cattle do not appear to relish it at first, and will eat it but sparingly; but, like many other feeding substances, it is thought they will soon learn to like it. At any rate, its composition shows it to possess a high nutritive value, being nearly two to one as compared with good hay; 1.92 as compared with lucerne. A distinguished chemist, Prof. Gaucheron, of Orleans, France, says 412,000 pounds of the *Galega officinalis* are quite equal in nutritive value to 200,000 pounds of good hay. The plant grows readily in most soils. It may be manufactured into paper.

M. Laslier showed us plants that had come up from seeds sown in the open air in October last. They were about four inches high, and looked not very unlike young clover plants.—*Massachusetts Ploughman*.

Sabbath for the Working Man.

The Sabbath is God's special present to the working man, and one of its chief objects is to prolong his life and preserve efficient his working tone. In the vital system it acts like a compensation-pond; it replenishes the spirits, the elasticity, and vigor which the last six days have drained away, and supplies the force which is to fill the six days succeeding; and in the economy of existence, it answers the same purpose as, in the economy of income, is answered by a savings' bank. The frugal man who puts aside a pound to-

day and another pound next month, and who, in a quiet way, is always putting by his stated pound from time to time, when he grows old and frail, gets not only the same pounds back again, but a good many pounds besides. And the conscientious man, who husbands one day of existence every week, who, instead of allowing the Sabbath to be trampled and torn in the hurry and scramble of life, treasures it devoutly up—the Lord of the Sabbath keeps it for him, and in length of days and a hale old age gives it back with usury. The savings' bank of human existence is the weekly Sabbath.—*North British Review.*

The Effects of Gathering Clover Seed on the Fertility of the Soil Shown—Value of Oil Cake.

I planted potatoes this year on clover sod. The clover last year was cut for hay, and afterwards for seed. This is running the land pretty hard, but as nothing is exported from the farm except the seed, and as a bushel of oil-cake meal, which costs about \$1.50, contains more fertilizing ingredients than a bushel of clover seed, the farm is benefitted by exchanging the clover seed for oil-cake. But unless some such plan as this is adopted, growing clover seed impoverishes your land. Last fall, in cutting the clover seed, a strip about the width of the machine was skipped, and you can now see the effect on the potatoes. They are far better than on the rest of the field. I should not be surprised if the yield was one-third or one-half greater, and this will a good deal more than pay for the clover seed. With such effects it is not surprising that many good farmers object to raising clover seed. But I think it is nevertheless true that if the money obtained for the seed is expended in oil-cake, and the manure returned to the land, there is a decided gain. You do not see the effect, however, quite so soon as if the clover was pastured with sheep, or ploughed under.—WALKS AND TALKS ON THE FARM, in *American Agriculturist.*

Let us Manufacture our own Productions.

The nation that exports its crude products or raw material for manufacturing purposes, and imports the fabrics manufactured out of them, as a general rule, never grows rich.

The true secret of national wealth is, for the nation to manufacture its own productions, thereby impressing upon them additional value by every manufacturing process through which they pass, and retaining the profits to herself, her wealth and capital increasing in proportion to the profits realized, both in the growth and manufacture of its productions.

Improvement of Worn-out Farms.

BY THE HON. GEO. GEDDES.

“I wish to say a few words in regard to a class of men who have done as much, if not more, to promote the agricultural interests of this country than any other, and yet, since my earliest recollection, they have been sneeringly called *Fancy Farmers!* They are generally mechanics, manufacturers, or merchants who have been successful in their vocations, and who have invested the first money they could spare from their business in land, and in making improvements upon it. They may occasionally have a ditch dug, and find that the water runs the wrong way, but this hurts nobody, and gives employment to those who need it for the support of their families. They do not watch the almanac, and discharge their workmen when the days become short, but employ the poor when the weather and the hours for work do not admit of a compensating return, which the man who has no other means of support than the product of his farm cannot afford to do. These men are to be found in almost every part of our country, and may be known by the houses for their workmen, their land, and their out-buildings being in better order than any others in their neighborhood. They are the first to buy what is called improved agricultural machinery and implements, which do not always prove so. Not being dependent upon their farms, they can afford to experiment; sometimes they are successful, sometimes not; but when they are, every farmer gets a benefit from their outlay. It is largely to such persons that we are indebted for many of the improvements in husbandry, and still they are sneeringly called *Fancy Farmers!*”—[Address of Thomas H. Faile, President of the New York State Agricultural Society, delivered at Albany in February, 1869.]

Mr. Faile brings prominently out, in the foregoing extract from his valedictory address, an important point for the consideration of those of us who have spent all our lives on farms, working hard to improve the soil, and to lay up a competence for old age.

The merely practical man may be an adept in the handling of tools, and he may become highly skilled in the application of labor, so as to produce great results with comparatively small means, and thus plume himself on a supposed superiority over his neighbor, who makes farming a recreation and a pleasure rather than a business. He is prone to judge his neighbor by his own standards, and to forget that in one case farming has been the life struggle against pov-

erty, and that in the other it is the reward of successful industry in some more exciting and perilous business. I once asked a successful farmer who in very early life had been a successful sailor, why he left the sea, with all its tempting excitements, and settled down to the cultivation of the soil. The answer was, "To own and cultivate a piece of solid earth is the dream and hope of most men who follow the seas, and I took the earliest time that my savings would allow to gratify this desire." This feeling is not confined to sailors, but is to be found in every branch of active business. Besides those named by Mr. Faile, editors, lawyers, clergymen, and all who live lives of active mental labor, are apt to cast longing eyes to green fields and lowing herds, and to covet the bracing air of country life. When the very few of these men that are able to carry out this desire plant themselves on farms, and turn those same mighty energies that conquered success in the other walks of life to the less exciting but still more important business of cultivating the earth, they are very apt not only to succeed, but to become models and exemplars in their new calling.

William Chamberlain, of Red Hook, Dutchess county, is one of these men. At 16 years of age he left his native hills in Vermont, and in due time became a great merchant, having ships on many seas. Industry, integrity, economy, and sagacity, in due time, reaped its harvest of wealth. The time came when his love of the country and the farm could be gratified; and about the year 1840 he went to Red Hook, and in the Winter, when snow covered the ground, he bought a large farm. His eye told him that the surface was gently rolling, and those of whom he inquired told him that the land was good. The place was near enough the city of New York to be reached in a reasonable time, while he should continue in business in that city, so he purchased what proved to be an old WORN-OUT FARM, that had been producing hay for New York until it had arrived at that condition of things that its principal production was sorrel.

The year 1841 revealed to the new owner the true condition of things. The 440 acres, less 60 acres of wood land, leaving 380 acres under what was called cultivation, yielded seventeen (17) loads of hay. Forty acres of rye gave 10 bushels to the acre; 25 acres of corn gave 20 bushels to the acre; 20 acres of oats gave 15 bushels to the acre. The remainder of the farm was in what was dignified by the name of pasture, which proved adequate to the grazing of one span of horses, two pairs of oxen, and one cow. Not to put too fine a point on the matter, our friend discovered that

mid-Winter was a bad time for judging of the quality or condition of land.

For a more perfect understanding of this case, it is necessary to add to what has been said of the farm by way of description, that the soil is generally a sandy loam, sand strongly predominating. There was a swamp of many acres made by a small brook and some springs nearly in the middle of the farm, that had not been drained, and that was so miry that a yearling steer could not cross it. There is so little lime in the soil that the springs and wells give what is called soft water—such as will answer for washing clothes. This farm lies about 200 feet above the Hudson river, its center about a mile and a half distant from the wharf at Barrytown, and is part of a beautiful plain of several miles in width and length, of gently varying surface, and on which stands the pleasant little village of Red Hook.

According to the standards of the farmers of Livingston county, or of Ohio, this land never was first-rate. There is too much sand, too much ground up granite rock, and too little lime in it to place it in the rank of the best lands; and a miserable system of farming, or rather skinning, had taken from it, by 1841, all that it originally had of fertility. *It was so poor that it would not bear clover.*

We can imagine Mr. Chamberlain's disappointment on finding out the real state and condition of his purchase. Those who know the man will not be surprised to learn that he did not surrender, but that he addressed himself to the work of reconstruction with the same energy that had made him successful as an importing merchant; and that he has succeeded in making this worn-out farm so to re-create itself, and pay its own way, that now it is entitled to rank in productive power with the best lands in this State. I will now describe the process, and give the result.

THE PROCESS OF RECONSTRUCTION.

A few sheep were purchased. Leaves from the wood lands were put in the sheds, and the sheep fed and kept on these leaves. Thus all the manure was saved. The swamp required draining as the first movement toward reclaiming it. Ditches were dug, and the muck thrown from them was drawn into the sheds, and, like the leaves, saved the manure of the sheep. Before investing much labor in handling muck, a simple but conclusive experiment was made to test the question of its value. A single cart-load that in the Spring had been thrown out of a ditch, was drawn, when dry, and

spread over four rods of ground then prepared for a crop of rye. This load, being at the rate of 40 to the acre, produced a very marked effect on the clover that was sown the next Spring, causing it to head out before harvest, while all around there was little to be seen.

The manure from the sheep sheds was piled in the Spring, mixing it thoroughly with the leaves and muck. The straw, corn-stalks, and whatever got under the feet of the sheep was also put into the heap, and composted and made as fine as practicable by the time the land for rye was ready. So much of this manure as was fine enough not to clog the harrow, was put on the land just before the rye was sown, and mixed with the surface by the same process that covered the seed. The coarsest part of the manure pile was ploughed in at the last ploughing. Four quarts of timothy seed to the acre was sown on the rye in the Fall, and the next Spring six quarts of cloversseed was put on an acre, and the last of May or the first of June one and a half bushels of Nova Scotia gypsum was sown on an acre. The manure was applied in light dressings, so as to cover as many acres as it was thought it would answer to secure the growth of the clover and grass.

For ten years the owner, being absorbed in his business in New York, could give but little personal attention to the farm. A hired man was kept on it, who acted under general instructions, and the process was but slowly going on, when, about 1850, improvement really commenced its rapid march. From that time till now Mr. Chamberlain has lived on the farm and given it his personal attention. On land not manured clover would not grow. Thus the manure question became, from the start, the important one. Mr. C. says, in a letter before me: "By drawing leaves, weeds, and every thing that would make manure, I managed to have a nice little pile to top-dress my Fall-sown grain, and was delighted to find I could raise clover, and then I found improvement of the soil quite easy. *I have purchased very little manure*; have tried guano and phosphate, but was dissatisfied with both; purchased two canal-boat loads of ashes at Syracuse, and found them good for clover; but now depend for my manure on the farm supply, and calculate to give to all the land I plough a small supply when I seed it down."

In personal interviews I have learned that guanos and super-phosphates have been fully tested, not merely by the observation of the eye, but by measuring products. Super-phosphates gave corn a great start, so that in early July it was very promising; but at harvest it was found by measurement to have added nothing to the

grain, or from appearances to the stalks. One-half of the field had the super-phosphate applied, the other half did not have it.

As to guano, he says in a wet season it did great good, but that in a dry season it did injury.

The ashes made from wood burned in the manufacture of salt at Syracuse had considerable salt and much of the impurities, such as sulphate of lime, that are taken from the water, mixed among them, In all, 25 or 30 acres of land have had these ashes applied, at the rate of about 50 bushels to the acre. This is but a very small part of the whole farm, so that in truth farm-made manure has done the work. Purchased manures have only had their value tested, and excepting gypsum, have really performed no other part than to show either their worthlessness or that they cost too much. Gypsum has, as in many other places, proved its great value in increasing the growth of clover; and the time has come when it is thought to give too much rankness to clover on this farm to make first-rate hay for sheep.

SHEEP AS MANUFACTURERS OF MANURE.

The Spanish proverb that says that where the sheep treads he produces gold, has been acted upon, and proven to be true, by Mr. Chamberlain. He has fed the produce of his farm principally to sheep, selling the increase and the wool and the mutton produced, rather than the food that produced it. The sheep have, in the strictest use of language, been used as machines to manufacture grain, hay, corn-stalks, straw, swamp-muck, leaves and weeds into material to recuperate this once exhausted and worn-out farm; and the system has been followed with an unwavering tenacity, until the result has been fully secured, and the time has come when a large surplus is produced that, when the market is high, finds its way to it.

How Mr. Chamberlain came to know that sheep were, of all animals, by far the best adapted to carry out his determination to recreate this farm, I do not know; but, in some way, he found this out at a very early day.

In the first years he was forced to use the common sheep of this country; but, desirous to have something better, he employed what was, and still is, supposed to have been a competent person to select a flock of sheep in Spain, and imported in 1849 from Estremadura, forty in number. These sheep, though every effort had been made to procure the best, did not give satisfaction, and after trial, were condemned and sent to the butcher. This satisfied Mr. Cham-

berlain that Spain, though the original home of the Merino, was no longer the place from which to procure the basis of a first-rate flock of fine-wooled sheep. He then visited Europe in person, and made a thorough examination of the best flocks in the great wool-producing countries; visiting, among others, the royal flocks of the Kingdom of Naples. In Calabria he studied the management of the flocks of Merinoes that King Bomba had cared for, as one of the important matters of State. In one place he saw 600 lambs, none of them two days old. From this, some idea may be formed of the vastness of the flocks. He also visited the Merino flocks of France and Prussia, purchasing some in both countries.

From time to time further importations have been made of sheep selected from what Mr. Chamberlain believes to be the best flocks in Europe. The French sheep have all been disposed of, and the flock now consists entirely of sheep that have, by common consent, received the name of Silesians.

I shall not attempt, at this time, any minute description of this somewhat famous flock of sheep, nor go into the detail of the management. It must suffice for me to say that the earlier importations were a cross between the Infantado and Negretti families, with pedigrees that had been carefully kept, and reached back to Spain, whence they were imported in 1811, and before the destruction of the Spanish flocks had been completed by contending armies. Two hundred and forty-six sheep were imported by 1856, all coming from two flocks that had the same origin. Other importations have been made—one the last year. The later importations have all been pure and unmingled Negretti, Mr. Chamberlain's matured judgment leading him to give the preference to this branch of the Merino family over all others.

During the season of grass, the sheep are turned into the pastures after the grass has become dry in the morning, and before much dew has fallen at night they are brought into the yards. Of course they are housed during all storms, and are under cover during night time.

The flock is under the immediate charge and management of Mr. Carl Heyne, who was regularly trained and educated as a shepherd in Silesia, his native country. Very likely Mr. Heyne has no superior as a flock master on this continent or any other. Mr. Chamberlain has so much confidence in this shepherd's judgment, that he has several times sent him to Germany to select and bring out sheep. The best proof of great skill in management is the flock itself. No diseases have ever attacked it, and the sheep live to a

great age, preserving health and vigor beyond anything that has elsewhere come under my notice. I have seen in February more than 100 lambs, from a few hours to six weeks old, in a single sheep-house with their mothers. None had died from the whole number, except one unfortunate who happened to have some deformity, for which he had been killed, as not suitable to raise. The death of a lamb is a very rare event under Mr. Heyne's management, and one of the largest and best formed sheep I have seen in the flock was weaned by a mother 13 years old.

At night the sheep are fed hay and straw, and again in the morning. Straw, or other litter, is always on the floors of the sheep-houses in sufficient quantities to absorb all the manure, and is by the sheep itself converted into manure.

This system of feeding dry food at night, has the advantage of promoting health, and, as all experienced feeders of farm stock know, it suits the appetite of the animals, especially when grass is fresh—and the great point of working straw, leaves, weeds, and all the refuse stuff into manure, is satisfactorily accomplished. Much pasture is saved by allowing the grass to grow undisturbed during so great a portion of the time; and thus one of the important points of soiling is, at least in part, gained.

By this system 15 acres of pasture is made to carry 300 sheep, until after wheat, &c., has been harvested.

Mr. Chamberlain is a believer in deep ploughing, and often renews his grass—seldom allowing a piece of land to be pastured more than three years from the seeding; and whenever a piece of land is put into a crop, it is intended to put on it manure, so as to improve it.

LIME.

In 1853, twenty acres of this farm was treated to lime, at the rate of 50 bushels to the acre, applied in the Spring on inverted sod. The first crop was not improved, but ever since the land has been better; but Mr. C. says the cost was too great for the benefit received.

To sum up all his experience—Mr. Chamberlain says that rather than purchase special manures, except gypsum, and he had no muck on his farm, he would go to the road sides and pare off the turf and compost it with his barn-yard manure. In regard to swamp muck, he says that so much as comes from near the surface, only requires to dry and have the sun of one Summer, while that which is dug from some considerable depth should be composted with yard manure.

In regard to housing the sheep at night, the question may be asked, Is not this too much trouble, and does it not cost too much? Having observed this management for some years, I am ready to say that, all things taken into account, there is no system whatever that gives so satisfactory results, and that really pays so well. To give my reasons for this opinion would require too much space to be taken now.

The plan of having the lambs yeaned during December, January and February, may not meet the approval of all flock managers; but Mr. Heyne has his reasons, and to my mind they are abundantly sufficient to sustain the wisdom of his methods.

I have now made the way clear to state the

RESULT OF MR. CHAMBERLAIN'S SYSTEM OF FARMING.

Wheat is yet an uncertain crop, but 800 bushels have been produced in a single crop on 20 acres of land—an average of 40 bushels to the acre; but this was his *fortunate* crop, and is the exception.

Let us take the year 1806. This year he cut 800 loads of hay, which he and his men believe would weigh 600 tons. Had his whole cultivated land been in one grand meadow, consisting of about 376 acres, he would have cut one ton and six-tenths to the acre, which is much above the average yield of the meadows of this State. But his farm was not all meadow. He had that year about 40 acres of Indian corn, that was estimated to yield about 50 bushels to the acre. He had 30 acres of wheat, that gave 15 bushels to the acre; 30 acres of oats and eight acres of roots; and he summered over 300 sheep.

Making reasonable allowances for land used for orchards, gardens, yards and buildings—the particulars in regard to which I have not obtained—we shall find that the productions of this once worn-out farm have, by skillful management, been raised to a standard that would probably satisfy a farmer of the famed Scotia Valley in Ohio.

The stock carried through last winter was 300 sheep purchased for feeding. They paid \$1 each of profit over and above the market value of the feed, and left their pile of manure in addition. He also fed 35 steers, three and four years old, and 12 oxen, and also wintered his flock of Silesians, 300 in number, his teams, young cattle and cows.

CONCLUDING REMARKS.

I think I have now fulfilled a promise made in a former article,

by showing how an old worn-out farm has been made to bring itself to more than its pristine fertility. I have used an example to show the force and truth of Mr. Failes' position taken in his address.

Mr. Chamberlain has fairly conquered his position, so that the words "*fancy farmer*" are probably no longer applied to him, by even the most inveterate followers of ancient routine that the town of Red Hook can now show. They see the once miry swamp now thoroughly drained and solid ground, bearing the weight of heavy crops of grass or grain, and the sandy uplands fruitful as a garden. But has all this paid? Yes, whether we consider the investment as one merely looking to a return of seven per cent. on cost, or in the great pleasure such a victory must give. It pays again in the enhanced value given the farm, if we consider it a thing to be some day sold.

The example that I have thus held up for farmers is of a value that I shall not attempt to compute. The personal gratification that this man has a right to feel can be imagined. He who once sent out his fleets of thirty vessels to gather or distribute the merchandise of the ends of the earth, now in a green old age contemplates the work of his hands as a farmer with a serenity, and discourses of it to those who, though to the "manner born," come around him for advice with a modesty that becomes greatness.—*Fairmount, N. Y., June 7, 1869.—New York Tribune.*

A Steam Plough,

The steam plough and accompanying apparatus, imported by Col. Wm. E. Patterson, from Leeds, England, was put in operation on Tuesday last, on the recent purchase of that gentleman at Atsion, New Jersey.

Col. Patterson's large tract of land in that locality is to be devoted to the culture of sugar beet. As the soil is a sandy loam, closely akin to that in which the French have been so successful in the sugar beet culture, Col. Patterson sees no reason why a profit cannot be realized in this country in the same direction.

The test of this steam plough was made in the presence of a considerable congregation of people, including Gen. Capron of the United States Agricultural Bureau at Washington.

The machinery is by no means complicated. At opposite sites of the space to be ploughed are two steam engines upon wheels. On the trial on Tuesday they stood three hundred yards apart. The

plough has six shares. It is a distinct piece of mechanism, and is fastened to a steel wire cable extending between the two locomotives across the ground to be turned over. It is literally a shuttlecock between two steam battledores. It moves at the speed of a hundred yards a minute, turning six furrows a foot each in width, and eight inches in depth. Its average work, therefore, is twenty acres per day. The locomotives are snug machines, capable of being applied to many useful purposes independent of duty as steam-ploughers.

A man rides on the plough as it crosses the soil.

A digging machine accompanies the plough, intended for use in soils where roots and stones are obstacles to the course of the ploughshare. This is a wonderful apparatus. It so triturates the stiffest soil that a Yankee might put it into bladders and vend it as a substitute for snuff.

To work it costs extremely little. Anything answers as fuel, and at the rate of twenty acres per day a large estate is soon put under cultivation. The locomotives are, then, ready for ordinary duty as steam engines, either to grind or thresh, saw or mash.—*Philadelphia North American*.

Straight and Crooked Streams.

“When doctors disagree, who shall decide?”

Messrs. Editors,—Having been interested with the perusal of the recent discussion in the *Southern Planter and Farmer*, relative to the merits of straight and crooked streams, suffer me to make a few remarks relative thereto.

The question at issue is, are not the small streams, in their original state, governed by the same natural laws as are the rivers? If so, crooked streams are in accordance with the general laws of nature. This position has not been disproved, nor indeed can it be. Art has been called to the assistance of nature as applied to this subject, but with what effect let the present state of our bottom lands testify. Facts are stubborn things, and cannot be invalidated by either preconceived opinions or theoretical disquisitions.

Respectfully,

R. W.

Prince Edward Co., June 22, 1869.

SOME one estimates, we do not know from what data, that there are 37,000,000 hogs in the United States.



Horticultural Department.

JOHN M. ALLAN,

EDITOR.

Strawberry Exhibition of the Horticultural and Pomological Society.

We append the report of the Committee of Examination, upon the strawberries exhibited on the 27th of May at St. Alban's Hall. As we said in our last issue, the exhibition was a complete success, and the Society, as well as the public, are under obligations to the committee under whose care it was gotten up and so successfully conducted; and without detracting from the merit of the other gentlemen upon the committee, it is but just to mention Messrs. Chamberlain, Stansberry and Morton as prominently and especially active in its arrangement and management. A speech from Major Sutherlin, practical and useful as his speeches always are, and excellent music, added to the pleasure of the evening.

As will be seen by reference to another page, there is some diversity of opinion concerning the correctness of the conclusions arrived at by the Committee of Examination, as to the merits of various varieties; but it must be borne in mind that the committee could only judge by appearances which are often deceptive, and thus they may have erred in some respects, such as the fitness for shipping, the general usefulness, and kindred matters, which cannot well be determined save by experience in growing. Then again, tastes differ so, that it is hard to decide so as to suit every one concerning flavor. As proof of this, we once heard a grower (never but one, it is true,) say that the Wilson was a good flavored berry. So, after all, each one must decide for himself what best suits, and the experience of our correspondent and the report of the committee will both be useful in directing our readers:

The Committee of Examination of Fruits and Flowers, appointed on the 24th instant by the Executive Committee of the Horticultural and Pomological Society of Virginia, met at St. Alban's Hall on Thursday evening, the 27th of May, for the inspection more es-

pecially of the many varieties of strawberries that the now numerous growers in the immediate vicinity of Richmond had been solicited to exhibit. In entering upon the discharge of the duties assigned to it, the committee was animated by an earnest desire to do full and impartial justice to every exhibitor on so interesting an occasion.

Previous to the examination it had been decided that the report should embrace the following points, viz. :

First.—Best shipping berries.

Second.—Best berries for home market.

Third.—Best flavored berries.

Fourth.—Best berries for family use.

Fifth.—Largest berries.

Sixth.—Best berries combining all, or the largest number, of these qualities.

Seventh.—Best collection of berries exhibited.

In reply to the first inquiry, the committee decided upon the Wilson's Albany, the Triomphe de Gand, and Russell's Prolific.

To the second.—Same as above.

To the third.—Golden Queen, Empress Eugenie, and Lenning's White.

To the fourth.—Wilson's Albany, Empress Eugenie, Golden Queen, Lenning's White, and Napoleon.

To the 5th.—Wilson's Albany and Golden Queen.

To the sixth.—Wilson's Albany.

The largest collections, and embracing the greatest varieties and of fine quality, were exhibited by Messrs. Franklin Davis & Co. and Messrs. Allan & Johnson—the former furnishing no less than eighteen, and the latter twelve, most of them of the most approved kinds, and all having their peculiar merits. The "Napoleon," furnished by the latter firm, was a splendid berry. Mr. J. E. Stansberry exhibited a seedling bearing his name, a fine berry, and represented as very prolific; some fine specimens of the "Hovey Cross" and "McEvoy Superior"; likewise a beautiful vine known as the "Alpine," growing very erect, bearing small but beautiful scarlet berries, and in every stage of growth from bloom to maturity.

Mr. L. Chamberlain exhibited a small but very showy collection, numbering among them the "Golden Queen," a beautiful berry and of delicious flavor. The attention of the committee was especially called to the collection of Mr. William M. Ledley, through the agency of his gardener, Mr. W. J. Hendrick, who exhibited some splendid specimens of "Wilson's Albany," "Russell's

Prolific," and "Jucunda." There was also a remarkably fine specimen exhibited by Mr. W. L. Harrison, of Henrico, no name, but very large and sweet. Mr. W. W. Turner also furnished a box containing a very agreeable arrangement of flowers, interspersed with some gigantic specimens of "Russell's Prolific," "Agriculturist," a variety called "Philadelphia," and some very large "Jucunda." The collection of "Wilson's Albany," exhibited by Mr. A. M. Morris, was remarkably fine—equal, we think, to Mr. Ledley's. The same may be said of those furnished by Mr. William Coulling. Mr. J. W. Lewellen presented a specimen of "Russell's Prolific"—very large in size and fine flavor. Mr. Channing Robinson, a curious variety called "Lady's Finger"—sweet and of an agreeable flavor. Late in the evening Dr. J. G. Beattie sent in some very fine specimens of "Russell" and "Agriculturist." Many of the berries were so large that it seemed as if three or four were rolled into one.

To Messrs. Allan & Johnson, and Mr. John Morton, the Society is much indebted for the rare and beautiful display of greenhouse plants and flowers, which added so much to the embellishment of the hall. And we cannot let the occasion pass without returning the thanks of the Society to Miss Isabella Webb for the beautiful bouquet, as large as an ordinary-sized centre-table; and the very many sent by Mrs. Judge Clopton, of Manchester, embracing every variety of the most beautiful flowers we have ever seen at this season of the year.

The exhibition was a complete success, and we cannot close this report without tendering our congratulations to the President and members of the Society under whose auspices it was gotten up.

WILLIAM H. HAXALL, Chairman;
I. S. TOWER,
S. P. MOORE,
C. B. WILLIAMS,
J. C. SHIELDS,
J. P. BROCK,
H. K. ELLYSON,
JOSEPH R. RENNIE.

THE Hartford Prolific Grape does better on clay than on sandy and gravelly soils. The great objection to this grape is its tendency to drop its berries as soon as they are ripe. On clay land, it retains the berries better than on light, warm soils.

Raspberries.

The difficulty in the Northern States is to get a variety of raspberry that will stand the winter; here it is to get one that will endure the summer. This season has only increased the record of failures. Notwithstanding the fact that we have had a more than usually cool and moist spring and summer, yet we have had no success with any of the red raspberries except the Philadelphia, and only partial with that variety. All save the Philadelphia died before maturing; and while that matured a good proportion of its fruit, still it was by no means prolific. Its flavor, however, we think is decidedly better here than farther North. The Clarke was not fairly tested, and we still hope it will prove useful.

The Black Caps succeed admirably, bear enormously, ripen well, and are highly flavored. It will be prudent for our growers to rely mainly upon these, at least until the Philadelphia and Clarke have been more fully tested.

Why do not our fruit growers give us more raspberries? There were none in market this season, and yet the Black Caps are well adapted to this climate, and are prolific enough to be very profitable.

Strawberries.

Messrs. Editors,—For the last two years I have been giving you the results of my experiments with leading varieties of strawberries, and hope a continuation may not be unprofitable.

Last year the varieties under culture were Wilson, Hovey, Russell, Jucunda, Triomphe de Gand, Peabody, Agriculturist, and Napoleon; this year the same, with Austin, Hooker, Early Scarlet, and Empress Eugenie added (the latter a new variety originated by Mr. Lemosy, near Portsmouth, Va.) They ripened in the following order, commencing May 17th: Early Scarlet, Russell, Hooker, Wilson, Agriculturist, Peabody, Hovey, Triomphe de Gand, Empress Eugenie, Jucunda, Austin, Napoleon, the last not maturing until June 1st. In size the order was as follows: Empress Eugenie, Russell, Jucunda, Agriculturist, Austin, Wilson, Napoleon, Triomphe de Gand, Hovey, Peabody, Hooker, Early Scarlet. In yield: Russell, Empress Eugenie, Wilson, Agriculturist, Triomphe de Gand, Napoleon, Jucunda, Austin, Hovey, Peabody, Hooker, Early Scarlet. In flavor: Russell, Triomphe de Gand, Agriculturist, Hovey, Peabody, Early Scarlet, Napoleon, Jucunda, Empress Eugenie, Hooker, Austin, Wilson. In firmness and other

shipping qualities, I found the following to be the only useful ones, and they ranked in the order they are stated: Wilson, Russell, Napoleon. For all purposes, save shipping, the Russell has again proven itself to be by far the best variety, and it bears transportation very well, though it is not equal to the Wilson in this respect. This season it ripened several days before the Wilson, and during the entire season commanded higher prices. The Empress Eugenie proved to be a very large, handsome and prolific berry, but not highly flavored. The Jucunda did well, but ripening, as it does, at the middle of the season, is valueless as a market berry. The Austin and Napoleon are both valuable because of their late maturity; the latter is very prolific and well flavored; both are large sized.

If I may be permitted to differ with the committee of the Horticultural and Pomological Society, I would say for the best early shipping berries, take Wilson and Russell. For home market, Russell, Empress Eugenie, Triomphe de Gand, Agriculturist, and Napoleon. For best flavored, Russell, Triomphe de Gand, Agriculturist, and Hovey. For family use, Russell, Empress Eugenie, Jucunda, and Napoleon. For largest berries, Russell and Empress Eugenie. For the most generally useful variety, Russell. All of the above rank in the order they are named. Empress Eugenie and Golden Queen are claimed by some to be synonymous. I do not think they are the same, but they very closely resemble each other, and all that I have said of the one is true of the other, with a slight advantage, in size, in favor of the Golden Queen. How the Triomphe de Gand can be put down as good for shipping purposes is a mystery to me. Of all soft berries, it is the softest; and though highly flavored, of good size, and moderately prolific, it will hardly bear transportation beyond the spot where grown. "M."

GUANO.—Some experienced cultivators have given us instances of the use of guano on fruit trees with beneficial results. Although the trees seemed to wither up and become sickly looking the first year, nevertheless the second year they grew so fresh and green and luxuriant as to astonish their owners.

We have seen guano water applied to grape vines, causing them to wither up, as it were, with intense heat, the first year, but the second year exceeding all former years in beauty and fruitfulness. Guano should never be brought directly in contact with seeds or the roots of trees or plants. It should always be mixed with about six times its weight of finely sifted soil or loam.—*Horticulturist*.

Harvesting the Navy Bean and Gathering the Potato Crop.

Messrs. Editors,—In yours of June, inquiry is made as to the best mode of harvesting the navy bean. When ripe, and when the vines are dry, (that is, when the dew or rain has left them,) pull by hand, and place in heaps; turn the heaps not oftener than once a day, till the vines are dry, and then thresh them either by hand or power. In carrying them from the field to be threshed, use a tight hay wagon or cart, for in loading they will shell out. I don't advise to stow them away to be threshed at some future time, but finish the job at once.

There is no better plan of gathering the "Irish" potato than by digging them with a five-prong potato fork. By gathering the crop with the fork the work is done better and the ground is also benefited. More and better work can be done by two men with the "forks," than three can accomplish by the "hoe."

Respectfully yours,

WM. H. S.

Philadelphia, June 19, 1869.

HOW TO PRESERVE MELONS FROM THE STRIPED BUG:

The practice of the "Long Island" melon growers to preserve their melons, &c., from the striped melon bug, is to sow through a fine sieve, ground plaster or gypsum on the plants, so soon as they are above ground, early in the morning while the dew is on the plants—such plaster forming a crust through which the bug will not eat. Two applications are generally enough to preserve the crop. *It has never failed*, at least for twenty-seven years, to my personal knowledge. Tobacco dust, ashes, &c., have failed.

Respectfully yours,

WM. H. S.

Philadelphia, June 19, 1869.

[We thank our correspondent for the above communications, and hope he will favor us with frequent opportunities of enlightening our readers in regard to such interesting matters of inquiry as can be satisfactorily answered only by such persons as have gained a store of practical knowledge through their own experience and observation.—EDS. S. P. & F.]

BEETS.—To raise beets with best success, sow the Early Bassano in drills eighteen inches wide; thin out to one foot apart. Top-dress the ground with Peruvian guano, and you will have prime beets fit to pull in seventy days.—*Horticulturist*.

Nut Culture.

Messrs. Editors,—I promised to give you some account of my progress in the cultivation of nuts, which I am now prepared to do. As I stated before, I obtained my principal supply of nuts for planting from A. F. Cochran, Esq., importer of fruits and nuts, New Orleans. This gentleman furnishes nuts at cost of importation to all who wish to plant. The rest I obtained from J. M. Thorburn, No. 15 John street, New York. The following varieties vegetated freely, and are growing as vigorously as Indian corn :

Spanish chesnuts (*Castanea vesca*).

English walnuts (*Juglans regia*).

Pecans (*Carya olivæformis*).

Italian pines (*Pinus pinua*).

Jujube (*Zizyphus sativa*)—not a nut, but a very valuable fruit tree.

The following varieties failed to vegetate :

Filberts (*Corylus avellana*). Of this, however, I obtained plants from the nursery of P. J. Berckman, Augusta, and they are growing finely.

Pistachio nut (*Pistachia vera*).

Salisburia (*Ginkgo biloba*). I give this name according to Mr. Thorburn's spelling; other nurserymen give it differently. It is a valuable nut tree.

So out of the eight varieties of tree seeds planted, only three failed to vegetate. These three are constantly grown from seed by our nurserymen, and why they failed in my hands I cannot tell. They are worth another trial, however.

Few persons are aware of the value of nuts as an article of food. The idea that they are unwholesome is as absurd as the now exploded opinion that grapes and peaches were unwholesome. All food-stuffs are divided by chemists into two great classes, viz: albuminous substances, which contain 15 per cent of nitrogen, and are called "flesh-formers;" and amyloids and fats, which are called "heat-producers," and contain no nitrogen. The necessity, therefore, of constantly renewing the supply of albumen arises from the circumstance that the loss of nitrogen (in the secretion of urea from the body,) is going on constantly, whether the body is fed or not; and there is only one form in which nitrogen can be taken into the blood, and that is in the form of a solution of protein, or albumen. Albumen, which may be taken as the type of the proteids, contains 15 per cent. of nitrogen, and the moment this sub-

stance is withdrawn from the food, man begins to suffer from what may be called *nitrogen starvation*, and, sooner or later, will die. Now let us compare the three classes of human food—herb, tree, and flesh foods—and see which contains the largest quantity of this valuable substance, albumen. Of each class, we will take the article most used on our tables—beef as the representative of flesh food, wheat as the representative of herb food, and almonds as the most generally used tree food, and as the representative of nuts:

	Water.	Albumen.
Beef, - - -	74	20
Odessa wheat, - -	12	15
Sweet almonds, - -	3	24

The figures are obtained from Webster's American Family Encyclopædia, and it will be observed that almonds contain a larger quantity of nitrogenous matter than either beef or wheat. All nuts consist largely of albumen; and when we recollect that man, in his unfallen condition, lived entirely upon the fruit of trees, it seems that both science and revelation point to the fruit of trees as his natural food.

Not only so, but the soil constantly grows richer under tree culture, and poorer under herb culture. (We use the term *herb*, because every plant which has not a hard woody stem, comes under this designation.) Trees also purify the atmosphere and beautify the landscape. It is an actual, and very significant fact, that where ever a country becomes denuded of trees, man's physical, mental and political power decays. Witness Spain, Italy, Greece, and Syria. They have each in their turn, stood first in power, prosperity, and civilization. But they each swept their beautiful fruit-bearing trees from the face of the earth, and each, like Samson, shorn of his locks, lost their strength. To destroy fruit-bearing trees is in direct disobedience to the divine command; "for," says Holy Writ, "the tree of the field is man's life." Phosphorus feeds the brain, and phosphorus, as food, is only found in albumen, and albumen, in its purest state, and in most abundance, is found in the fruit of trees. So says science; and the Bible confirms the teachings of science, by informing us that the food of Eden was only the fruit of trees. Where, in modern times, was such a brain formed as that of the first Napoleon, who grew up amidst the chesnut groves of Corsica? The chesnut is to the Corsicans what the potato is to the Irish. Their name for it signifies "bread tree." A recent writer in the *Atlantic Monthly* describes a visit to Corsica,

the "Land of Paoli," and says: "Our companion, the prefect, pointed to the chesnut groves. 'There,' said he, 'is the main support of our people in the winter. Our Corsican name for it is the 'bread tree.' The nuts are ground, and the cakes of chesnut flour, baked on the hearth, are really delicious. We could not live without the chesnut and the olive.'" The chesnut, as well as the walnut, pecan and other nut trees, fully answers the description of the trees of Eden, which were not only good for food, but pleasant to the sight. No trees on earth are more beautiful than these massive nut-bearing trees. In form, foliage, and trunk, they stand first for beauty, amongst park and pleasure-ground trees. Whilst taking a drive recently, I was struck with the majestic beauty and dark luxuriant foliage of a group of trees in the distance. On coming nearer, I found they were shell-bark hickory, from around which the other forest trees had been cut away, allowing them full room to develop their grand proportions. The nut is one of the most delicious known, superior, in my estimation, to the pecan, and the shell is thin enough to yield readily to the nut-crackers. The present Emperor of the French, whose practice of rural economy surpasses all of Bousingault's theories, has had millions of chesnuts planted in Algeria, with the object of improving that country. It must be borne in mind that the European chesnut is a much larger and more valuable nut than ours, and does not seem to suffer from the disease which is sweeping ours from our forests. When the nuts are fresh, they grow as easily as black-eyed peas. What the chesnut is to the Corsicans, the English walnut (so-called) is to the Persians—an article of every day diet. Is it the oil and albumen of this nut which make them the most war-like, intellectual, and handsome of Asiatics? Compare the fine features and athletic, graceful figures of the nut-eating Persians with the square, squat, hideous forms of the rice-eating Chinamen, and say if diet has not something to do with the difference.

Lastly, nut and other fruit trees yield a larger amount of food to the acre than any other crops whatever. This can be proved by figures, which never lie, notwithstanding the stupidly jocose assertion that they do. Pecans will fruit anywhere south of the Potomac, and when situated in deep, alluvial soils, will commence bearing in four or five years. There are many varieties, some superior to others, but all are delicious, and indigenous to America. They are said to bring a higher price in the European market than any other nut. Let them become to us what the chesnut is to the Corsican, the walnut to the Persian, the sweet acorn to the ancient Greek.

Must a Berry Box or Basket have Sloping Sides?

Much valuable information is contained in an article of the April number of the *Horticulturist*, entitled "Additional Hints," etc. But I think the writer was much too sweeping in his condemnation of all berry boxes but those with sloping and ventilated sides. The fruit-growers in this neighborhood have used for two years, a square box with strait sides and ventilated *bottom*, and have sent it in the same shipments with the sloping baskets, to the same markets, with equal success. And said box being only one-third the price, and so arranged in the crate as to present the fruit in market in heaped-up measure after the shaking of transportation, has run the sloping-sided basket out of this market.

As it is customary now in our Western cities to give the box, when the berries are sold, it makes a great difference in the cost of shipping whether a one-cent box or a three-cent basket be given away.

There are two reasons why baskets and boxes are not sent back to the shipper. First, the dealers find it a very perplexing matter to gather and return each box to its proper owner. Second, berries should be shipped in a new, clean box, as a second using involves a greater or less degree of impurity and uncleanliness.

It is not true that expensive baskets always insure the best prices, as it depends on the manner of picking and putting in boxes and crates.

Such is the experience of myself and neighbors who have tried sloping-sided baskets and the boxes above referred to.—A. J. MOORE, in *Horticulturist*.

PRUNING TOMATOES.—It is stated that gardeners in France cut off the stem of the tomato plants down to the first cluster of flowers which appears on them, thus impelling the sap into the buds below the cluster, which pushes up vigorously, producing another cluster of flowers. "When these are visible, the branch to which they belong is also topped down to their level; and this is done five times successively. By this means the plants become stout dwarf bushes, not over eighteen inches high. In order to prevent them from falling over, sticks or strings are stretched horizontally along the rows, so as to keep the plants erect. In addition to this, all the laterals that have no flowers whatsoever, are nipped off. In this way the ripe sap is directed into the fruit, which acquires beauty, size, and excellence, unattainable by other means."—*Horticulturist*.

Household Department.

Alsike Clover for Bee Pasturage.

Early in the year 1868, I was induced by an article I saw in the "Bee Journal," to try the Alsike clover for my bees. I accordingly purchased a pound of the seed, which I sowed upon a small piece of land, (about one-quarter of an acre,) though too much seed for the quantity of land. It germinated well, and like the red clover, only made a good stand; but this spring (1869.) it came up well, and now, the 16th of June, it will stand, if erect, 20 to 30 inches high, and is covered with blooms and bees; indeed, I have rarely seen bees more numerous on buckwheat blooms than on this clover. I shall sow a lot of buckwheat for fall pasturage; but for May and June, I think the Alsike clover furnishes more food than any plant I have ever seen. When not too cool or rainy for them to be out, you will find the patch covered with bees pretty well all day, and at times almost in swarms. They have sent forth a goodly number of swarms, and filled the bodies of the hives well with store honey, and I hope will yield a good surplus. I shall sow this fall another lot much larger than the one I now have, reserving that till the other is sufficiently advanced to afford them food—and as long as I am able to procure seed to sow—shall do so to keep up a succession; besides, it yields an abundant crop of hay—not so much as the red clover, but the sweets furnished the bees more than make up any difference. The bloom is like that of the white clover—folding back in such a way as to enable the bees to get into every part of it—while on the red clover coming up in the same patch, you never see one. M. G. F.

Henrico county, Va.

Yellow Wash for Buildings.

Dissolve 1 pound of pulverized copperas in 8 gallons of water; let it stand for 24 hours, stirring two or three times from the bottom. Use this for slaking the lime and thinning it to the consistency of ordinary whitewash; add hydraulic cement equal in quantity to the lime used, and there may also be added, with advantage, $\frac{1}{2}$ gallon of clean fine sand to every 15 gallons of the wash. While using, stir frequently, to prevent sand from settling.

The walls or buildings should be first well cleaned of dust, and thoroughly wet with the rose of a watering pot, and the wash applied immediately after, beginning at top, laying the coat on horizontally, and finishing vertically.

Before leaving the work at any time, finish the course to a point in the wall, to prevent leaving a mark where the two courses join on a renewal of the work.

This wash is stated to have lasted for fifteen years without requiring renewal.

For a gray or stone color, add to above lamp black, previously deadened with whiskey.

A wise son maketh a glad father; but a foolish man despiseth his mother.

THE SOUTHERN PLANTER AND FARMER.

RICHMOND, VIRGINIA, JULY 1869.

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Editorial Department.

The Great Reaper and Mower Trial at Westover.

We had hoped to be able to lay before our readers at this time a circumstantial and full account of the great trial of Reapers and Mowers which came off at Westover, the residence of A. H. Drewry, Esq., on the 9th ultimo, but uncontrollable circumstances have conspired to defeat our expectation. We have to rely upon general report for the materials of the brief notice we are about to give below.

It is universally conceded by all who were present that it was a grand affair, and the performance of the large number of machines exhibited in operation on the field of trial was fully equal, if not beyond, public expectation, and every way worthy of the occasion.

These machines were generally, if not all of them, gotten up in a finished style of workmanship, and being the best specimens selected from the number and variety in use in the North and West, presented an array of excellence which challenged general admiration. McCormick's Reaper was not entered, nor was it on the ground.

The committee of adjudication carefully tested the machines in operation by the standard prescribed by the Executive Committee of the State Agricultural Society, under whose auspices the trial was conducted, noting the merits of each machine in relation to every specification on the scale of points, so that, in summing up the points of excellence exhibited by each machine, the relative merits of all might be determined by comparison, and the awards rendered in favor of those standing the highest on the standard or scale of points. The awards of the judges will not be made known, we understand, until the close of the State Fair in November next, at which time they will be announced and published, in connection with the awards of premiums on the various other subjects comprised in the schedule of premiums offered by the Society.

The munificent and princely hospitality of Mr. Drewry manifested in his bountiful and abundant preparations for the entertainment and social enjoyment of the officers of the Society, the exhibitors, and numerous visitors, is above all praise. We will not farther trench upon the prerogative of those

whose grateful duty and pleasure it will be to do justice to the claims of such uncalculating beneficence upon the gratitude and admiration of all who shared in his noble generosity, on an occasion so important in its relations to the progress and development of the industrial interests of Virginia.

Correspondence of the Southern Planter and Farmer.

Dear Sirs,—I enclose \$2 for the renewal of my subscription to the *Planter and Farmer*.

What of lucerne, and why are there not more instances of its cultivation in our midst? In writings on English husbandry more than a hundred years ago, its large yield of hay, its nutritious qualities, and the high relish of it by stock, are always recognized; and at the present day we know it to be a leading favorite in France and other portions of Europe. Impressed by representations of its superiority over other grasses as green forage, on account of the number of cuttings it affords, and, unlike clover, of its not salivating stock at any period of its growth, I am growing it on a somewhat extensive scale, with the purpose, if my hopes of it are realized, of extending the cultivation. But if more recent experience has shown that there are more valuable grasses, or, what I in some degree fear, that there is a too great difficulty in its successful management, I would like to know it, as in either case, I might stay the further increase of its surface. My hopes of it, in opposition to the (to me) unknown grounds of the omission by others to cultivate it, rest on the inclination to believe that this omission—this implied rejection of it—may be owing to a defect in its cultivation; that it requires the land to be better cleansed before it is planted, or that it should be more carefully freed of weeds and other pests in the earlier stages of its growth, than is in most cases observed. I recently came across an old volume of a work published in London in the year 1728, with a long title embracing “all sorts of country affairs,” in which, in addition to its merits as a hay crop, it is commended as an improver of “dry and barren land.” And certainly, in accordance with the theory of renovating lands by vegetable growths, in bringing, through their roots, the mineral constituents of the subsoil and clay to the surface, on account of its long straight root, the commendation is just. Dr. Thos. P. Atkinson, to whom the readers of the *Planter and Farmer* owe so much for his scientific and practical communications, in a letter of response to enquiries relative to the process of cultivating it, (I had entertained the thought of planting it myself from reading an article by him in the *Planter and Farmer* recommending it for keeping up the borders of a garden,) writes me that he had measured a root of it 14 inches in length. In repeated trials, I have never found a root of less length than a third of that of the stalk. In some instances the root is longer than the stalk.

There is one subject on which I feel qualified to speak by the “card,” and that is, the value of tobacco stalks on certain garden vegetables. I have growing in my garden a square of cabbages of unsurpassed luxuriance, and a square of potatoes surpassing in yield any instance within my experience, both manured with this material. I have used them on cabbages for several years with unvaried success. The potatoes are planted in hills three feet apart—a whole potato of good size with a double handful of stalks above it, at the bottom of the hill. I more than incline to think that their efficacy on this crop,

when thus applied, is owing, in part, to their mechanical action on the soil; that the cavities in their midst filled, when filled at all, with loose earth, afford room for the potato to grow; and further, that the soft pulpy consistence to which they are reduced by the time the potato is formed, yields to its pressure to enlarge itself. I know not why they should not be a valuable manure on other vegetables, and it is my intention hereafter to use them on all. It is customary to spread them broadcast as a preparation for tobacco, in which case they are so scattered, often imperfectly covered by the plough, that their virtue as a manure must in a measure be lost; whereas, when placed in a compact mass in the trenched furrows on which most vegetables are planted, their fertilizing properties will be fully developed and concentrated.

Very respectfully, &c.,

JOHN C. TAYLOR.

Oxford, N. C., June 24, 1869.

Dear Sirs,—I have a lot of red clay land containing two acres, in which I set young apple scions or trees from the nursery of F., D. & Co., in the Fall of 1867. The lot is now very well set in red clover, but the sassafras bushes have grown up so thick (and continue to thicken), that I do not know what to do to destroy them—being a young farmer.

My idea is—the clover being now cut as soon as it starts out pretty well—to sow in two barrels of air slacked lime, and fallow as deeply as I can with two horses, following in their furrow with a coalter furrow, and let it remain so some ten days, and then plough with the “shovel plough” once every week till about the middle or last of August, and then put on say 400 lbs. of the Gallego Company’s potato and cabbage fertilizer, (unless you can tell me a better for turnips.) and sow it down in turnip seed, and next year cultivate in shipping tobacco.

My object being to get rid of the sassafras bushes and bring my young trees into bearing as early as possible. I have thought probably the repeated ploughing in the hot dry weather might kill out a great many of the sassafras bushes, and by adding manure and cultivating the land, improve the young trees.

If you will give me your opinion upon what I have written, or suggest any other plan as being better adapted to promote the objects desired, I shall be greatly obliged, &c.

Very respectfully,

C.

June 11, 1869.

[W. D Gresham, Esq., published some time since an article containing the following plan for the extirpation of sassafras, which he highly approves: “The remedy which I propose is as follows: in the month of June, when sassafras bushes, roots and briars have obtained their full amount of leaves, and are in a vigorous growth, take a grass scythe and cut them off about two or three inches from the ground. This will cause them to bleed freely, and if an application of from two to three bushels of salt is immediately made, and evenly scattered over them, their eradication may be certainly expected. Salt being injurious to the growing vegetation, it commences its action by an immediate effect upon the sap of the plants.”]

Mr. W. W. Gilmer prescribes mowing the bushes in May, and grazing closely, as greatly preferable to cultivation.—Eds. S. P. & F.]

To our Debtors.

Accompanying this number of the *Southern Planter and Farmer* will be found a bill for arrears of subscription due by the subscriber to whom the paper is addressed. The tobacco crop has found its way to market, and the proceeds been realized, perhaps, to the extent of two-thirds of the whole, and yet the payments made us out of its proceeds have been scarcely appreciable. The wheat crop will presently be in market. We do earnestly hope our debtors will recognize our claim to share in the distribution of the proceeds of these staple productions. Have we not fulfilled our part of the contract, subsisting between us, without stinginess or parsimony, but, on the contrary, with liberality and in good faith? And will not our debtors atone for past negligence, by a prompt fulfillment of the contract on their part? We have rendered to them the *quid pro*; let them promptly return us the needed *quo*.

The Patrons of Husbandry.

We learn from the *St. Paul's Pioneer*, Minnesota, that an Order of this name was founded and organized by a number of distinguished agriculturists of various States, at Washington, in December, 1867, for the purpose of general improvement in husbandry, to encourage social intercourse in the rural districts, to incite a love for horticulture, and to relieve the tedious monotony of farm life and labor. It is founded upon the idea that the products of the soil comprise the basis of all wealth; that individual happiness depends upon general prosperity, and that the wealth of a country depends upon the general intelligence and mental culture of the producing classes.

They have provided a commodious hall, and fitted it up elegantly, for the purposes of the Order, in which they hold their first meeting on the first of June.

If this Order confines itself strictly to the accomplishment of the ends and objects above set forth, they cannot fail to exert a beneficial influence in "the general improvement of husbandry and in the encouragement of social intercourse in the rural districts."

Periodicals.

The Land We Love and New Eclectic for July. This interesting and instructive magazine comes to us laden, as usual, with the rich fruits of the taste and industry of its able and judicious Editors. Its contents always tend to promote purity, elevation of purpose and refinement of manners, and deserves to be carefully studied by all those who aspire to the possession of these distinctive characteristics. Turnbull & Murdoch, 54 Lexington street, Baltimore. Yearly subscription, \$4; single copy, 35 cents.

The Galaxy for July. This is an exceedingly rich number. The article No. II, entitled "Our Impending Chinese Problem," is the topic which will arrest the attention of the thoughtful, and lead them to appreciate the fearful effects of the political inventions which have been sought out, ostensibly for

the perpetuation of power in corrupt and wicked hands, but really calculated to bring down their violent doings upon their own heads, and precipitate the downfall and ruin of our country.

Appleton's Journal. We have on our table a full file of this handsome journal, in weekly numbers, and shall carefully preserve and bind them, each quarter. The Messrs. Appleton deserve much credit for publishing such a capital journal at so low a price—10 cents per number, or \$4 per annum, in advance. The illustration in the number of July 10th, called "The Country Blacksmith's Shop," is life-like and very familiar to our readers.

Puckard's Monthly—The Young Men's Magazine. The July number of this journal is one of the best we have seen. Some of the articles are spicy; all are entertaining; but we are particularly struck with the un-gloved style in which Miss Olive Logan handles modern theatricals, and "The Nude Woman Question." We do not admire Miss Logan, or her Woman's Suffrage doctrines, but she certainly deals the "Black Crook," "White Fawn," and all such, most telling blows, and we trust she will continue to "fight it out on that line, if it takes all summer."

The Richmond and Louisville Medical Journal. The June number of this valuable scientific monthly gives evidence that it is well sustained. Its pages are enriched by the best medical talent of the whole country, and no practicing physician—especially in the South, West, or Southwest—should fail to send \$5 to Dr. E. S. Gaillard, Louisville, Ky., and become a subscriber.

Peters' Musical Monthly is a very pleasant monthly visitor, and our lady friends should send for a copy. The new music obtained in twelve numbers should be worth the subscription price—\$3 per annum. Address J. L. Peters, publisher, 198 Broadway, New York.

The Reconstructed Farmer. A monthly magazine of 32 pages, published at Tarborough, N. C., by James R. Thigpen and John S. Dancy. It is gotten up very neatly, and is of a prepossessing appearance. It is well filled with selected and original matter adapted to the necessities of the times. We wish for it a career of usefulness and prosperity commensurate with the ability and enterprise with which it is manifestly conducted.

The American Artisan. This useful journal, devoted to the interests of Artisans, Manufacturers, Inventors, &c., after an interval of some weeks, is again restored to its former regularity of appearance on our exchange table. Published by Brown, Combs & Co., 189 Broadway, New York.

Monthly Report of the Department of Agriculture for May and June, 1869.

This interesting cereal contains "a condensed statement of the growing crops, and articles upon Steam Ploughing in New Jersey and Louisiana; Fruit Culture on the Mississippi Rapids; Progress of Nebraska; Value of Sewage Deposits; Land Drainage in California; Wheat Culture in Virginia, &c. * * * Agricultural Exports; Live Stock at Chicago; British Wheat; Imports and British Wool Exports; together with Meteorological Tables and Notes on the weather for the months of April and May, and a variety of Extracts from the Correspondence of the Department," by J. R. Dodge, *Statistician*.

The Manufacturer and Builder is a very handsome quarto of 32 pages, issued monthly in the interest of Manufacturers and Builders, at the low price of \$1.50 yearly, or sold by the single copy at 15 cents.

THE SOUTHERN PLANTER & FARMER,

DEVOTED TO

Agriculture, Horticulture and the Mining, Mechanic and Household Arts.

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

CH: B. WILLIAMS, EDITOR AND PROPRIETOR.
FRANK G. RUFFIN, Co-EDITOR.

New Series. RICHMOND, VA., AUGUST 1869. Vol. III--No. 8.

Cisterns.

As a number of our subscribers wish to have our well tried plan for building cisterns, we have determined to devote our column this week to it, though it be at the expense of some valuable agricultural matter. Our calculations have been revised by the well known and experienced architect, Mr. A. L. West, of Richmond. But it must be remembered that the expense of building them in a city is three or four times as great as it is in the country. Without giving all the reasons for this great difference in the cost, we will instance one or two, to give those persons some idea of it who have no experience in the matter.

For instance, it would cost forty cents per square yard in the city to dig and cart off the dirt, whereas the cost to a farmer would be scarcely anything at some seasons of the year. We had it done before the war for twelve and a half cents per yard.

Again, the top of the cistern, in Richmond, must be made of stone; but in the country, if yellow locust or cedar are on the farm, the top will not cost a moiety of what the stone does.

This difference in the cost will be found in everything which is required to construct the cistern.

Mark off a circle ten feet in diameter; then take a rod of round iron about twelve feet long, pointed at one end, and drill or drive it down in the ground ten feet, within the circle, in four or five places, to ascertain if there is any solid rock in the way. If there is, move the circle, if it can be done, as the solid rock conflicts with a uniform settling of the wall and floor of the cistern. When the

earth is excavated ten feet deep, put in the wall, which should be made of bricks, nine inches thick. The bricks should be laid in cement, and well pointed with the same, which will supersede the necessity of plastering the wall with hydraulic cement. In this wall, on the side nearest the house, where the filter should be placed (if one is desired,) a hole should be left, in which to insert a square tube, which can be made of four pieces of plank two inches wide, for the water to pass from the filter to the cistern, five feet from the bottom of the cistern. Another hole like this should be left in the wall, two or three inches from the top, in which the same sort of tube (except it should be a little larger) must be placed as a waste pipe, to prevent the water from reaching the top, which it would do if there was much roofing during a long rainy season. The next thing done should be to put on the top, which should be made of yellow locust or cedar.—Hew the pieces on three sides. With the unhewed side up, lay them as close together as possible, and strip the cracks with plastering lathes on the inside, so that not a particle of dirt can pass through. In the top should be left an opening on the side for a chain pump, which is preferable to any other kind of pumps for cisterns. By this opening another should be left large enough for a man to pass down through on a ladder, which should be kept for the purpose. This opening should be closed with a trap-door, which should have a lock upon it. A box-like frame should be placed around these openings about fourteen inches high, which will be about the depth of the earth which should be, at this point of the construction, thrown over the whole top—when it should be sodded or grass seed sown upon it. The next thing to do is to crack sand stone, if it can be had, (if not any other kind will do,) about the size of a hickory nut, and spread it on the floor six inches deep. It should be raked over and made perfectly level. Then get a wide flat stone, and place it on the cracked stone immediately under the opening for the pump to rest upon. If this is not done, the chain will when it stretches cut a hole through the floor. After this floor settles a day or two, grout it with cement, as much as it will take, about the consistency of very thin mush or thick gruel. Of course a lamp or candle must be used all the time, when work is being done on the inside. The man who does the inside work must take off his leather boots and work in his socks or gum shoes. When the grouting is done, and has dried off, put on the floor a coat of plaster of hydraulcemente.

Here I will remark that a substitute for the filter can be had by inserting a pump log in the opening left for the chain pump, which

log should rest on the broad stone provided for the chain pump. This log should be hollow and closed tight at the lower end. The hollow should be large enough to hold as much as possible. Insert an inch pipe of some sort in this hollow log, to which attach a common iron pump. About an inch from the bottom, put three holes with an inch auger—in each of which put a piece of sponge, and over which tack a piece of gauze wire. The sponge and gauze wire filter and strain the water as it passes into the log. But if a filter is preferred, it must be built exactly like the cistern—except half the depth and diameter—and four or five stones, the size of the first, must be placed over and around the hole or end of the square tube referred to above. Put a piece of coarse bagging over the stone, and on that put about one-half bushel of sand stone and charcoal, which should be cracked in pieces the size of small gravel. Leave a trap door as in case of cistern—as it will be necessary to go at least once a year to clean out the filter and renew the filtrating material.

The reason for making the cistern round and not square, is that the exterior pressure strengthens the former, and will certainly bulge the latter. The reason for avoiding solid rock is, that the floor and wall will unsettle equally, and much mending and trouble is the consequence. The reason for completing the top at the point named, is that all jarring and settling takes place before the wall is pointed and floor made, which would be injured by doing it afterwards.

The advantage of the chain pump is, that it does not freeze, and any child can lift the water from that depth; besides it is very cheap. We purchased one before the war, with chain tube, wheel and ornamental cast-iron top, for nine dollars. The advantage of brick instead of stone, is that the wall settles more regularly, and it requires considerably less cement. The brick from an old chimney is usually the best, as they are often very hard. The yellow locust for the top is preferred, because no man will live long enough to see it rot—indeed, we know a piece similarly situated to that in the top of the cistern, which is in a perfect state of preservation which has been thus situated certainly more than a hundred years.

We were about to make a statement of the cost of materials for a ten foot cistern, but those things vary so much, according to circumstances, it is useless. Besides the two instances given above, we will name one more.

Hydraulic cement costs in Richmond three dollars per barrel;

but if a farmer is within a day's drive of a cement mill, or if he is on a railroad or canal which passes one, he can send his bags for the cement, which will then cost him twenty-five or thirty cents per bushel, or about one dollar per barrel. Some cements take about one fourth sand, and some considerably more. The proper quantity should be ascertained by trying. The most important thing to be considered when using the cement, after learning how much sand should mix with it, is the rapidity with which it sets. Therefore, *very little* should be mixed at a time.

This cistern will hold 5,870 gallons, or about a hundred and fifty barrels of water. A small house say 40 by 20 feet, will produce about 27,600 gallons, or 690 barrels annually, of water, which is about two barrels a day through the year—more than a family of size suited to that house could possibly need. Put in the cistern three or four small fish—they keep it perfectly pure. Some persons think they are the best substitute for a filter. Use in this case a strainer to keep out coarse dirt which may be washed from the houses, and never feed the fish except when the water is perfectly transparent. Any opacity in the water shows the presence of animal life, which the fish live upon; and when they increase to an unnecessary number, catch them with hook and line, when a nice fry may be had.

A cistern one foot larger than this cost us before the late war, a fraction less than seventy dollars. If persons knew the comfort they afford, no man who is able to build one would be without it.—*Religious Herald.*

When to Cut Grass for Making Hay.

At the meeting of the *American Institute Farmers Club*, held on the 29th of June, the following interesting discussion arose, as reported by the *New York Semi-Weekly Times*. Although it appears in this *Journal* too late to be available to our readers the present year, it is eminently worthy of preservation for their future use :—

WHEN TO CUT GRASS FOR MAKING HAY.

As many farmers are now beginning to mow, the subject of making hay was introduced by S. E. Todd, who opened the discussion by saying that :

“There are certain gross errors cherished by many farmers in regard to the best period in the growth of grass for making hay. And some most absurd notions have been promulgated in years past in regard to the manner of curing hay in certain periodicals claim

ing to be correct and reliable agricultural authority; and these errors continue to be propagated from year to year, by men who never made a ton of hay, and who are utterly ignorant of the fundamental principles of this branch of agriculture. As new beginners come into possession of meadows every season they naturally aim to be guided by the most reliable authorities on haymaking. Therefore as the blind have continued to lead the blind, the result has been, and will continue to be so, long as such errors are promulgated, the dumb animals are required to subsist on mouldy, musty, and unpalatable food, when, with no more labor, their daily allowance might be a liberal supply of sweet smelling hay.

At what period in the stage of the growth of grass do animals eat it with the greatest avidity? Of course, when the leaves and stems are fresh and green. Now, then, if it were better for the animals that the fresh grass should be covered with a sprinkling of mould and have a musty smell, rather than the delicious taste and grateful fragrance, that green grass possesses, why did the great agriculturist of the universe make such an egregious mistake to furnish the beast of the field with such food when it might have been different? Hay is dried grass. And the nearer the hay resembles fresh grass the more excellent the quality will always be. Here then, we have a reliable starting point to enable us to decide as to the most correct period of the growth of grass to cut for hay. Hay made of grass, cut before the blossoms have appeared will be better and more fragrant than if the grass had been allowed to stand until the flowers are in full bloom. Yet if this period was chosen for cutting grass the hay would be excellent; but a great loss would be sustained as to the quantity. Therefore, by allowing the grass to grow until the blossoms have nearly all appeared, we have the double advantage of that stage of growth which will make sweet-smelling hay in the largest quantity; that it is possible for a given meadow to yield. As the period for cutting grass is chosen either before the blossoms have appeared or after they have fallen, the material that would have made the best of nourishment for domestic animals changes rapidly into unpalatable woody fibre, which will furnish animals no more nourishment than corn cobs and saw dust. Great weight and bulk of fair-looking hay may be obtained by allowing grass to stand until the blossoms have disappeared. But the quality is quite inferior.

When druggists and botanical physicians gather plants and herbs for medicinal purposes, at what period in the stage of the growth

do they cut them? Always when they are in full bloom, if it is practicable. And why at that particular period of development. Because they know when herbs are gathered at the period of full bloom, the stems and leaves will yield a larger percentage of aroma and medicinal qualities than if cut at an earlier or a latter period. The same fact holds equally good of all kinds of green fodder, including the grasses, clovers and maize. Grass that is cut when in full bloom and properly cured, without bleaching, or too much scorching in the sun, or sweating or heating in the mow, will make hay resemble grass so nearly that the hay will furnish almost as much real nourishment to those animals that eat it as it would yield in a green condition. If grass be allowed to stand until the seed have matured and the leaves and stems have become dry, the hay made of it will go much farther than if the grass had been cut when in full bloom, on the same principle that flour made of unsound wheat will go much further than an equal number of pounds of choice flour, when made into bread. Stock will very often eat very indifferent hay with an apparently good relish. Hunger sharpens the appetite; and they must eat such food as has been prepared or do worse. But it is by no means a satisfactory argument that because stock eat poor hay with avidity, all grass should be allowed to stand until it will yield the largest quantity of inferior fodder. The correct point, then, is to cut grass for hay, when the blossoms are fully developed.

Dr. I. P. TRIMBLE.—Mr. Chairman, are we to understand that timothy grass (*Phelum pretense*) is not to be allowed to stand until the blossoms have fallen? I would ask Mr. TODD if he intended to teach that timothy grass should be cut when in full bloom?

Mr. TODD—I do hold that the correct period in the stage of the growth of any grass—not excepting the *Phelum pretense*—is when the blossoms are fully developed. If cut then and properly cured, it will make prime hay in the largest quantity.

Dr. TRIMBLE—that is a very great error. Timothy grass should always be allowed to stand until the blossoms have entirely disappeared. It is a mistake to cut hay when in blossom. It makes the hay dusty on account of the great quantity of pollen thus collected. But if the grass is allowed to stand until the pollen has fallen, the hay will be free from dust.

Mr. TODD—If I am promulgating error, Doctor, it is your duty to expose it.

J. A. WHITNEY—There is a scientific principle involved in this

matter, which goes to show that Dr. TRIMBLE is mistaken and Mr. TODD is right. In succulent plants the sugar and starch increase until the flowering culminates; but when the seed begins to form, the sugar and starchy matter are cemented into indigestible, woody substance. The dust of timothy blossoms cannot be a tithe of the quantity mixed with hay by the use of the horse rake.

W. S. CARPENTER—There can be no doubt that it is much the best to cut grass when in blossom. It not only makes better hay but it exhausts the soil much less. And I believe it is safe to cut the grass before the blossoms have appeared. I am satisfied, that if cut at this early stage of the growth, the hay will be of a superior quality if properly cured. More than this, we should aim to protect our meadows by early mowing. Grass that is allowed to mature the seeds before it is cut, will exhaust the soil and also the vitality of the grass roots far more than if the crop were cut just before the blossoms are fully developed, as has already been stated.

JAS. A. WHITNEY—There is a little chemistry involved in this subject, which will show that the facts stated and the theory coincide. When any plants, not excepting the cereal grains and grasses, are allowed to mature their seeds, the growth of seeds takes much more phosphoric acid from the soil than herbage does. Cut grass when in bloom and you will have the best quality of hay without taking the manurial substance from the soil that will be needed for the next grain or seed crop.

A. B. CRANDELL—In a certain black-letter volume, dust-covered and worm-eaten now, printed some hundreds of years before the era of modern collegiate agriculture, I can find one of the old teachers—Mr. CONO by name—laying the down the law on this subject in this wise: "The grasse being cut, you are to consider of what nature grasse is, whether very coarse and full of strong weedes, thicke leaves and great store of peony-grasse, or else exceeding fine and void of anything which asketh much wethering. If it be of the first kind, then after the mowing you shall first ted it, then raise it into little grasse cockes as bigge as small molehills,)?)after turne them and make them up again, then spread them; and after full drying put them into wind rowes, so into greater cockes, then break those open, and after they have received the strength of the sunne, then put three or four cockes into one, and lastly leade them into the barns."

Two young farmers near Mineapolis, Minessota, put eleven acres of land in hops.

Notes of Southern Travels.

An English gentleman, Mr. Bower Wood of Long Island City, has just returned from a journey to the South, and reports as follows: We found throughout North Carolina and Virginia every disposition to welcome immigration, to put aside politics, and an earnest wish to embrace every Northern suggestion and improvement. The negroes are disappointed because they do not each get a forty acre farm and a mule, but as a rule they are never troublesome or dangerous. In truth they require the incentive of the master's eye, or else a faithfully-fulfilled contract, by the piece or acre, just as white laborers do. Their wages vary from \$7 to \$10 per month, and rations, which do not cost altogether more than \$10 per month more. The females make excellent in-door servants, and can be hired at nearly half the above. We found all portions of the State above-named healthy, and with the advantage over the Western section of nearness to market, plenty of splendid timber, and good water. We felt the heat no more than in New York, and farmers assured us that they could do that hardest of all work—the hoeing of cotton—all day in the hottest sun. The quality of the land is various, but equal to any section North, that we know of, and wherever proper cultivation, rotation of crops, and manures are applied, the results are an excess of Northern products on the same area. Japan clover, white and red clover, and the grasses can generally be grown, white cotton at the present price, and the vineyard, which is being rapidly inaugurated, render a farmer's success speedy and certain. The prices of lands vary from \$3 to \$30 per acre. In the cities and towns large-sized lots can be got from \$50 to \$500.(?) Houses and grounds which cost five times their present price, can be readily obtained. Even in the mineral regions land is still very cheap. We saw a large fruit farm, only four miles from Raleigh, rich in gold and plumbago, with good house and 180 acres, that could now be bought for \$1,500. The owner was the former postmaster, and a much respected man. One-fourth cash, and three to five years' credit, are the general terms; while many properties can be hired, with an option of purchase, at a stated price agreed upon beforehand. Even mere laborers are readily welcomed, for their energy is much needed, and they form a check upon the negro, who, as the Rev. J. B. Smith of Raleigh remarked to us, has at present no proper standard by which to measure a day's work. Mechanics and artizans would find nice

openings and be free from much of that wear and tear which characterizes the struggle for life in more inclement latitudes.

By taking a trip to Norfolk, Portsmouth, Richmond, Lynchburg, Weldon, Raleigh and Asheville, the intending emigrant may readily satisfy himself as to which is the best spot on which to settle according to his capacity and capital. Cheap return tickets are issued by the Virginia State Land Company, whilst the famous North Carolina Land Company, of which our genial New-Yorker, A. J. Bleecker, is a director, have issued tickets for the round trip from Boston or New York for \$24. This is a most respectable and *bona fide* association. W. S. Kingsland of New York is a resident director at Raleigh, and very acceptable to Southern settlers, while the Hon. R. W. Best, Secretary of State, is Grand Master of the Masonic Lodge in North Carolina, and by his urbanity and fairness will be found equally deserving of confidence. We heartily wish all such societies full success. We are assured that the present farms are too large for the means of present holders. They will cheerfully part with a portion to enhance the value of the remainder and to secure a good neighborhood. That this season will be a happy one for the South we do fully believe. Some immigration and capital have already taken place; the full stream will soon follow. The present wheat crop is all safe, and the best known for many years. Oats and vegetables are more than an average crop, tobacco is fair, and though the season is backward, cotton is generally in blossom and the yield at the present prices promises to be the most enriching of any that has occurred of late years. The South will soon be fully recuperated. Norfolk will soon be a busy entrepot worthy of its magnificent harbor, and Wilmington must have her share of direct intercourse. It ought to be the earnest and daily prayer and work of all good Americans to do all that in them lies to help forward this intermixing and prosperous knitting together of all parts of our country.—*N. Y. Tribune.*

The Alkali Earth of the Rocky Mountains as a Fertilizer.

Judge J. G. Knapp, Madison, Wis.—During a residence of many months in the central regions of this great continent, I took note of the available mineral and agricultural resources of these Territories. Perhaps it is not generally known that much of the material commonly known by travelers as *alkali*, spread in vast deposits on our western plains, and which the Mexicans call *salitra*, is a compound

salt, of which nitrate of soda is a large constituent, the other ingredients consisting of carbonate and chlorate of soda, with salts of potash. Some difference in composition exists in different localities. Besides the useful arts to which it may be applied, salitra supplies the place of salt to the cattle and sheep; and though poisonous to vegetation where it exists in excess, yet in smaller quantities, but sufficient to be plainly visible by its inflorescence, yet it is a valuable manure, especially for wheat, beets, and onions, and causes New Mexico to produce such fine grapes, peaches, and quinces as can be found in no country where the salt does not exist. The apple-tree and cotton-wood, and some other forrest trees are benefitted by its presence. There are places particularly in New Mexico, where it might be gathered in almost inexhaustible quantities. Would it not make a valuable dressing for vines, quinces, peaches, and other crops, and thus pay for collection and transportation? Where I have seen it there are no "large accumulations of decaying organic matter" to furnish the nitrogen for the formation of salt, therefore I am of opinion that the nitrogen is derived either from the atmosphere, during the hot, dry seasons, or from the ground through some, to me, unknown volcanic action, as all the hot springs yield some of the combinations of this alkaline earth.

[*Note.*—The Club has long thought that the deposits on the alkali flats of the wide central plateau of this continent, though now condemning those surfaces to sterility, might prove a valuable manure on lands where potash and soda are not abundant. They would suggest to some readers of these reports, who live near those regions to forward a barrel of alkaline earth to the American Institute of New York City to be used experimentally as a manure.]

N. Y. Tribune.

Clipping Horses.

Messrs. Editors,—I have repeatedly been asked my opinion relative to the merits and demerits of clipping horses. As people are generally slow to receive an innovation, whatever may be its value, I will (through the medium of your valuable paper) give my views in as explicit and concise a form as possible. Clipping has a real and magical effect upon the horse. The unclipped horse is distressed by little exertion; he puffs and blows and perspires if driven or ridden at only a moderate pace; he becomes soon exhausted; can scarcely get along, stumbling frequently, and is in fact sadly under the mark. But clip him, lo and behold! he can go double

the distance and do double the work without fatigue. He is quick in his paces, light-hearted, and elastic as a fawn. A marvellous change takes place. What is it? Echo answers what. Have we imparted to his system, suddenly, an increased amount of muscle, more blood, or more nerve? No, nothing of the kind. Then what have we done? Here is a fine field for earnest scientific contemplation. I believe its beneficial influence is attributable to the altered arrangement of the electric force, developing increased vitality. That the great supporter of vital power is an immaterial substance, closely resembling, if not identical, with that which has been termed electricity, will not be disputed; and when the horse is shorn of his thick heavy coat, the body is not insulated as it was before, and there is now established a pure current or circuit of electrical fluid in and out of every part of it, creating an exhilarating excitement and an increased tone of the whole organic system. We find the surface of the skin is warmer in a clipped horse than it was before; it is quite manifest to the hand. That this augmentation or increased supply of caloric is derived from the increased combustion of carbon is more than probable; also, more oxygen is consumed, and it therefore necessarily follows that the removal of this outer barrier to the passage of electricity into the body, which, in accordance with the inherent powers it possesses, is like a metallic chain extending from the conductor of an electric machine to the great reservoir of the electric fluid, the earth, and therefore is, when excited, robbing the body of its greatest source of electricity. I would earnestly recommend that the integument be stripped of this non-conductor—this thick heavy covering—and depend upon it the horse would be more healthy, less subject to fatigue, consume less food, &c., &c., perform his work with more celerity and buoyant spirit, and with far greater pleasure to the rider and driver.

I am, Mr. Editor,

Yours very respectfully,

J. R. FREEMAN, V S.

Veterinary Infirmary, cor. 14th and Ross sts., Richmond, Va.

The True System of Farming.

Trying to do too much is a common error into which the farmer often falls. His great eagerness in striving to be rich is doubtless the cause of his error. He is ambitious and energetic, and forms his plans on a large scale, too often, perhaps, without counting the

cost. He buys a large farm and wants to be called a "large farmer," without understanding or considering the true elements that constitute a real farmer. He fancies the greatness of that profession, as is too often the common estimate, to be in proportion to the number of acres, not to say cultivated, embraced within the boundaries of his domain. The fact is now being spread abroad, that a large farm does not make a man either rich, contented or happy, but on the contrary, the reverse of all these, unless well tilled, when his labor is rewarded by ample crops and fair success in the various departments in which he is engaged. No farmer can realize the full benefits of his profession without adopting a thorough system of culture. His success, commensurate to his wishes, always depends upon the manner in which he prepares his grounds, plants his seed, and rears his stock. Neither of these departments, which may be considered the cardinal ones of his profession, will take care of themselves. The soil may be rich, but it needs culture. His seed may be sown, but it should be in due time, and always on soil well prepared and of a suitable quality for the production of the crop desired. His stock must be constantly cared for—it derives its thrift from the soil, and sends again to that soil the sustenance it requires; but this is not done in a loose or haphazard way. The farmer's care is required, and all his better judgment must be exercised in keeping up this system of reciprocal benefits that may be realized by every intelligent and industrious farmer.

Thorough cultivation and systematic attention to all parts of his business is indispensable to a good degree of success. The very corner stone to this whole system of farming, is to do what you do thoroughly—nature will not be cheated, and never gives full returns to the half way work that is practiced by vastly too many calling themselves farmers. If the land has been worn, the extent of that exhaustion and the food required must be first considered. When ascertained, the full measure of these requirements must be given, to bring out full returns. If the farmer has but a small stock, and consequently but a small amount of manure to replenish his land, it is obvious that but a small farm can be supplied with it; and good judgment at once dictates that to cultivate properly a large farm, artificial fertilizer must be used if good crops are obtained. And so with the labor, two men cannot suitably till one hundred acres of land, when the labor of two men, and perhaps four, might be profitably employed on seventy-five acres.

This is the great error in farming. Two men strive to do what

four can hardly do, and thus thousands of acres are run over, half tilled, and producing half crops. The land is run over till worn out, sustaining year after year the unnatural tax, till its energies are entirely exhausted, and it fails to yield even a feeble crop, because its life is worn out. Much of the soil in Virginia and other Southern States is a type of this. Thousands of acres are entirely useless and exhausted, and will ever remain so, till the first elements of its power are returned to it. This process is going on in many of the Western States. The soil is treated like an inexhaustible mine; the tillers crying give, give, give! till in a few years it will have nothing to give. The boast of the West is, large farms and large fields of grain; plough, sow and reap, is the business of Western farmers, drawing out the very life of the soil, sending away in the heavy exports that are constantly going onward, without returning to the soil the food it requires to make it productive.

The light that is being spread abroad on this subject is beginning to correct this practice to some extent, but in most instances very little is returned to the soil to keep it alive, till after several years of continual cropping, it manifests signs of exhaustion and ultimate barrenness. When tillers of the soil understand their true interests, they will cultivate no more land than they can do well. Fifty acres of land for tillage, brought to a high state of cultivation, pays better than one hundred run over in the way that many do.—*Jefferson Farmer.*

Making a Poor Farm Rich.

Some twenty-five or thirty years ago, I bought a farm containing about one hundred and twenty acres of land. It had been managed badly for many years preceding the sale of it. Fence rows, where hundreds of loads of stone had been hauled off the adjacent fields, were from ten to twenty feet wide, and were filled with cedars, cherry trees, allers, sas-afras, briars, rotten rails, &c. Gutters were washed in various places, exposing a stony barren soil, that looked like anything else than desirable farm land. An old farmer, on the day of sale, remarked in reference to the gulleys in the fields, that it mattered but little if all such land was washed away. The buildings were old and dilapidated and needed immediate repairs, to render them at all comfortable for man or beast. This property, however, had two redeeming traits—it was well wooded and well watered.

As was the farm, so was the farmer—poor. To better this state

of things was the aim of the writer, which could not be accomplished without much hard work. This had to be done, and he had to do it. Wood had to be cut and hauled to the kiln; lime to be burned, hauled and spread; fence rows cleaned, fences made, &c. I put one thousand bushels of lime on two ten-acre fields, in the fall, before possession was given. These fields were ploughed in the following spring, and put in with corn, which yielded, when husked not over fifty bushels of sound corn altogether. From one of them, however, I got one hundred bushels of buckwheat, having sown some seed among the sparse and puny-looking stalks of corn about the middle of July.

The next season both fields were put in with oats, averaging forty bushels per acre. I sowed clover and timothy on the oats, and rolled them all in together. The season was favorable and seed took well. I mowed these fields two summers in succession, and had a very good crop of hay. I then put five hundred bushels on one of the fields; and in the spring planted it with corn, which yielded me four hundred bushels without the offal. No manure whatever was used for the crop in addition to the lime, excepting that the corn was plastered in the hill. Oats, wheat, (manured from the barn-yard,) and two crops of grass followed. The ground was then limed again as before, and I gathered the ensuing season sixty bushels of corn per acre. The other fields on the farm have been worked as this, with about the same results, excepting the corn which I think has not been equaled since. There were but two acres of wheat on the place, when I bought it, as all the manure made would not cover a greater extent than this, after a sufficiency was taken out for a potato patch and garden. Two horses and three cows constituted about all the stock. Now there are five horses and upwards of twenty head of cattle kept. The manure they make is sufficient for twenty acres of ground annually. By increased productions of my farm, I have been enabled to pay debts, erect new buildings, and to give my children a good, sound education.

So much for lime; without this fertilizer I could not have lived. I have never sold more than three or four loads of manure. Several times the wheat crop has yielded thirty bushels per acre. I paid \$31 dollars per acre for my farm and have refused \$110.

I have written thus to show that poor land may be made good with lime, and the increased amount of manure obtained as the consequence of the liberal application. Two good horses and a yoke of oxen were all the working stock used on the farm for several years. Young farmers will do well to remember that oxen will do as much

work as horses, eat less grain, require less expensive harness, can be geared in half the time, can be managed more safely by boys, and in fine, are preferable in very many ways.—*Germantown Telegraph*.

Lespedeza *Striata*.

A correspondent of the *Richmond Christian Advocate*, whom we personally know to be a gentleman of the highest character, who has lately travelled extensively in the South, writing from Spartanburg, S. C., under the date of the 8th of June, makes the following statement, as the result of close observation and diligent inquiry respecting the new variety of clover known as the *Lespedeza Striata* which has so wonderfully spread over large sections of the South, since the close of the war:

There is a vegetable production spreading all over this country which may truly be regarded as a providential blessing, I allude to the the *Lespedeza Striata*, usually termed "Japan Clover," frequently "Confederate clover." According to the most reliable information I can get, it first made its appearance at and near country stores about twenty years ago, in South Carolina and Georgia. It is supposed the seed was transported in packages of wares from Japan, where it is said the plant is found. It is curious as well as valuable. Although it evidently belongs to the trifolium, or three leaved family, it can hardly claim to be a clover; for it is not perennial at all, but an annual; nor has it a head and bloom resembling any of the varieties of clover. Its bloom is in shape and color, though very diminutive, like the pea. The seed, also, I am informed, while very small, has the shape and appearance of the pea. It is the opinion of intelligent gentlemen with whom I have conversed, that it should rather be regarded as a pea than a clover; although its appearance is very much like young clover.

The most singular part of its history is the fact that up to the time of the war it had not attracted much attention, nor spread to any noticeable extent; but that during the war it spread as if by magic all over Northern Georgia, upper South Carolina, and many counties of Western North Carolina. Now it pervades every portion in this extensive region. It is literally rooting out broom straw in all the waste lands, vegetates and springs up anywhere, even in gulleys, roads, and on red clay banks, in old fields and forests. It makes its appearance early in spring, an insignificant little plant, and lives through all vicissitudes of weather, wet and dry, till late in the fall, affording grazing for stock of all kinds. It is especially

suiued to sheep, and causes them to take on more flesh and fat than any other pasturage in this region. It grows mainly on uncultivated land and never interferes with crops. Should it spring up on lands that are tilled, it is easily destroyed, and is not at all considered a pest. On lands that are rich it is ten or twelve inches high, and may when fully matured in growth, be cut for hay. Its growth is not very rapid. I have watched its growth from the first of April till now. I find it is not generally more than three or four inches high unless the land is tolerably rich. It is the opinion of persons who know more of its peculiarities than I do, that it will root out all noxious grasses—the wire grass included. It is considered a fine improver of the soil, and makes beautiful lawns. It is perhaps the greatest seed producer that has ever grown upon the soils of this country. Once get it on the land, and it remains and springs up without any care or concern of the owner. As it seems to have spread by magic, or on the wings of the wind, you may soon expect to find it on the waste lands of your state.”

The Crow's Value to the Farmer.

Whatever wrong the crow commits against the cultivators of the soil, may by a little pains-taking, be materially lessened or wholly prevented. The benefits he confers are both numerous and important. During the time he remains with us he destroys, so says no less authority than Willson, “myriads of worms, moles, mice, grubbs and beetles.” Audubon also affirms that the crow devours myriads of grubs every day in the year—grubs which would lay waste the farmers fields—and destroys quadrupeds innumerable, every one of which is an enemy to his poultry and his flocks. Dr. Harris also, one of the most faithful and accurate observers, in speaking of the fearful ravages sometimes wrought in our grass-lands and gardens by the grub of the May-beetles, adds his testimony to the great services rendered by the crow in keeping these pests in check. Yet, here in Massachusetts, regardless of such testimony in their favor, we have nearly exterminated the birds, and the destructive grubs, having no longer this active enemy to restrict their growth, are year by year increasing with a fearful persistence. We have seen large farms within an hour's ride of Boston, in which over entire acres the grass was so completely undermined and the roots eaten away, that the loosened earth could be rolled up as easily as if it had been cut by the turfing-spade. In the same neighborhood whole fields of corn, potatoes, and almost every kind of garden vegetable, had been eaten at the root and destroyed. Our more intelligent farmers, who have carefully studied out the cause of this unusual insect growth, have satisfied themselves that it is the legitimate result, the natural and inevitable consequence of our own acts. Our short-sighted and murderous warfare upon the crow has interrupted the harmonies of nature, disturbed her well adjusted ballance, and let loose upon agriculture its enemies with no adequate means of arresting their general increase.—*At. Monthly.*

dark, meaty grain, with very thin husk, and handling almost as heavy as wheat.

Now in regard to their weight. At the depot before they were taken out, I got several gentlemen who were present to estimate the quantity held by one of the bags, and they unanimously agreed that it did not exceed two measured bushels. We then weighed it on the depot scales, and it weighed eighty-one pounds—allowing one pound for the bag, the oats weighed forty pounds per bushel. After bringing them home I measured a half bushel, and they weighed in a fraction of the same, nearly nineteen and a half pounds. I am satisfied that they weigh generally from thirty-eight to forty pounds per bushel, and I have no doubt that it sometimes amounts to forty-five pounds per bushel, as Mr. Ramsdell claims.

The Norway oats are not as forward as my common variety sown one month and a half earlier, but I don't think that there is more than ten days difference, and I am sure, that sown at the *same time*, they are as early as the common oat. At present they have the appearance of being one hundred per cent. better than the common kind—larger stalk, branching more, double as many grains to the head, much taller, and altogether a healthier, hardier, and better looking grain, and this without any extra culture, as my object was simply to test the true merit of the grain.

On account of the cold and long-continued rains we have had this spring, the oat crop is generally a failure in this section, and the season has been particularly severe on flat land; consequently, the Norway has not had anything like a fair chance—sown one and a half months too late, and drowned with cold rains. It has, however, not been affected by the "rust" at all, although the common kind sown in the same field has suffered a great deal from this disease. The stalk of the Norway oat, as I stated above, is much larger, stouter and stronger than the common oat, and from this fact I judge that it is less liable to be affected by bad seasons, or by the usual diseases that destroy this grain.

I had almost forgotten a most serious objection of Mr. Garber to the Norway oat—the Canada thistle. I must confess that I do not know what the Canada "thistle" is; but if it is anything like our thistle, or, in fact, anything *uncommon*, I have not yet been able to find it in my crop, after a most diligent search. I am certain that Mr. Garber was imposed upon in the purchase he made, and bought a spurious kind. I have been informed that there are several counterfeits of this grain sold in different cities North. I am certain of this, from the fact that I recently met a New York gen-

tleman, who told me that he had cultivated the Norway oat, and that it was *perfectly white*. Now the truth is, that the oat is almost *black*, being of a dark rich brown.

In conclusion, Messrs. Editors, though a young farmer and an unpracticed writer, I make no apology to the public for this communication. Whatever benefits our agricultural community, benefits our State; and that the discovery of this oat is a grand stride in the march of progress and improvement, I have no doubt. I am glad to believe that its introduction here will tend to the resuscitation of our old mother State.

Very respectfully,

W. B. WOOTTON.

Prince Edward county, Va., July 5, 1869.

Soil Diagnosis.

The essential elements of all fertile soils, and the characteristic elements of all standard fertilizers, are now familiar to every practical farmer who reads an agricultural journal, and such may not only detect, but remedy the defects of their soils without professional aid on the one hand, or the old empirical application of manures on the other. An essay on this subject was promised to the readers of the *Planter* on the 331th page of this volume. The results of my own experience during the harvest of this month will illustrate the idea, and further expose the popular error, that the relative value of fertilizers can be exhibited by experiments in the field. Their absolute value may be illustrated by repeated experiments after it is determined in the laboratory, but nothing is more mischievous than that reliance on the empirical reputation of manures which inevitably feathers the nest of the quack or the gambler who practices on the indolence and ignorance of men of enterprise, who neither use their own opportunities of observation nor employ experts, but accept the most convenient means.

We may now calculate with some accuracy on the effects of certain elements of manure, but field experiments, frequently repeated, must be invoked to determine the most economical limits at which fertilizers operate when *concentrated* in order to save freight and packages.

A number of fertilizers and new varieties of guano were sent to me last Autumn, in order that their value might be thus demonstrated by field experiments. The intolerable trouble of cleaning and guaging the wheat drill for each, and the extensive area thus embraced, compelled a resort to the following device, which insured

the most accurate results, and avoided all risk as to a change of soil, drainage, exposure, &c., &c.

By the usual mode of "backing up" land with the plough, a strip of land was elevated say 15 feet wide and 100 yards long, and by repeated ploughing the surface soil was doubled at the width of the drill in the centre; over this elevated plateau one drill row was traced in the centre without manure, but with the same guage that seeded the wheat on the rest of the field (or one and a half bushels per acre)—thus also illustrating the idea recently published in the *Rural American*, in my essay on "a new mode of wheat culture," with regard to the enormous waste of seed wheat that now prevails almost universally.

As a further result of this series of experiments, I may at some future time publish the weight of the wheat per bushel, and estimate the product per acre when the grain is separated from the straw; but any one can approximate to this result by multiplying the weights annexed with 32,670, dividing the result by 7,000, which will reduce it to pounds.

The almost incredible facts here exhibited and repeated after several years' trial of various localities, should indicate some mode of correcting the enormous waste in the usual cultivation of wheat. The samples represent in each case the most uniformly filled drill row from about thirty different spots in the cultivation above described. Unfortunately, I drilled some white Mediterranean wheat on this whole bed, where all of the fertilizers were subsequently spread, as described below. This seed was selected in New York, as I wished to use wheat from a colder climate. I should now prefer the German red, that I drilled on the rest of the field, as less liable to rust, although raised in Maryland, which I was tempted to secure at a cost of \$3.25 per bushel, because of its extraordinary weight (64 pounds per bushel). Moreover, it seems better adapted to our stiff clay or white oak soil.

Two pounds of each fertilizer were uniformly distributed on the drill row above described, it having been divided into sections transversely twenty feet each, by the width of the drill, say eight flukes or sixty-four inches, each embracing more than one hundred square feet; but the Carribbean guano was applied in double that proportion, as nearly all the rest cost about \$50 per ton. It is probable that one-half the quantity would produce an equal influence on the first crop, if drilled with the seed.

The relative value of the several fertilizers to the soil of this particular field is manifested (we suppose) by their apparent influence

in determining the more perfect development and vitality of all the wheat plants, and thus insuring a greater number on the same area, in spite of the extraordinary ordeal of last winter, being equally protected, as above, by the most perfect drainage and a double portion of surface soil. Moreover, the increased tendency to "stool," as evidenced by the number of heads of wheat on the same area, when compared with that of the best cultivations elsewhere.

The last estimate is based on two feet of a drill row uniformly filled with wheat from the best part of the same field, and contiguous to the experimental plots, where the fertilizer was drilled with the seed at the rate of about 300 pounds to the acre, it being composed of the best super-phosphate mixed with about 20 per cent. of Peruvian guano.

	D	C	B	A
Phosphatic guano alone.....	13.18	3950.	1422.	107.
The same with 25 per cent. of Peruvian.....	15.54	5726.	1772.	104.
The same with equal weight of super-phosphate.....	15.32	3698.	1302.	79.
The same super-phosphate alone.....	13.47	3176.	1132.	84.
Another super-phosphate.....	10.25	3506.	0984.	95.
A third standard super-phosphate.....	14.69	3226.	1142.	81.
The same containing Peruvian guano.....	17.22	4326.	1602.	93.
Another said to contain blood.....	13.20	3076.	1122.	85.
Caribbean guano.....	13.74	2226.	0852.	62.
West India guano.....	16.39	3376.	1262.	77.
Normal amount of fertilizer on rest of field drilled with seed...	11.96	1856.	0742.	62.

A—Represents the number of heads on 2 feet.

B—The total weight of these heads.

C—The weight of the whole crop.

D—The average weight of the heads.

It is clearly demonstrated that the wheat manure for the soil of above field is (for the present) the most soluble super-phosphate, or Phosphate guano combined with Peruvian guano. A good clover ley is no doubt the cheapest substitute for the latter.

DAVID STEWART, M. D.

Port Penn, Delaware, July 18, 1869.

To KEEP up the fertility of our pastures, it is evident that we must do our best to check the growth of such a vegetation as is rejected by stock. But it is not enough to destroy the useless and injurious plants; we must encourage the growth of the valuable ones. How shall these objects be completed?

A faithful following of a well selected plan of general farming will always be followed by larger profits, at the close of a long series of years, than will the following of that system which attempts to change from one specialty to another, as the prices of different products vary.

He is a good farmer who makes good compost heaps; he is a better who manages to have the manure applied as fast as it is made.

Straight Ditches.

Messrs. Editors,—Your correspondent from Prince Edward does not seem to have gotten into the merits of the question discussed as to the advantage of straight over crooked streams with reference to the bottom lands. We do not suppose that any one ever doubted that the small streams are governed by the same general laws that apply to larger ones. We do not know that either are governed by any other laws than to follow, in obedience to the laws of gravitation, the channels marked out for them by nature; at least so long as the moving column is confined within those channels; but the question at issue, is whether those channels have been so formed as to control the forces of the currents during freshets to the best advantage of the bottom lands. To say that we cannot improve upon nature is saying nothing. Our great duty is to subdue the earth and make its forces subserve our purpose.

That a body, when not acted on by any external force, if in motion, will continue to move in a straight line, is the first law of motion; and the body is said to move *freely* when its path depends on the action of the impressed forces only; while its motion is said to be *constrained* when its path is confined to a given line or surface. Now the only question to be decided, in our opinion, (and we do not presume to be able to decide it,) is whether that constrained path of being made to correspond with the path the body would move in when *free*, applied to our water courses, would not render our bottom lands less liable to the ruinous washings during freshets. While this rule might not apply to our large water courses, yet we cannot but think the condition of our creek bottoms would be much improved, if it were in our power to give the streams a straight, free course, so that the water during freshets would not be continually breaking over their banks, in their effort to comply with the first law of nature. And would not this free course to the water render the bottom lands less liable to overflow, while the increased velocity and the correspondingly increased force or momentum of the currents would deepen the channel, and the better clear them of the washings and rafts?

In conclusion, we would like to hear from some of your correspondents the probable effect upon the bottom lands along the Mississippi, if its channel were entirely straight from source to entrance into the gulf. Would the levees be more, or less liable to destruction? Would the channel fill up or wash deeper? Would the overflows be more or less injurious to the bottom lands? Would the

velocity of the stream be increased, and if so, would that increased velocity extend to the water which spreads over the bottoms during the freshets, so as to be more destructive in its nature? Would not the overflows be much less frequent in consequence of the free and unobstructed course to the water, together with the probable increased depth of channel and velocity of motion?

Now, Messrs. Editors, as we have no pride of opinion whatever to gratify in the matter, and as all we have written has been rather an inquiry on the subject—has been rather an inquiry after the views of others—we hope you will not withhold your columns from these inquiries, however idle they may appear; especially when you remember it “hath been said by one of old” that the early press of your city was once very much perplexed on the philosophic discussion as to the relative velocity of different portions of a coach wheel, and no doubt the discussion and decision of that question gave the first impetus to that philosophic inquiry, which has developed the thrifty village into the manufacturing city.

J. V. B.

July 24th, 1869.

Experiment with Baugh's Raw Bone Phosphate.

Messrs. Editors,—For several years previous to “the war,” I was in the habit of using more or less Peruvian guano on my tobacco and wheat crops, and always with satisfactory results. Last fall I was induced to try two tons of Baugh's Raw Bone Phosphate on my wheat. I sowed three hundred pounds to the acre on part of the field, and two hundred pounds to the acre on another part. I also used one hundred and fifty pounds of Peruvian guano to the acre in the same field. It was also put in with the wheat, by shovel ploughs, on land that had previously been turned by Watt's two-horse plough, and then harrowed to receive the grain. The result was a fair crop where I sowed the Peruvian guano, with strong bright straw. Where the Phosphate was used, the straw was weak and much broken, and the heads very badly filled. I could observe no difference between the portions where three hundred and two hundred pounds were used—all alike sorry, and certainly not as good as I would have expected from the same land without any fertilizer. The wheat was sowed in September. I give this as the result of my experience with the only “manipulated” fertilizer I have ever used, and with the hope that further information may be elicited from those who have made more extensive trials not only

with the "manipulated" Phosphate alluded to, but with its congeners. I look upon the use of the best Peruvian guano at this distance from market as a luxury better suited to ante bellum times than to the present; and to persist in the trial of the many "manipulated manures" that are now offered to the farmers, and all at a high price, as worse than foolishness. We cannot afford to be cheated *now*, and rather than incur the risk, I am determined hereafter to rely upon home-made manures—clover, lime and plaster.

Very respectfully,

C. M. REYNOLDS.

Woodbarn, Botetourt county, Va., July, 1869.

Value of Super-Phosphate of Lime for Fertilizing Purposes.

From the *Farmers' Club of the American Institute*, as reported for the *American Artisan*, we clip the following :

"The question of the relative value of super-phosphate of lime for fertilizing purposes was called up by a letter from a correspondent, and led, among other things, to a brief statement of the characteristics of bones as variously prepared for manure. When bones are boiled, the gelatine, which is capable by decomposition of generating ammonia, and has therefore a high manurial value, is removed; hence for bone-dust unboiled bones are best. By dissolving the bones in sulphuric acid the phosphoric acid in them is rendered more soluble and capable of more easy assimilation by the plant; hence, where a quick-acting phosphatic manure is required the super-phosphate should be used; but where it is desired to distribute the effect of the fertilizer over a greater length of time, bone meal will be found better; and, as is generally the case where nitrogenous manurial agents are requisite, the efficacy of the bone-dust, for the reason herein-before indicated, will be enhanced if made from raw or unground bones."

A Massachusetts farmer says he can winter his cows on steamed feed for one-third less expense than on dry feed, and get one-fourth more milk. This is the result of five years experience.

A small or moderate sized tree at the transplanting will usually be a large bearing tree sooner than a larger tree set out at the same time, and which is necessarily checked in growth by removal.

SPIDERS BENEFICIAL.—All spiders, without exception, prey largely upon insects, and chiefly upon the plant-feeding or injurious insects.—*American Entomologist*.

SCHEDULE OF PREMIUMS
OF THE
Virginia State Agricultural Society,
AT ITS
FAIR TO BE HELD AT RICHMOND,

On the 2d, 3d, 4th and 5th days of November, 1869.

CLASS I—SECTION I.

ESSAYS OR WRITTEN COMMUNICATIONS.

1. For the best essay on the practical management of a farm of not less than 150 acres, in *Tide-water Virginia*, devoted to mixed husbandry. The necessary farm buildings to be described; the proper division of the farm into fields; the force in teams and farm hands necessary for its cultivation; the rotation of crops pursued; the artificial grasses cultivated; the green crops ploughed in for manure; the quantity and kinds of stock which may be usefully and profitably kept upon it; and all matters deemed necessary by the writer for its profitable and economical management to be distinctly stated. Also, the proper preparation of the land for the different crops and products, the best times, in the opinion of the writer, for planting and sowing these crops, and the method pursued in the management and disposal of them and their offal. Premium,

2. For best essay as above, applicable to the Granite section of Virginia, similar premium of

3. For best essay as above, applicable to Piedmont Virginia, similar premium of

4. For best essay as above, applicable to the Valley of Virginia, similar premium of

5. For best essay on the manual labor presently and prospectively available to the farmers of Virginia, and the actual or supposed comparative value of the several kinds, and the best mode of magaging the same, premium of 40

NOTE.—One essay may embrace two or more of the subjects of the four first named, at the option of the writer; and in case of superior merit, may claim the award over competing essays confined to any one or more of the above named divisions, provided, that but one premium shall be awarded to any essay.

Judges.

N. F. Cabell, Nelson.
Dr. Thos. P. Atkinson, Danville.
J. Ravenscroft Jones, Brunswick.
Wm. H. Harrison, Amelia.
J. W. Sheffey, Smythe.
Dr. Wm. B. Cochran, Loudon.

SECTION II.

6. For the best essay on the cultivation and management of tobacco from the plant bed to the warehouse, premium, silver medal of the value of \$15

7. For best essay on the cultivation and management of the ground pea, premium, silver medal, 15

8. For best essay on manures, including lime, and the mode and time of applying them, with a statement of the quantity pro-

\$40

40

40

40

per to be applied per acre, for each of the several crops embraced in the rotation of the principal staple or farm crops, premium, 20

9. For the best essay on grasses adapted to Virginia, with a statement of the kind of land proper to each variety, and the best mode of preparing the same; also the manner of harvesting each crop, premium, a silver bowl, value 25

10. For best essay on swine, premium, 20

11. For best essay on cattle, premium, 20

12. For best essay on poultry, premium, 10

Judges.

John R. Edmunds, Halifax.

W. M. Tate, Augusta.

E. T. Tayloe, King George.

Wm. Sayre, Portsmouth.

B. J. Barbour, Barboursville.

Wyndham Robertson, Abingdon.

CLASS II—SECTION I.

CATTLE DEPARTMENT.

Short Horns of native stock.

13. Best bull 3 years old or upwards, \$30

14. Second best do., 15

15. Third best do.,

CERTIFICATE OF MERIT.

16. Best bull 2 years old and under three, 25

17. Second best, 10

18. Third best,

CERTIFICATE OF MERIT.

19. Best bull 1 year old and under, 10

20. Second best do., 5

21. Third best do.,

CERTIFICATE.

22. Best cow 3 years old or upwards, 30

23. Second best do., 15

24. Third best do.,

CERTIFICATE.

25. Best cow or heifer 2 years old and under 3, 20

26. Second best do., 10

27. Third best do.,

CERTIFICATE.

28. Best heifer under 2 years old, 10

29. Second best do., 5

30. Best calf, CERTIFICATE.

31. Best imported bull, 50

32. Best imported cow or heifer, 50

Herefords of native stock.

33. Best bull 3 years old or upwards, \$30

34. Second best do., 15

35. Third best do.,

CERTIFICATE OF MERIT.

36. Best bull 2 years old and under 3, 25

37. Second best, 10

38. Third best,

CERTIFICATE OF MERIT.

39. Best bull 1 year old and under, 10

40. Second best do., 5

41. Third best do.,

CERTIFICATE.

42. Best cow 3 years old or upwards, 30

43. Second best do., 15

44. Third best do.,

CERTIFICATE.

45. Best cow or heifer 2 years old and under 3, 20

46. Second best do., 10

47. Third best do.,

CERTIFICATE.

48. Best heifer under 2 years old, 10

49. Second best do., 5

50. Best calf, CERTIFICATE.

51. Best imported bull, 50

52. Best imported cow or heifer, 50

Judges.

James Newman, Orange.

A. T. Caperton, Monroe.

J. F. Kent, Wytheville.

E. Rosenberger, Shenandoah.

B. F. Grayson, Smythe.

S. F. McGehee, Charlotte.

SECTION II.

Devons of native stock.

53. Best bull 3 years old or upwards, \$30

54. Second best do., 15

55. Third best do.,
CERTIFICATE OF MERIT.

56. Best bull 2 years old and under 3, 25

57. Second best, 10

58. Third best,
CERTIFICATE OF MERIT.

59. Best bull 1 year old and under, 10

60. Second best do., 5

61. Third best do.,
CERTIFICATE.

62. Best cow 3 years old or upwards, 30

63. Second best do., 15

64. Third best do.,
CERTIFICATE.

65. Best cow or heifer 2 years old and under 3, 20

66. Second best do., 10

67. Third best do.,
CERTIFICATE.

68. Best heifer under 2 years old, 10

69. Second best do., 5

70. Best calf, CERTIFICATE.

71. Best imported bull, 50

72. Best imported cow or heifer, 50

Judges.

W. B. Stanard, Goochland.

S. T. Stuart, Fairfax.

James Taylor, Hayfield Caroline.

W. W. Walker, Westmoreland.

S. M. Byars, Glade Spring.

Thos. A. Hardy, Norfolk.

SECTION III.

Ayrshires of native stock.

73. Best bull 3 years old or upwards, \$30

74. Second best do., 15

75. Third best do.,
CERTIFICATE OF MERIT.

76. Best bull 2 years old and under 3, 25

77. Second best, 10

78. Third best,

CERTIFICATE OF MERIT.

79. Best bull 1 year old and under, 10

80. Second best do., 5

81. Third best do.,
CERTIFICATE.

82. Best cow 3 years old or upwards, 30

83. Second best do., 15

84. Third best do.,
CERTIFICATE.

85. Best cow or heifer 2 years old and under 3, 20

86. Second best do., 10

87. Third best do.,
CERTIFICATE.

88. Best heifer under 2 years old, 10

89. Second best do., 5

90. Best calf, CERTIFICATE.

91. Best imported bull, 50

92. Best imported cow or heifer, 50

Alderneys of native stock.

93. Best bull 3 years old or upwards, \$30

94. Second best do., 15

95. Third best do.,
CERTIFICATE OF MERIT.

96. Best bull 2 years old and under 3, 25

97. Second best, 10

98. Third best,
CERTIFICATE OF MERIT.

99. Best bull 1 year old and under, 10

100. Second best do., 5

101. Third best do.,
CERTIFICATE.

102. Best cow 3 years old or upwards, 30

103. Second best do., 15

104. Third best do.,
CERTIFICATE.

105. Best cow or heifer 2 years old and under 3, 20

106. Second best do., 10

107. Third best do.,
CERTIFICATE.

108. Best heifer under 2 years old, 10

109. Second best do., 5

110. Best calf, CERTIFICATE.
 111. Best imported bull, 50
 112. Best imported cow or
 heifer, 50

Judges.

J. B. Crenshaw, Henrico.
 Geo. Watt, Richmond.
 Rev. T. W. Sydnor, Nottoway.
 D. H. Hatton, Norfolk.
 Wm. Bentley, Pulaski.

SECTION IV.

Dairy.

113. For best cow of any
 breed, \$30
 114. Second best do., 20
 115. Third best do., 10

Judges.

Raleigh Colston, Albemarle.
 Wm. N. Radford, Bedford.
 Lewis Bailey, Fairfax.
 J. S. Stansberry, Spotsylvania.
 Wm. L. Harrison, Henrico.

SECTION V.

Work Oxen.

116. Best yoke oxen, \$20
 117. Second best do., 10

Judges.

P. B. Jones, Orange.
 Dr. J. W. Blanton, Cumberland.
 S. S. Gresham, Norfolk.
 Norman Smith, Henrico.
 Wm. W. Gilmer, Albemarle.

SECTION VI.

Fat Stock.

118. Best fat bullock over 5
 years old, \$30
 119. Second best fat bullock
 over 5 years, CERTIFICATE.
 120. Best fat bullock under 5
 years old, 30
 121. Second best fat bullock
 under 5 years, CERTIFICATE.
 122. Best fat cow or heifer, 30
 123. Second best fat cow or
 heifer, CERTIFICATE.

124. Best pen of fat sheep, 3
 or more, 10
 125. Second best do.,
 CERTIFICATE.

126. Best slaughtered mut-
 ton, 5
 127. Best pen fat hogs, 3 or
 more, 10
 128. Second best do., 5

Judges.

R. J. Glendy, Augusta.
 W. J. Glendy, Pulaski.
 Samuel Bell, Augusta.
 Jno G Moffit, Richmond.
 S. McGavock, Wythe.

CLASS III—SECTION I.

HORSES, ASSES AND MULES.

Thorough Breeds.

129. Best stallion 4 years old
 or upwards, \$50
 130. Second best, 20
 131. Best entire colt, 3 years
 old and under 4, 25
 132. Second best, 10
 133. Best entire colt 2 years
 old and under 3, 15
 134. Second best, 5
 135. Best entire colt 1 year
 old and under 2, 10
 136. Second best, 5
 137. Best brood mare 4 years
 old or upwards, 20
 138. Second best, 10
 139. Best filly 3 years old and
 under 4, 15
 140. Second best, 5
 141. Best filly 2 years old
 and under 3, 15
 142. Second best, 5
 143. Best filly 1 year old and
 under 2, 10
 144. Second best, 5
 No premium to be awarded to an
 unsound animal in the above class.

Judges.

E. A. Rawlins, Mecklenburg.
 Wm. T. Johnson, Cumberland.
 Wm. Berkeley, Loudon.
 J. L. Carrington, Richmond.
 Dr. R. F. Taylor, Amelia.

SECTION II.

Roadsters—adapted to quick light draught.

145. Best stallion 4 years old or upwards,	\$50
146. Second best,	20
147. Best entire colt 3 years old and under 4,	25
148. Second best,	10
149. Best entire colt 2 years old and under 3,	20
150. Second best,	10
151. Best entire colt 1 year old and under 2,	10
152. Second best,	5
153. Best brood mare 4 years old or over,	20
154. Second best,	10
155. Best filly 3 years old and under 4,	15
156. Second best,	5
157. Best filly 2 years old and under 3,	10
158. Second best,	5
159. Best filly 1 year old and under 2,	10
160. Second best,	5
Form and action to be considered as well as speed. No premium to be awarded to an unsound animal in the above class.	

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Roadsters—Adapted to quick coach draught.

161. Best stallion 4 years old or upwards,	\$50
162. Second best,	20
163. Best entire colt 3 years old and under 4,	30
164. Second best,	10
165. Best entire colt 2 years old and under 3,	20
166. Second best,	10
167. Best entire colt 1 year old and under 2,	10
168. Second best,	5
169. Best brood mare 4 years old or over,	20
170. Second best,	10
171. Best filly 3 years old and under 4,	15
172. Second best,	5

173. Best filly 2 years old and under 3,	10
174. Second best,	5
175. Best filly 1 year old and under 2,	10
176. Second best,	5
Form and action to be considered more than speed. No premium to be awarded to an unsound animal in this class.	

Judges.

Robert Edmond, Richmond.
Wm. P. Farish, Albemarle.
——— Trotter, Staunton.
John P. Ballard, Richmond.
Jas. Barbour Newman, Orange.
Col. Edmund Berkeley, Prince William.

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SECTION III.

Saddle—Adapted to the breeding of improved riding horses.

177. Best stallion 4 years old or over,	\$50
178. Second best,	20
179. Best entire colt 3 years old and under 4,	25
180. Second best,	10
181. Best entire colt 2 years old and under 3,	20
182. Second best,	5
183. Best entire colt 1 year old and under 2,	10
184. Second best,	5
185. Best brood mare 4 years old or over,	20
186. Second best,	10
187. Best filly 3 years old and under 4,	15
188. Second best,	5
189. Best filly 2 years old and under 3,	10
190. Second best,	5
191. Best filly 1 year old and under 2,	10
192. Second best,	5

Judges.

Wm. H. Southall, Albemarle.
J. Seddon Jones, Orange.
L. B. Northrop, Albemarle.
W. W. Michaux, Powhatan.
R. O. Morris, Louisa.
Gen. W. H. F. Lee, New Kent.
Thos. R. Foster, Salem, Fauquier.

SECTION IV.

Heavy Draught.

193. Best stallion 4 years old or over,	\$50
194. Second best,	20
195. Best entire colt 3 years old and under 4,	30
196. Second best,	10
197. Best entire colt 2 years old and under 3,	20
198. Second best,	10
199. Best entire colt 1 year old and under 2,	10
200. Best brood mare 4 years old or over,	20
201. Second best,	10
202. Best filly 3 years old and under 4,	15
203. Second best,	5
204. Best filly 2 years old and under 3,	10
205. Second best,	5
206. Best filly 1 year old and under 2,	10
No premium to be awarded in this class to an unsound animal.	

Judges.

John F. Lewis, Rockingham.
 Gen. Gilbert S. Meem, Shenandoah.
 Warner Woods, Albemarle.
 Josiah W. Ware, Clarke.
 D. J. A. Reid, Madison.
 N. M. Lee, Richmond.
 Wm. Gibboney, Wytheville.

SECTION V.

Matched Horses in Harness, accustomed to be used together as such in pairs, for quick light draught.

207. Best pair mares or geldings,	20
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Matched Horses in Harness, accustomed to be used together as such in pairs, for quick coach draught.

208. Best pair mares or geldings,	\$20
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Saddle Horses under the saddle.

209. Best mares or geldings,	\$20
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210. Second best,	10
Form and action to be considered.	

Ponies and Horsemanship.

211. Best pony ridden by a lad under 15 years of age, the horsemanship also to be considered,	FANCY RIDING BRIDLE.
212. Second best,	FANCY WHIP.

Judges.

Capt. John Tayloe, Stafford.
 Gen. John E. Mulford, Richmond.
 Dr. J. P. Harrison, Henrico.
 Gen. Wms. C. Wickham, Hanover.
 Randolph Harrison, Goochland.
 Philip Haxall, Richmond.

SECTION VI.

Mules and Jacks.

213. Best jack,	\$40
214. Second best,	15
215. Best jennet,	20
216. Second best,	10
The premiums to be awarded to none but the finest quality of jacks and jennets, as above classified.	
217. Best mule colt 3 years old, foaled in Virginia,	\$25
218. Best mule colt 2 years old, foaled in Virginia,	15
219. Best mule colt 1 year old, foaled in Virginia,	10
220. Best mule colt, a suckling, foaled in Virginia,	5

Judges.

James Hunter, Caroline.
 Edmund Winston, Hanover.
 John B. Davis, Henrico.
 Robert Douthat, Charles City.
 Wm. H. Clarke, Halifax.
 Gray Boulware, Caroline.

SECTION VII.

Trials of Speed.

221. First day—Premium \$200—mile beats to harness. Open to horses, mares and geldings. Time not to exceed 2:55.
222. Same day—For pacers—

Premium \$100—miles heats to harness.

223. Second day—Premium \$600—mile heats, best three in five to harness. Open to all trotters. Time not to exceed 2:40. If three or more start, the second horse to receive \$100 of the premium.

224. Same day—Second Premium, \$75—mile heats. For colts and fillies three years old and under five years.

225. Third day—First Premium \$100—mile heats, for double teams.

226. Same day—Second Premium \$150—mile heats, best three in five to harness, for horses, mares or geldings over four and under nine years old. Time not to exceed 3:05.

227. Fourth day—First Premium \$100—mile heats, for trotters with running mates.

228. Same day—Second Premium \$75—mile heats to harness, for colts or fillies three years old and under five years. Time not to exceed 3:35.

All the above trials will be governed by the regular rules of trotting; and no premium will be given unless two or more start.

All entries must be made to the Secretary of the Society, on or before 12 o'clock M. the day before the race; and each entry must be accompanied by 10 per cent. of the premium entered for.

The Society reserves the privilege to change the above programme so far as to substitute one day's trials of speed for another, so as to meet casualties of weather, &c.

Judges.

- Thos. W. Doswell, Richmond.
 W. P. Balch, Boston.
 Aristides Welsh, Chesnut Hill, Penn.
 ——— Chambers, Long Island.
 Col. F. G. Skinner, New York.
 T. S. Lang, North Vasselboro', Maine.
 Chas. H. Linthecum, Baltimore.

CLASS IV—SECTION I.

SHEEP.

Fine Wools of native stock, including pure bred Spanish, Saxon, French and Silesian Merinos.

229. Best ram,	\$15
230. Second best,	8
231. Best pen of ewes, 3 in number,	20
232. Second best do.,	10
233. Best pen of lambs (ram), 3 in number,	10
234. Second best do.,	5
235. Best pen of ewe lambs 3 in number,	10
236. Second best do.,	5
237. Best imported ram,	20
238. Best imported ewe,	20
239. Best fleece of fine wool grown in Virginia,	10

Fine Wool grades, including crosses of above.

240. Best pen of ewes, 3 in number,	\$15
241. Second best do.,	10
242. Best pen of ewe lambs, 3 in number,	10

Judges.

- John Page, Clarke.
 David J. Miller, Frederick.
 R. H. Crockett, Wythe.
 John H. Draper, Pulaski.
 Wm. L. Wight, Goochland.

SECTION II.

Middle Wools of pure native stock, including South Downs, Oxford Downs, and other pure breeds of middle wool.

243. Best ram,	\$15
244. Second best,	8
245. Best pen of ewes, 3 in number,	20
246. Second best do.,	10
247. Best pen of lambs (ram), 3 in number,	10
248. Second best do.,	5
249. Best pen of ewe lambs, 3 in number,	10
250. Second best do.,	5

251. Best imported ram,	20
252. Best imported ewe,	20
253. Best fleece of middle wool grown in Virginia,	10

Judges.

Wm. N. Berkeley, Loudon.
James B. Newman, Orange.
A. D. Dickinson, Prince Edward.
R. H. Cunningham, Culpeper.
Wm. G. C. White, Washington.

SECTION III.

Long Wools of native stock, including Bakewell or Leicester, Cotswold, or New Oxfordshire and Lincoln.

254. Best ram,	\$15
255. Second best,	8
256. Best pen of ewes, 3 in number,	20
257. Second best do.,	10
258. Best pen of lambs (ram), 3 in number,	10
259. Second best do.,	5
260. Best pen of ewe lambs, 3 in number,	10
261. Second best do.,	5
262. Best imported ram,	20
263. Best imported ewe,	20
264. Best fleece of long wool grown in Virginia,	10

Judges.

Jacob Fuller, Rockbridge.
George E. Page, Clarke.
J. Woods Garth, Albemarle.
R. H. Crockett, Wythe.
Cary Breckenridge, Botetourt.

CLASS V—SECTION I.

SWINE.

Large breeds, including Chester, Russia, Bedford, Woburn, Grazier, Byfield, and all crosses thereof.

265. Best boar 2 years old and over,	\$15
266. Second best do.,	10
267. Best boar under 2 years old,	10
268. Second best do.,	5
269. Best breeding sow over 2 years old,	15

270. Second best do.,	10
271. Best breeding sow under 2 years old,	10
272. Second best do.,	5
273. Best sow and pigs,	15
274. Second best do.,	10

Small breeds, including Neapolitan, Suffolk, Sussex, Essex, Berkshire, Chinese, improved Hampshire, and their crosses

275. Best boar 2 years old and over,	\$15
276. Second best do.,	10
277. Best boar under 2 years old,	10
278. Second best do.,	5
279. Best breeding sow over 2 years old,	15
280. Second best do.,	10
281. Best breeding sow under 2 years old,	10
282. Second best do.,	5
283. Best sow and pigs,	15
284. Second best do.,	10

Judges.

R. T. Preston, Montgomery.
Jacob Shuey, Augusta.
J. M. McNutt, Prince Edward.
John Roller, Rockingham.
James C. Baker, Frederick.

CLASS VI—SECTION I.

POULTRY.

Chickens.

285. Best Bramah Pootras, cock and two hens,	\$5
286. Best Dorkings (white), cock and two hens,	5
287. Best Dorkings (gray), cock and two hens,	5
288. Best Cochín China, cock and two hens,	5
289. Best White Buff, cock and two hens,	5
290. Best White-faced Black Spanish, cock and two hens,	5
291. Best Hamburg Spanish, cock and two hens,	5
292. Best Poland, black and white crests, cock and two hens,	5

293. Best Poland, golden, cock and two hens,	5	317. Best pair Pea Fowls (male and female),	5
294. Best Poland, silver, cock and two hens,	5	318. Best pair Guinea Fowls (male and female),	5
295. Best Bantam, gold laced, cock and two hens,	5	319. Best collection of Pigeons,	5
296. Best Bantam, silver, cock and two hens,	5	320. Best display of Poultry of all sorts,	10
297. Best Bantam, white, cock and two hens,	5	<i>Judges.</i>	
298. Best Bantam, black, cock and two hens,	5	Wm. M. Bagley, Lunenburg.	
299. Best Bantam, game, cock and two hens,	5	Dr. James M. Smith, Pittsylvania.	
300. Best Dominique, cock and two hens,	5	Richard Powell, Goochland.	
301. Best Creve Cœur, cock and two hens,	5	Robert R. Jones, Brunswick.	
302. Best Houdans, cock and two hens,	5	Edward W. Morriss, Hanover.	
303. Best Le Fleche, cock and two hens,	5	—	
304. Best Leghorns (white), cock and two hens,	5	CLASS VII—SECTION I.	
305. Game, cock and two hens,	5	FARM PRODUCTS.	
306. Best variety exhibited by one party,	10	For the largest product per acre, of corn, wheat, oats and hay, provided that not less than 10 adjoining acres be cultivated in any of the said crops; and provided, also, that the corn crop shall not be less than 60 bushels (shelled,) the wheat 30 bushels, the oats 50 bushels, and the hay 2½ tons—premium,	
—		SOCIETY'S DIPLOMA.	
<i>Ducks, Geese, Turkeys, Pea Fowls, Guinea Fowls, and Pigeons.</i>		321. Best shipping leaf tobacco, growth of '68,	\$20
307. Best pair Aylesbury Ducks (male and female),	\$5	Be To be represented by samples of the crop in whole and prized in 1869.	
308. Best pair Rouen Ducks (male and female),	5	<i>Judges.</i>	
309. Best pair Poland Ducks (male and female),	5	Robert H. Jones, Petersburg.	
310. Best pair Muscovy Ducks (male and female),	5	Edward R. Johnson, Amelia.	
311. Best pair Bremen Geese (male and female),	5	Hilary Harris, Powhatan.	
312. Best pair Hong Kong or African Geese (male and female),	5	Thomas G. Peyton, Richmond.	
313. Best pair Toulouse Geese (male and female),	5	Richard S. Epes, Nottoway.	
314. Best pair White or Colored Swan Geese (male and female),	5	—	
315. Best pair Turkeys, common or crossed,	5	SECTION II.	
316. Best pair Turkeys, wild, crested, or any improved breed,	5	322. Best manufacturing leaf tobacco, growth of '68,	\$20
		323. Best fancy wrapper leaf, growth of '68,	20
		<i>Judges.</i>	
		James Thomas, Richmond.	
		John R. McDaniel, Lynchburg.	
		Wm. R. Johnson, Petersburg.	
		Thomas D. Neal, Richmond.	
		N. W. Harris, Louisa.	

SECTION III.

324. Best specimen of manufactured tobacco for general home consumption,

CERTIFICATE OF MERIT.

325. Best specimen smoking tobacco,

CERTIFICATE OF MERIT.

Judges.

Samuel B. Jennings, Danville.

T. C. S. Ferguson, Lynchburg.

C. C. Read, Farmville.

Lewis H. Frayzer, Richmond.

James H. Grant, Richmond.

B. F. Gravely, Henry.

SECTION IV.

326. Best barrel flour,	\$10
327. Best bushel white wheat,	10
328. Best bushel red wheat,	10
329. Best bushel white corn, in ear or on stalk,	10
330. Best bushel yellow corn, in ear or on stalk,	10
331. Best bushel rye,	5
332. Best bushel oats,	5
333. Best bushel barley,	5
334. Best bushel clover seed,	5
335. Best bushel timothy seed,	5
336. Best bushel herds' grass seed,	5
337. Best bushel Kentucky blue grass seed,	5
338. Best bushel Highland meadow oat seed,	5

Exhibitors in this class must state in writing where the grain or grass or tobacco grew, kind of soil on which it was cultivated, time of sowing and planting or of ripening, with any peculiarity in mode of culture. The samples exhibited to become the property of the Society.

Judges.

Wm. T. Scott, Charlotte.

Jacob Harris, Pulaski.

A. B. Rucker, Lynchburg.

John Rowlett, Petersburg.

R. B. Somerville, Richmond.

Dr. Wm. J. Cheatham, Amelia.

SECTION V.

339. Best barrel sorghum su- gar,	\$40
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340. Best barrel sorghum molasses, 15

341. Best bale of cured su-
mac, 10

342. Best bushel of ground
peas, 10

343. Best bag of cotton
grown in Virginia, 40

344. Best collection of seeds
grown in Virginia, 20

345. Best bale of corn shucks, 6

346. Best bale of broom corn, 5

Judges.

Wm. H. Burt, Surry.

John Emmerson, Portsmouth.

Major Jas Sloan, North Carolina.

George P. Tayloe, Roanoke.

Nathaniel Matthews, Lunenburg.

CLASS VIII—SECTION I.

DOMESTIC DEPARTMENT.

347. Best specimen fresh but-
ter not less than 10 lbs., \$5

348. Second best do. do.,

CERTIFICATE.

349. Best tub of firkin butter
not less than 6 months old, 40
lbs. or more, with written state-
ment of process of packing, 20

350. Best specimen of butter
(10 lbs.), potted in July or Au-
gust, with written statement of
process, 15

351. Best cheese not less
than 20 lbs., Virginia make, 15

352. Second best do.,

CERTIFICATE.

353. Best peck dried apples, 5

354. Best peck dried peaches, 5

355. Best peck dried small
fruits, 5

356. Best collection of can
fruit, Virginia make, with pro-
cess and cost of canning, 20

357. Best bacon ham cured
by exhibitor, with written state-
ment of process of curing and
cooking, 10

358. Best specimen of honey,
taken without killing the bees,
and hive described, 5

359. Best specimen of apple
cider, 5

360. Best barrel cider vinegar, 10
Judges.
 J. C. Spotts, Richmond.
 Ed. Cunningham, Powhatan.
 Jed. Hotchkiss, Augusta,
 George Anderson, Montgomery.
 William Eggleston, Giles.
 R. S. Paulett, Farmville.

CLASS IX—SECTION I.

HOUSEHOLD MANUFACTURES.

361. Best bed quilt, \$5
 362. Second best do., 3
 363. Best counterpane, 5
 364. Second best do., 3
 365. Best pair home-made blankets, 5
 366. Best home-made carpeting, 5
 367. Best home-made rug, 3
 368. Best fine long yarn hose (pair), 5
 369. Best fine long cotton hose, 5
 370. Best half hose, cotton, 2
 371. Best knitted worsted or yarn shawl, from yarn prepared at home, 3
 372. Best knitted worsted or yarn hood, from yarn prepared at home, 2
 373. Best home-made shirt, 3
 374. Second best do. do, adapted for working purposes, 2
 375. Best white yarn under shirt, 3
 376. Best white yarn drawers, 3
 377. Best grey mixed Kentucky jeans (7 yards), 3
 378. Best five pounds white or grey yarn for knitting, 3
 379. Best home-made family bread, 5
 380. Best home-made pound or sponge cake, 3
 381. Best five pounds maple sugar, 5
 382. Best five pounds sorghum sugar, 10
 383. Best and largest variety home-made preserves, 5
 384. Best and largest variety home-made fruit jelly, 3

385. Best and largest variety home-made pickles, 3
 386. Best catsup, either tomato, walnut or mushroom, 5
 387. Best five pounds home-made family soap, the process of making to be described in writing by exhibitor, 5
 388. Best specimen of white or scarlet flannel, from wool grown and made at home, 3

Judges.

- Mrs. John Stuart, Henrico.
 Mrs. James Vest, Louisa.
 Mrs. Chaffin, Henrico.
 Mrs. T. E. DeWitt, Richmond.
 Mrs. Philip Rahm, “

CLASS X—SECTION I.

LADIES' FANCY AND ORNAMENTAL WORK.

389. Best specimen of embroidery, \$8
 390. Second best, 6
 391. Best specimen of worsted work, 8
 392. Second best, 6
 393. Best specimen of crochet work, 8
 394. Second best, 6
 395. Best specimen of shell work, 8
 396. Second best, 6
 397. Best specimen of leather work, 8
 398. Best specimen of needle work, 8
 399. Most extensive variety of useful, ornamental and fancy work, not excluding articles which may have had premiums awarded them under the above specifications, a premium of 10

Judges.

A Committee of Ladies to be announced at the Fair.

CLASS XI—SECTION I.

AGRICULTURAL IMPLEMENTS.

- Trial of Reapers, Mowers, &c.*
 400. For the best combined reaper and mower, \$50

401. For the best reaping machine,	50
402. For the best mowing machine.	30
403. For the best hay tedder,	25
404. For the best hay rake,	10
405. For the best wheat gleaner,	10
406. For the best grain cradle,	3

In addition to above premiums, diplomas or medals may be awarded, at the discretion of the committee.

Judges.

Hill Carter, Shirley, Charles City.
James B. Jones, Chesterfield.
Col. J. M. Wilcox, Charles City.
James F. Kent, Wyttheville.
E. A. Rawlins, Mecklenburg.
William Bentoo, Loudoun.
Dr. George Newman, Orange.

The above trial was held at Westover June 9th and 10th, and the premiums will be awarded at the regular Fair and Exhibition.

SECTION II.

Ploughs, &c.

These premiums are offered for ploughs according to work actually performed, and tested by the Judges on the field.

407. For the best four horse plough, right or left,	\$10
408. For the best three horse plough, right or left,	10
409. For the best two horse plough, right or left,	10
410. For the best one horse plough,	5
411. For the best subsoil plough,	5
412. For the best hill-side plough,	5
413. For the best cultivating plough,	5
414. For the best scraper for tobacco, cotton and vegetables,	3
415. For the best hard ground plough,	5
416. For the best plough for digging ground peas,	5

417. For the best plough for digging potatoes,	5
418. For the best cultivator for corn and tobacco,	5
419. For the best two horse cultivator for corn and tobacco,	5
420. For the best harrow,	5
421. For the best drain plough,	10

Judges.

James B. Jones, Chesterfield.
Charles Friend, Prince George.
Col. H. P. Jones, Hanover.
R. V. Gaines, Charlotte.
James S. Cobbs, Halifax.

SECTION III.

Drills, Broad Casters, &c.

422. For the best drilling machine for grain and grass seed,	\$25
423. For the best machine for broadcasting grain and grass seed.	20
424. For the best corn planter,	10
425. For the best attachment to drill for distributing guano and other fertilizers,	10
426. For the best lime spreader, adapted to broadcasting lime and other fertilizers,	20
427. For the best machine for sowing and covering corn at or immediately following the last tillage, either with or without guano,	10

Judges.

Thos. J. Randolph, Jr., Albemarle.
Jacob Baylor, Augusta.
Gen. Wm. H. F. Lee, New Kent.
Robert Polk, Henrico.
Waller Coles, Pittsylvania.

SECTION IV.

Threshing Machine, &c.

428. For the best horse power,	\$25
429. For the best railway power,	25
430. For the best machine	

combined for threshing, separating and cleaning,	50
431. For the best thresher and straw carrier,	20
432. For the best fan mill,	10
433. For the best grain and hay pitch forks,	2
434. For the best grain shovel,	2
435. For the best hand rake,	2
436. For the best machine for drilling and cleaning clover seed,	30
437. For best cockle machine,	10
438. For best plantation platform scales,	10
439. For best mower and reaper grinder,	5

Judges.

Dr. George B. Newman, Orange.
Willoughby Newton, Westmoreland.

Dr. John B. Harris, Powhatan.
Thomas F Perkins, Buckingham.
Thomas E. Barksdale, Halifax.

SECTION V.

Hay Press, &c.

440. For the best hay press, exhibited on the ground, with specimen of work,	\$20
441. For the best hay hoisting apparatus, with specimen of work exhibited on the ground,	20
442. For the best sorghum mill,	20
443. For the best sorghum boiler,	10
444. For the best stump machine and rock elevator,	10
445. For the best ditching machine and rock elevator,	30
446. For the best rotary digger and rock elevator,	30
447. For the best corn shucking machine,	25
448. For the best clod crusher machine,	20
449. For the best field roller machine,	10

Judges.

E. C. Jordan, Frederick.
Dr. P. H. Purcell, Amelia.

C. C. Cocke, Fluvanna.
W. Roane Ruffin, Chesterfield.
Dr. Wm. C. Staples, Patrick.

SECTION VI.

Straw Cutter, &c.

450. For the best hay or straw cutter for horse power,	\$15
451. For the best hay or straw cutter for hand power,	10
452. For the best corn stalk or fodder cutters,	10
453. For the best corn sheller for power,	10
454. For the best corn sheller for hand,	5
455. For the best root cutter,	3
456. For the best boiler for cooking food for stock,	10
457. For the best hominy mill,	5
458. For the best cider mill and wine press,	5

Judges.

Dr. Wm. F. Gains, Hanover.
Dr. J. J. Dupuy, Hanover.
Dr. Gage, Wythe.
Atcheson Pollock, Stafford.
Geo. E. Harrison, Prince George.
Edward Irvine, Campbell.

SECTION VII.

Wagons, Carts, &c.

459. For the best harvest and hay cart for one or more horses,	\$10
460. For the best wagon for farm use,	10
461. For the best dumping wagon for farm use,	10
462. For the best tumbril cart (iron axle),	8
463. For the best ox cart,	10
464. For the best wagon body for hauling grain in sheaf, hay or straw,	5
465. For the best sett of wagon harness,	5
466. For the best cart harness,	3
467. For the best ox yoke,	2
468. For the best horse collar,	4

469. For the best wheelbarrow for general use, 2
 470. For the best wheelbarrow for dirt, 2
 471. For the best wagon saddle, 3
 472. For the best riding saddle and bridle, 5

Judges.

Charles Old, Powhatan.
 C. R. Mason, Augusta.
 John R. Bryant, Fluvanna.
 Wm. D. Cabell, Nelson.
 Thos. G. Shannon, Giles.
 W. A. Perkins, Cumberland.

SECTION VIII.

Agricultural Steam Engine.

~~5~~ No awards should be made in this class except for machines of practical utility in the agriculture of Virginia.

473. For the best steam engine, applicable to agricultural purposes generally, \$100
 474. For the best saw mill, suitable for farm purposes, 25
 475. For the best steam plough adapted for farm tillage, 300

Judges.

Gen. C. P. Stone, Goochland.
 Wm. B. Wooldridge, Chesterfield.
 Dr. R. H. Stuart, King George.
 J. H. Dejarnette, Caroline.
 R. D. Minor, Richmond.
 Wm. Allen, Henrico.

SECTION IX.

Miscellaneous Articles.

476. For the best pump adapted to deep wells, \$10
 477. For the best water ram in operation, 10
 478. For the best scoop or scraper, 10
 479. For the best levelling instrument suitable for draining operations, 10
 480. For the best tide gate (model), 10
 481. For the best farm gate, 5

482. For the best machine for shearing sheep, 5

Judges.

Edward Turner, Fauquier.
 Asa Snyder, Richmond.
 Dr. R. Epes, Prince George.
 John G. Lane, Rappahannock.
 P. P. Nalle, Culpeper.

SECTION X.

Domestic Machines.

483. For the best sowing machine, \$5
 484. For the best washing machine, 5
 485. For the best clothes wringer, 2
 486. For the best clothes boiler, 2
 487. For the best sausage cutter, 1
 488. For the best sausage stuffer, 1
 489. For the best churn, 1
 490. For the best butter press, for pressing out milk and water, 2
 491. For the best fruit peeler, 1
 492. For the best fruit drier, 5

Judges.

Mrs. Wm. C. Knight, Richmond.
 Mrs. Thos. Branch, Richmond.
 Mrs. F. Stearns, Richmond.
 Mrs. F. B. Watkins, Richmond.
 Mrs. F. G. Ruffin, Chesterfield.
 Mrs. R. W. Burke, Staunton.

SECTION XI.

Domestic Implements.

493. For the best cooking stove, \$10
 494. For the best heating stove for coal, 5
 495. For the best heating stove for wood, 5
 496. For the best heating stove for chambers, 5
 497. For the best fire-place stove for heating two or more rooms, 10
 498. For the best dough kneader, 2

499. For the best coffee roaster, 1
500. For the best coffee pot, 1
501. For the best sett wooden ware, Virginia growth and manufacture, 5
502. For the best sett willow ware, Virginia growth and manufacture, 5
503. For the best half dozen ladies' work baskets, of Virginia growth and manufacture, 5
504. For the best sett brooms, Virginia growth and manufacture, 2
- Judges.*
- Mrs. S. S. Weisiger, Amelia.
Mrs. J. Ravenscroft Jones, Brunswick.
Mrs. Chas. S. Carrington, Richmond.
Mrs. B. H. Smith, Richmond.
Mrs. J. B. Baldwin, Augusta.

SECTION XII.

Ploughing Match.

505. For the best ploughman, white, Virginia born, not over 25 years old, with four horses, \$50
506. For the best do. with three horses, 50
507. For the best do. with two horses, 25
508. For the best white ploughman, of any age, where ever born, 25
509. For the best ploughman with oxen, 10

Special.

510. A special premium for the best ploughman, a native white Virginian, offered by Watt & Knight, to be paid in their ploughs to the value of \$50
511. For the best team of horses or mules, not less than four, combining condition and training and equipments, paid in their ploughs, 30
512. For the best team of

- two horses, same conditions, to be paid in same, 15

Judges.

J. Wayt Bell, Augusta.
Wm. H. Ruff, Rockbridge.
Wm. Benton, Loudon.
Wilson Winfree, Powhatan.
Wm. Shepperson, Henrico.
R. Adams, Goochland.

CLASS XII—SECTION I.

FARM DWELLING, &C.

513. Best design of farm dwelling, out houses, gate ways and grounds, \$80

Judges

Dr. John R. Garnett, Henrico.
Thos. T. Giles, Richmond.
Wm. A. Pratt, Augusta.
H. D. Bird, Petersburg.
Wellington Gordon, Louisa.

CLASS XIII—SECTION I.

MINERALS.

514. Best specimen of limestone, including marble and calcareous tufa, \$5
515. Best specimen of marl, 5
516. Best specimen of green sand, 5
517. Best specimen gypsum, 5

Judges.

Prof. Mallet, University of Virginia.
Col. Wm. Gilham, Richmond.
Prof. J. L. Campbell, Lexington.
Prof. R. M. Smith, Randolph Macon College.
Prof. B. Puryear, Richmond College.

SECTION II.

DISCRETIONARY PREMIUMS.

Judges.

James A. Seddon, Goochland.
Chas. B. Williams, Richmond.
Wood Bouldin, Charlotte.
Dr. Philip F. Southall, Amelia.
Dr. Wm. B. Haskins, Mecklenburg.



Horticultural Department.

JOHN M. ALLAN, - - - - - EDITOR.

Fall vs. Spring Planting.

A correspondent calls our attention to an address on strawberries, read by Mr. Edwin Satterthwaite, before the Pennsylvania Horticultural Society, in which Fall planting of strawberries is condemned, and inquiries made why we so persistently advocate it.

Without raising any questions as to the correctness of Mr. S.'s views, which are doubtless suitable to the latitude in which he resides, we content ourselves with giving the reasons which render Fall planting preferable in Eastern Virginia and North Carolina. Our Autumns are late, our Winters short and mild, so that the roots of vines, planted in October and November, take hold of the ground and grow frequently during the greater part of the Winter. Then again, we are subject to long droughts in Summer, and these often occur so early in the season as to destroy vines planted in the Spring, before they get sufficiently well started to enable them to resist the dry weather. Experience is the safest guide. Ours is, that trees, shrubs, vines, roots, &c., but more especially the small fruits, succeed much better when planted in the Fall. We have never lost five per cent. of Fall planting, while frequently fifty per cent. of Spring planting has failed, because of early droughts.

We often see August recommended in Northern journals as a good time to plant strawberries. This will not do here. Our Septembers are too hot and dry, October is generally too dry, so that November and December are by far the best months for transplanting all kinds of nursery stock. We even plant our seedling stocks for budding in these months.

In this connection another correspondent says: "I am advised to plant all kinds of fruit trees, except peach, in the Fall. The last, I am told, succeed best when planted in the Spring. Is this true?"

Our experience does not sustain it, and we can see no reason why it should be so. On the contrary, peaches do as well, if not better, than other trees, when planted in November.

Melons.

Too little attention has been paid to the improvement and development of the varieties of this fruit in the South. Here in Virginia we have been growing the Jackson and Mountain Sweet watermelons for years, without any attempt to produce varieties which will supply the defects of these, in many respects, admirable varieties. The Jackson, though highly flavored, will not bear transportation, while the Mountain Sweet has neither size nor productiveness to make it all that is desired. Last season the Joe Johnson was introduced, and it at once took the first place. If it succeeds as well this year, its reputation will be firmly established. But the very fact that a variety, so far exceeding the others, has been produced, should only stimulate us to further improvement in these, as well as in their kindred fruit, the muskmelons. Among the latter, the Hunter, a variety brought to notice last year, gave fine promise, and we await in it also the developments of this Summer to decide its future standing.

We hope the Horticultural and Pomological Society will arrange for a melon exhibition, so that the interests of this very popular, and, in this section, very profitable fruit, may be fostered and advanced.

Letter from Frederick County, Maryland.

Dear Sirs,—Your valuable journal and home have so filled my thoughts during a brief absence, that I am constrained to inflict upon you a short letter.

The hurry of the trip has prevented that close observation which might have discovered something of interest to your readers, but some things which are quite noticeable may be mentioned.

First, that the Summer crops, especially corn, are much farther advanced here than in the city of Richmond, which is two hundred miles farther South. Their average time of planting corn is from April 25th to May 10th. Can it be that under-draining, which is generally and thoroughly done, makes this crop so much earlier?

It is also observed that the early fruits are, this season, very little, if any later, than with us. Early harvest apples and Hale's

early peaches, grown here, have ripened almost simultaneously with the same varieties around Richmond. An extensive and intelligent fruit grower has suggested that this is owing to the exceptional mildness of the past Winter, which was not followed, as with us, by a cold, tardy Spring.

In all garden products, however, they cannot compare with us—neither in quantity, quality, nor earliness. Indeed, the vegetables found in the Richmond markets are not surpassed anywhere. The highest degree of cultivation and fertilization which they bestow upon their gardens here does not enable them to compete successfully with our natural advantages of soil and climate. The only thing we have lacked hitherto has been enterprise, and this is now being compelled by circumstances. As our land is so much better adapted to the growth of vegetables of nearly all kinds, and their production is, consequently, so much cheaper, it was a matter of surprise to find that a large canning establishment had been established at Frederick City. One would have supposed that Norfolk or Richmond would have presented superior advantages for such an undertaking. But as the proprietor has already amassed a large fortune in the same business elsewhere, we must suppose that he knows what he is about. The vegetables are furnished by contract—certain farmers agreeing to plant so many acres in any required crop; to cultivate, harvest and deliver at a stipulated rate per acre. For corn and tomatoes, the price agreed on this year is \$45 per acre.

Richmond badly needs something of this kind, and it is to be hoped that, if one man cannot be found with sufficient capital to undertake it, there may be several of the same mind. At the Fall exhibitions of the Agricultural and Horticultural Societies, a fine opportunity will be offered for making an effort in this direction.

Yours truly,

J:

Frederick county, Md., July 16, 1869.

“FIVE ACRES TOO MUCH.” By Robert B. Roosevelt. Harper & Bros. New York. A. H. Christian & Co., Richmond.

Messrs. A. H. C. & Co. have placed on our table this sprightly satire upon the “Ten Acres Enough” style of horticultural literature with which the country is being now overrun.

We commend the book to the earnest perusal of many who are entering so rapidly, if not prudently, upon the practice of horticulture. It is agreeably written, (with the exception of one or two

paragraphs in which the gross want of refinement, indeed, exceeding coarseness, destroys the attempted wit,) and will suggest to its readers many ways and means by which the anticipated fortune may fail to be realized from the garden and fruit farm.

That it is a burlesque, and, of course, highly exaggerated, cannot be denied; but it nevertheless contains a great deal that may well be pondered by those who for the first time are turning their attention to horticultural pursuits.

Far be it from us to throw even a straw in the way of any who wish to aid in developing this great branch of industry. But we know of no surer way of raising mountains of disappointment and disaster, than the constant publication of marvelous and exaggerated statements of profits from an acre of this vegetable or that fruit.

The experience of many Virginians around Richmond, during the present season, has doubtless convinced them that in future they will be more benefitted in learning from others how and why they failed, rather than what under exceedingly favorable circumstances they have accomplished.

Horticulture is an experience, as well as a science—the latter can only ascertain objects; the former is necessary to bring about results.

If writers wish to accomplish good, let them honestly detail their failures, as well as (or rather than) their successes, and the public will be vastly more benefitted.

The American Pomological Society.

The twelfth session of the American Pomological Society will be held in Horticultural Hall, Philadelphia, Pa., on the fifteenth day of September, 1869, commencing at 11 o'clock, A. M., and continuing for three days.

All Horticultural, Pomological, Agricultural, and other kindred institutions in the United States and the British Provinces are invited to send delegations as large as they may deem expedient; and all other persons interested in the cultivation of fruits are invited to be present and take seats in the Convention. From all parts of the country assurances are given of cordial co-operation and aid. Delegates have already been appointed from several States, among which we may name Kansas, whose Legislature has nobly appropriated five hundred dollars to defray the expenses of her representatives.

Among the prominent subjects which will come before the Society at this session, will be that of the further revision of the Society's catalogue of fruits.

Members and delegates are requested to contribute specimens of the fruits of their respective districts, and to communicate in regard to them whatever may aid in promoting the objects of the Society and the science of American Pomology.

Each contributor is requested to come prepared with a complete list of his collection, and to present the same with his fruits, that a report of all the varieties entered may be submitted to the meeting as soon as practicable.

All persons desirous of becoming members can remit the admission fee to Thomas P. James, Esq., Treasurer, Philadelphia, who will furnish them with Transactions of the Society. Life Membership, Ten Dollars; Biennial, Two Dollars.

Packages of fruits, with the name of the contributor, may be addressed as follows: "American Pomological Society, care of Thos. A. Andrews, Horticultural Hall, Philadelphia, Pa."

Arrangements have been made with several Hotels in Philadelphia for a reduction in price of board. Similar negotiations with the various Railroad Corporations are also in progress, and of which due notice will be given.

Let our State Horticultural and Pomological Society send delegates, and take steps to have the fruits of the State represented.

How Cattle Kill Trees.

It is a noticeable fact, that a tree ever so thrifty, and of whatever kind, to which cattle gain access, and under which they become habituated to stand, will very soon die. In the case of a solitary shade tree in a pasture or by the roadside, this is of common occurrence. The query may have been suggested, To what is this owing? In the first place, rubbing a tree by the necks of cattle is highly pernicious, and if persisted in, it will commonly destroy it sooner or later; but if the body of the tree be cased so that their necks cannot touch it, death will ensue just as certainly as they are allowed to tramp the earth about it. But why should tramping the earth destroy the tree? The reason is one of wide and important application to the laws of vegetable growth. The roots of plants need air, if not as much, yet just as truly as the leaves and branches. Their case is analogous to that of fishes, which, though they must have water, must have air also, namely, just about as

much as permeates the water. If it be all shut off, so that none which is fresh can get to them, they will exhaust the supply on hand, and then die for want of more. So the roots of trees and vegetables want air. When the earth is in a normal or natural condition, it is full of interstices and channels, by which air gets to them. But if the cattle are allowed to tramp down the earth, and the sun aids their work by baking it at the same time, a crust like a brick is formed, wholly impervious to the atmosphere, and the tree yields to its fate. So a tree cannot live if its roots are covered with a close pavement. They will struggle for life by creeping to the surface, and hoisting out a brick here and a stone there, or find a crack where their noses can snuff a little breath; but if fought down and covered over, will finally give it up. So if a tree be thrust into a close clay, or its roots are kept under water, it refuses either to be an aquatic, or to put up with its aluminous prison. It will grow as little as possible, and die the first opportunity.—*Prairie Farmer.*

Mushroom Culture.

The first thing to be done in their cultivation is to secure ample supplies of suitable manure; the best is that from the donkey stables, the next that from mules, and the third in value is horse manure; and the last is in more general use because of the scarcity of the former. It should be thrown into heaps, and fermentation induced by frequent watering. In a short time it acquires the necessary qualities, when it becomes short, unctuous, and dark in color, and is fit for use. Cellars and caves are, on account of the equable temperature, the best places in which to form your mushroom beds, particularly when it is designed to grow them each month in the year; but almost any building will do where a temperature between 55 and 60 can be maintained. The beds should be four feet wide, and of any desired length. Ordinary earth is first laid on to a depth of six inches; this is packed firm with the back of the spade, and is then covered with six inches or more of the manure, and this also is packed close with the spade; then the bed is ready to receive the spawn. This can be bought packed, fit for use, in the shape of bricks. These bricks of spawn are broken into small bits, and these bits are stuck an inch deep into every three inches space of the surface of the manure; the whole surface is then covered, two inches deep, with fine sifted earth, and this, too, is well packed down with the spade. Then a good sprinkling is given of

water heated to 80 or 90 degrees, and within a few days the mushroom will commence to spring up, and will continue to do so for some months.—*Turf, Field and Farm.*

Horticultural Patents.

We are glad at last to see the patent business for horticultural subjects has received a quietus—on full consultation with the different departments and committees at Washington, it has been decided as not advisable, nor even possible, to adopt a satisfactory method for the protection of this class of home productions.

We believe with others, that a man who originates a new vine, fruit, or plant, should have not only due honor, but profit for his long experiments; but, really how is it to be done?

Horace Greeley says, if he buys a new vine from a nurseryman, *that* is his particular property, and no one else's. Now, the wood that the vine makes that same year is his too, and if he chooses to sell it, it is no one's business to hinder him—he has a perfect right to his own.

We believe there is too much humbug in the revamping of old varieties under new names, and, as Mr. Fuller suggests, a good office of registration, with the power of a national authority, would be very desirable for reference and criticism at all times; but we cannot see how patents can be given, nor of what use they practically are after being given. Virtually they are a dead letter. A mowing machine or a garden cultivator cannot reproduce itself; but vines, trees, and plants do, and their produce belongs to their owner, and no one else. Hence we say, that we hope the patent business in horticulture has at last been laid permanently on the shelf as a useless project.—*Horticulturist.*

Grape Growers' Maxims.

BY A. S. FULLER.

1. Prepare the ground in the fall, plant in spring.
2. Give the vine plenty of manure, old and well decomposed; for fresh manure excites growth, but it does not mature it.
3. Luxuriant growth does not always ensure fruit.
4. Dig deep, but plant shallow.
5. Young vines produce beautiful fruit, but old vines produce the richest.
6. Prune in autumn to ensure growth, but in the spring to promote fruitfulness.
7. Plant your vines before you put up trellises.
8. Vines, like soldiers, should have good arms.

SCHEDULE OF PREMIUMS

OF THE

Va. Horticultural and Pomological Society,

AT ITS

THIRD ANNUAL EXHIBITION,

TO BE HELD AT RICHMOND,

On the 2d, 3d, 4th and 5th days of November, 1869, in connection
and co-operation with the Virginia State Agricultural Society.

I.—PREMIUMS FOR NURSERY AND OR- CHARD PRODUCTS.	OR.	Second best,	10
For the best assortment of nursery stock,	\$30	For best dozen long blood beets,	2
For best assortment of two-year ap- ple trees suited to Virginia,	10	For best dozen cabbages,	5
For best assortment of one-year peach trees suited to Virginia,	10	Second best,	Certificate.
For best assortment of two year pear trees, (dwarf and standard,)	10	For best half dozen cauliflowers,	5
For largest and best collection of fruits,	30	Second best,	Certificate.
Second best,	15	For best dozen carrots,	2
For largest and best collection of ap- ples,	10	Second best,	Certificate.
Second best,	5	For best dozen celery,	5
For best collection of pears,	10	Second best,	Certificate.
Second best,	5	For best dozen cucumbers,	2
For best collection of peaches,	10	For best half-dozen egg plants,	2
Second best,	5	Second best,	Certificate.
For best collection of plums,	5	For best dozen kohlrabbi,	2
For best collection of quinces,	5	Second best,	Certificate.
For best collection of grapes,	10	For best dozen lettuce,	2
Second best,	5	Second best,	Certificate.
For best native apple,	10	For best dozen parsnips,	2
For best native grape,	5	Second best,	Certificate.
For best bushel of dried apples,	5	For best half dozen pumpkins,	2
For best bushel of dried peaches,	5	Second best,	Certificate.
		For best dozen radishes,	2
		Second best,	Certificate.
		For best dozen salsify,	2
		Second best,	Certificate.
		For best dozen squashes,	2
		Second best,	Certificate.
		For best peck onions,	2
		Second best,	Certificate.
		For best bushel of sweet potatoes.	5
		Second best,	Certificate.
		For best bushel of Irish potatoes.	5
		Second best,	Certificate.
		For best peck of peppers,	2
		Second best,	Certificate.
		For best bushel of turnips,	2
		Second best,	Certificate.
		For best dozen endives,	2
		Second best,	Certificate.
		For best dozen broccoli,	3
		Second best,	Certificate.
		For best peck of tomatoes,	2
		Second best,	Certificate.
		In competing for the premium for the	

Judges.

Gen. W. H. Richardson, Richmond.
T. J. Finnie, Wytheville.
E. R. Trumbull, Brunswick.
Capt. B. F. Nalle, Culpeper.
B. F. Wilson, Surry.
John W. Minor, Gloucester.
Rev. W. H. Kuffner, Lexington.

II.—PREMIUMS FOR VEGETABLES.

For best cultivated five acres in gar- den crops,	\$50	Second best,	Certificate.
For best acre of Irish potatoes,	20	For best dozen broccoli,	3
For best acre of winter cabbage,	20	Second best,	Certificate.
For best and largest collection of vegetables,	25	For best peck of tomatoes,	2
		Second best,	Certificate.

best acre of cabbages and best acre of potatoes, the certificate of three disinterested citizens as to quantity and quality will be accepted instead of exhibition of the crop.

The committee of award for the best five acres in garden crops (to be announced hereafter,) will visit any section where their presence may be required during the season, upon request of the exhibitor addressed to the Secretary of the Society.

Judges.

Dr. J. B. McCarthy, Richmond.
John T. Griffin, Norfolk.
James Ayres, Petersburg.
Gen. T. M. Logan, Chesterfield.
Judge Wm. Daniel, Lynchburg.
J. C. Burton, Henrico.
A. A. Hobson, Christiansburg.

III.—PREMIUMS FOR FLOWERS.

Largest and best collection of plants in pots,	\$15
Second best,	5
Largest and best collection of roses,	10
Second best,	4
Largest and best collection of flowering shrubs,	10
Best collection of fuschias,	5
Best collection of cary-anthemums,	5
Largest and best collection of geraniums,	10
Best collection of foliage plants,	8
Largest and best collection of cut flowers,	10
Second best,	5
Handsomest design,	6
Handsomest cross,	5
Best bouquet,	2

Judges.

Dr. Thomas H. Williams, Richmond.
Dr. Richmond A. Lewis, Richmond.
Gen. W. N. Pendleton, Lexington.
William Robinson, Danville.
Judge Wm. Joynes, Petersburg.
John C. Wood, Charlottesville.

IV.—PREMIUMS FOR WINES.

For best specimen of American wine, of any variety of grape,	\$15
For best specimen of Catawba wine,	5
For best specimen of Concord wine,	5
For best specimen of Norton's Virginia,	5
For best specimen of Scuppernong,	5
For best specimen of Isabella,	5
For best specimen of Ives,	5
For best specimen of Herbemont,	5
For best specimen of Currant,	5
For best specimen of Blackberry,	5
For best specimen of Delaware,	5
For best specimen of Clinton,	5
For best specimen of cider,	5

Judges.

Oscar Cranz, Richmond.
Gen. A. Barksdale, Richmond.
Dr. C. G. Barney, Richmond.
Gen. Jos. R. Anderson, Richmond.
Judge John A. Meredith, Richmond.

V.—PREMIUMS FOR IMPLEMENTS.

For best collection of horticultural implements,	\$20
Second best,	10
For best cider and wine mill,	10
Second best,	5
For best garden seed drill,	10
Second best,	5
For best garden cultivator for horse power,	10
For best garden cultivator for hand power,	5
For best garden roller,	5
For best collection of horticultural hardware, including grafting tools, pruning shears, and saws,	10
For best implement for cultivating strawberries,	10

Judges.

James Dinwiddie, Farmville.
Dr. Monroe Banister, Amelia.
J. T. Leitch, Buckingham.
Joseph Wilmer, Scottsville.
Wm. Smith, Richmond.
John Morton, Richmond.
Dr. J. G. Lumpkin, Hanover.

VI.—PREMIUMS FOR ESSAYS.

For best essay on the profits of general fruit culture in Virginia, including small berries—viz., blackberries, strawberries, currants, etc.,	\$20
For best essay on grape culture in Virginia,	20
For best essay on profits of garden products,	20
For best essay on native wine (Va.)	20
For best essay on culture of flowers,	20
For best essay on the diseases, depredations of insects, etc., affecting fruit trees, and the best means of counteracting the effects of the same,	20
For best essay on the fertilizers best adapted to promote the growth (and production of fruit) of grape vines and fruit trees,	20

Judges.

Dr. S. P. Moore, Richmond
Hon. R. M. T. Hunter, Essex.
Gen. B. T. Johnson, Richmond.
Hon. B. Johnson Barbour, Orange.
Prof. Mallet, University of Virginia.

RECAPITULATION.

1. Orchards and products,	\$200
2. Vegetables,	185
3. Flowers,	100
4. Wines,	75
5. Implements,	100
6. Essays,	140

The essays submitted on the different subjects for which premiums are offered

will be considered the property of the Society; and if the Executive Committee deem it advisable, these essays will be published for the advancement of horticulture and pomology in Virginia.

All essays must be submitted on or before the 1st of October, 1869, addressed to the chairman, Dr. S. P. Moore, post-office box No. 686, Richmond, Va.

Household Department.

Rural Taste.

It is a common mode of thought to assert that the farm and the home should be the spot in which a taste for rural ornament can be most appropriately and successfully developed. This is true but as a sequence from other beginnings; and we are disposed to attribute the education of one's taste as much to the associations of the school-room and grounds as to home associations. If in our country districts the old, shaggy, red or brown weather-beaten structures for school-houses were replaced with buildings of an ornamental style of architecture, with grounds appropriately laid out and planted in something simple, perhaps nothing beyond a pretty lawn plat, surrounded by a neat fence, and planted in evergreens, we feel sure that the constant sight of this pleasant object, and the associations naturally formed in the mind of the scholar, would do far more good than centuries of lectures or libraries of books. The taste of a child comes from the school-room as well as the home, and goes from the one to the other. Hence we make a plea not only for the improvement of our country school-houses, but for the importance of extending this subject even beyond—to *college grounds*. In the minds of college managers it seems only necessary to secure the ground, "the *terra firma*," and then build their massive walls; and when that is done, all is done. Not so, indeed. Thousands of young men and women frequent these grounds day after day and year after year. If the grounds are well laid out and tastefully displayed, there is an opportunity presented for the development and culture of a refined taste, such as no musty literature ever possessed. It is practical, too, and will insensibly help to mould the future disposition and character, and act on it for years to come. Let us then remember that if we would have rural art and taste become diffusive, we must begin with the youth of the country, and at the fountain-heads of education.—*Horticulturist*.

Southern Women and Children.

Where are the women and children in History? Why do they so seldom appear? Have they had nothing to do with shaping the events of this world? Are men the only actors in the great drama? Have the women and children no part to play? And if they have, why do we so very rarely meet with them in the scenes and acts of history? And when their gentle faces do appear, how is it that they are kept far off in the obscure back-ground, dim as shadows, scarcely seen at all—or, if seen, almost unnoticed? We read the annals of a thousand years; we turn over page after page; but the names upon them written, and the deeds in them recorded, are names and deeds of men. What of the women and children of those thousand years? Have they done nothing worth recording? and if they have, where is the record? We follow the histories of a hundred nations, through all their vicissitudes, from their births to their burials we find the foot-prints alone of the men. Has no mark been left to tell that women and children had ought to do with the destinies of the nations? Do men alone make History? From them alone is all its glory derived? Have they so occupied the stage upon which the drama of history is acted as to leave no room upon it for the women and children? Do these exert no influence on the course of events? or so imperceptible an influence that only once or twice in a hundred years they make a mark and leave a memory?

There are historians of men and men's achievements, but women and children have neither history nor historian. And yet, the weak hands of women and children have done their part in the building up of every nation. They have suffered too, and struggled; they have given their tears to the tragedies of this world; they have helped nations to attain glory and men to win fame; they have influenced every day of history, but in the blaze of men's achievements they have been hidden, just as the stars in the heavens are veiled from our gaze by the splendors of the sun. In the march of nations to glory we hear only the firm tread of the warrior; we listen in vain for the patter of little feet. In the field of battle we hear only the shouts of the combatants—not the sighs of women who are waiting for those who will return no more. Memories of the blood of brave men shed in sacred causes history gathers and preserves, but the tears of the widows and orphans in the desolate home are forgotten. And which is holier—the blood of the soldier or the tears of his orphans? The historian finds on the battle-

plain a grave, and the name of the sleeper in it he gives to the world; but the names of the weepers for that dead one find no place in the pages. And which is holier—the pulseless heart of the warrior buried in his battle grave, or the broken hearts of the wife and children at home? History takes pains and feels pride in recording the sufferings and sacrifices of men for right, but all unknown and unwritten are the greater sacrifices of the women and children; greater, because they feel them more intensely, and are less able to make them and bear them. How often have we mused over these unwritten histories! How often have we striven to fill up with our own imaginings the blanks in the annals of earth! How often have we wondered about these women and children who stand in the silent, shadowy background of history, and yet who are intimately related to every event! They share the fates of their people—they suffer and rejoice—they weep—they make sacrifices—they wield a quiet, yet tremendous power, over the acts of history; and yet historians scarcely deign to mention them. A passing tribute now and then they receive, but the full meed of praise which they deserve is withheld. The great deeds of men occupy page after page, a sentence here and there intimates that back of the great men and their deeds are the women and children. Who will write *their* history? Were it written, how it would, in interest, transcend the records of men! What bright and beautiful pages—what sad and pathetic pages it would present! how tragic it would be! What sorrows and sufferings—what faith and fidelity it would contain! Do we meet in the front lines of history with men great, good, and true? Back of them would we not find women and children as true, as good, and as great? Does the heroism of men on battlefields in just causes thrill us with admiration? What of the heroism in the homes of these men? There goes the soldier to the fray firm and fearless; a proud figure for the historian to sketch; but look at his little girl standing on the doorstep, bitterly weeping, and kissing her white little hand to her soldier-father for the last time. There goes the warrior grandly down to death rather than yield to wrong; history will not forget him. But had he a mother, a wife, a child, what of them? He leaves a memory; what becomes of *their* memories? They sent him forth—prayed for him—watched and waited for him—suffered the deep anguish of suspense for him—he is remembered—they are forgotten. His deeds are handed down—theirs, consigned to oblivion. His brow is crowned with a wreath of glory, and flowers are strewn o'er his grave—but they! no one knows of them; no one asks for them. And who suffered

more—they or he? Which is harder—death to him in the front of battle, or life to them when he is gone? Which is greater—his glory or their grief? And if the light of his glory flashes along many a page of history, why does not their grief cast its shadow there?

History is wrong. Women and children help to make it. They are actors in the drama. They are part of every scene. Beside every event they stand. There never was a deed done with which they have not been connected. But their story is unchronicled—their fames unsounded—their names eclipsed in the glare of the names of men. Their hearts are beating under every page of history; their hands, unseen, are working at every monument of human glory. Amid the nations they are moving to and fro, fulfilling their mission, but the ranks of men hide them from view, and the writers of the deeds of men leave them in their obscurity.

Who will write the story of the women and children of the South? Who will describe their sacrifices for our cause? Who will record their enthusiasm as long as there was hope—and their fidelity when hope passed away? Who will tell the world, in fitting words, of their woes, and the wrongs they endured? We are shrining in story and in song the fames of our men—shall we forget our women and children? They are keeping our memories—shall we let their memories perish? They are treasuring in their hearts our traditions—they cling to them—they will pass them down—they are making them household words; and if they do this for us, shall we fail to record *their* praises? Proud pages in history shall the men who wore the grey have; but their mothers, wives, sisters, children, shall they remain unchronicled and unknown? No! they were true to us, and history must be true to them. Devotion to a cause, greater than theirs, the world never witnessed. Does the ivy cling as faithfully as ever to the crumbling tower? so they to the lost cause. Was the blood of our soldiers, shed in our defence, holy and pure? Not less pure and holy were *their* tears. Were the hardships borne in battle, siege and skirmish, in camp, on the march, in the trenches and hospitals, grand and worthy of remembrance? Not less grand nor less worthy of record were the sorrows of our women and children in twice a hundred thousand homes. Where was the higher heroism—on the battle-field, or far away at the lonely hearth? Who bore more—gave more—suffered more for country—the soldier with sword of steel girded to his side, or the soldier boy's mother with the sword of grief transpiercing her heart? Was he worn and weary, that soldier of Lee's army in

the trenches of Richmond? But thousands of comrades surrounded him. What of his wife, with the woe-worn face and the weary heart in her far-off home, looking into the eyes of her little girl, who, to-morrow may be fatherless? It is sad—that grass-grown grave, without a name, in the shadow of the woods of Tennessee! A boy without coffin or shroud, with only his grey suit on, is resting there; and his sorrows are over. But there is a grave in that boy's only sister's heart, away down in some little village of Georgia, and her sorrows still endure. Is that not sadder? Was it not mournful—that dying cry of the poor soldier in a Northern prison? But the moans of his mother in the silence of the night, when his pale face flits through her dreams—are they not more full of agony?—FATHER RYAN, in *Banner of the South*.

Recipes.

BATTER BREAD.—Boil one quart of milk and pour it on 1 pint of sifted meal; take care it is not lumpy; add a piece of lard or butter the size of an egg, 1 teaspoonful salt, and five eggs well beaten; bake slowly.

FRENCH HONEY.—One-quarter pound of butter, one-half pound of sugar, yolks of three eggs, whites of two eggs, juice of two lemons, and the rind also—to be simmered over a slow fire till thick, which takes five or seven minutes.

WHITE MOUNTAIN CAKE.—One pound of sugar, half pound of butter, one pound of flour, whites of nine eggs, one cup of milk, one teaspoonful of soda, and two of cream tartar; bake in jelly cake-pans and put icing between; one pound of sugar and the whites of four eggs makes the icing.

CHARLESTON PUDDING.—Four cups of flour, three of sugar, six eggs, one cup of butter, one cup of cream, or with a teaspoonful of soda, two teaspoonsful of cream tartar; beat all well together.

FRENCH CAKE.—Five eggs, two cups of dark brown sugar, one of butter, one pound of chopped raisins, one teaspoon of saleratus dissolved in half a cup of water, one tablespoon of cinnamon, one small teaspoon of cloves, one pound of currants, a little salt. Flour according to your own judgment.

COCOANUT CAKE.—One bowl of sugar, one bowl of flour, one cup of butter, six eggs, one teaspoon of soda, two of cream tartar, one grated cocoanut.

THE SOUTHERN PLANTER AND FARMER.

RICHMOND, VIRGINIA., AUGUST 1869.

TERMS OF SUBSCRIPTION AND ADVERTISING.

SUBSCRIPTION One Year,.....\$2.00

ADVERTISING.

1 square, 10 lines or less, one insertion,.....\$ 1 00	½ page, six months,.....	35 00
1 square of 10 lines for six months,.....	½ page, one year,.....	60 00
1 square of 10 lines for one year,.....	1 page, single insertion,.....	15 00
¼ page, six months,.....	1 page six months,.....	60 00
¼ page, one year,.....\$ 35 00	1 page, one year,.....	100 00

PAYMENTS.

Subscriptions—in advance. Advertising—annual—quarterly in advance. All others in advance

Editorial Department.

Removal.

The office of the "Southern Planter and Farmer" has been removed from No. 1015, to 1214, Main street, over the office of the Arlington Insurance Company.

Our Subscribers.

Since our last number was issued, a goodly number of our subscribers have responded to our appeal for payment with commendable promptitude. Others, from whom we had expected a like cheerful response, have not yet broken silence.

At the beginning of the present year, we ceased to supply a number of subscribers who had paid nothing for the year previous; not so much on account of any doubt then entertained of their good intentions, as from the necessity of relieving ourselves from carrying the heavy burthen of paying cash for all the materials used and furnishing our paper to subscribers on an indefinite credit. Will the reader believe it? We have not heard from more than a half dozen of them since that time, and after seven month's further probation we are justified in concluding we probably never shall.

We shall make a further excission from our list before sending out this number, for the same reason, but we hope with better results. We shall forward bills to all names which have been thus suspended, giving them the earliest opportunity to reinstate themselves if they desire it.

Chief Marshal for the State Fair.

We congratulate the members and friends of the Virginia State Agricultural Society, that the Executive Committee have been so fortunate as to obtain the consent of Col. C. Q. Tompkins to act as Chief Marshal on occasion of the forthcoming Fair. It is well remembered what signal success was achieved through the administrative ability displayed by Col. T. in the conduct of this department during our first Fair. His prestige is a guaranty that everything pertaining to his department will be well considered, pre-arranged, and adapted to the thorough development of systematic order and co-operative harmony in every department under his control.

A New Bone Mill in Richmond.

It affords us pleasure to record another evidence of the incoming of Northern capital among us. The Messrs. Downward, Anderson & Co., late of Wilmington, Delaware, have established on the Dock, in this city, a Bone Mill for grinding "pure bone," and also for the manufacture of "the Powhatan Phosphate." The works are under the personal supervision of John Whann, Esq., (one of the originators of "Whann's Super-Phosphate.") whose high character in the Middle and Eastern States, where he is well known, is offered as a guaranty for the purity, and consequent value, of the fertilizers offered by the new firm. Dr. D. W. Mosely, formerly of Buckingham county, Va., and recently of the firm of Dove & Moseley, of this city, is connected with the new enterprise as General Agent. We congratulate Messrs. Downward, Anderson & Co. on having secured his services, and wish them every success in their new field.

To the People of Virginia.

The Virginia State Agricultural Society will hold their first Fair since the war at the grounds of the Society, near this city, commencing on Tuesday, November 2d, and continuing through the week.

It is proposed to unite with it a *grand exhibition* of the manufacturing, mechanical, and mineral productions of the State. For this purpose, it is necessary that a large and suitable hall should be erected. The work of erection should commence early in September, and the time is short to prepare plans, make contracts, and *secure funds*. We would therefore urge the people of the State to be *prompt in action*, as well in sending in their subscriptions in the first place, as in making their arrangements to be present with specimens of their minerals and the productions of their manufactories. We commend the following notice from the "Richmond Enquirer and Examiner," to the public attention.

Arrangements have already been made with the Virginia Horticultural and Pomological Society for a united exhibition with the State Society, on terms similar to those proposed above.

Mr. CHAS. PLEASANTS has been appointed Agent and Canvasser of the Society to secure the subscriptions proposed to the annexed plan. Persons in the State are invited to correspond with him, and forward their names to be entered on the list of subscribers.

THE COMMITTEE.

THE APPROACHING STATE FAIR.

The following resolutions were adopted by the Executive Committee of the Virginia State Agricultural Society, at their meeting on the 14th instant:

"Whereas, It is the earnest desire of the Executive Committee of the Virginia State Agricultural Society to unite the manufacturing, mechanical, and agricultural interests of the State, and a suitable opportunity appears to be offered by the approaching exhibition of this Society; therefore:

"Resolved, That those interests be respectfully invited to co operate with the Virginia State Agricultural Society.

"Resolved, That the President, Messrs. R. Irby, W. C. Knight and F. Stearns, be appointed a committee to meet and confer with any committee that may be appointed by the manufacturers and mechanics, and negotiate the terms of an united exhibition."

To carry the same into effect, it is proposed to form a special association of subscribers, and the money so raised will be used for the construction of a suitable building on the Fair grounds of the State Society, in which to exhibit the manufacturing, mechanical, mineral and agricultural productions of the State. The space in said building will be suitably divided for the purposes of the exhibition, and will be ratably assessed so as to cover the cost of the building, and necessary fixtures for putting in operation all machinery which may be exhibited, and the subscribers shall be credited on their subscriptions for the space they may occupy; and in the event that the space required by a subscriber is less than the amount of his subscription, then he shall be paid for the excess: *Provided*, the same shall be rented to other exhibitors. The cost of the building and fixtures being thus paid for at the first exhibition, the subscribers will, at all subsequent exhibitions, be entitled to the space without charge, except for a small assessment to cover repairs, taxes, &c. Any subscriber who may choose not to occupy the space allotted to him will be entitled to the rents accruing therefrom.

The undertaking of the State Agricultural Society will be to the extent, that the building may be erected on the grounds of the Society, and to remain at the will of the subscribers, or a majority in the interest of them; and should it be deemed advisable hereafter, the building may be purchased by the State Society on agreed terms, or be removed, as the subscribers, or a majority of them, may determine.

The exhibition in this building will be under the rules and regulations of the State Society as a part of their Annual Fair.

The undersigned, a committee appointed by the foregoing resolution, pledge the Virginia State Agricultural Society to a faithful performance of the terms and conditions on which the proposed subscriptions are made; and it is understood and agreed that no subscription is to be binding or to have legal effect until the whole sum subscribed amounts to \$4,000; and when this sum has been secured, the subscribers shall pay the sums subscribed by them respectively to the Secretary and Treasurer of the State Agricultural Society, to be at once appropriated to the erection of the proposed building.

Done by authority of the Virginia State Agricultural Society.

W. T. SUTHERLIN,

R. IRBY,

W. C. KNIGHT,

F. STEARNS,

Committee.

“Virginia State Agricultural Society.

A FINE CHANCE FOR GENERAL STATE DEVELOPMENT.

We are more than pleased to hear that the Executive Committee of the Virginia State Agricultural Society have had the sagacity to invite the manufacturing and mechanical interests of the State to unite with them in their exhibition in this city next fall. By that time we hope the question which now disturbs us will have been settled to the satisfaction of our citizens, and that we will be ready to commence our career of progress. To do that in the best manner, it will be well to have as extensive a survey as possible of our resources of all kinds; and with that view, we think it best that as many of the productions of our industry be grouped as can possibly be got together.

We observe that the Society did not limit itself to the city of Richmond, but embraced the whole State in its invitations. This is right, as well as politic. Though Richmond will be mainly called upon, because it is right at the Fair grounds, yet every section of the State should contribute; and of its minerals as well as manufactures; specimens of its porcelain and maganese of Augusta and Nelson, the marble and baryta of Rockbridge, the copper of Carroll and Russell, the lead of Wythe, the black lead of Amelia and Halifax, the petroleum of *Campbell*, the salt and plaster of Washington, the slate of Albemarle and Buckingham, the green sand of the Pamunkey, the cane fibre and peat of the Dismal Swamp, the unrivalled granite of Chesterfield and Henrico, the iron ores and coal from everywhere, the gold, and, in short, everything which can illustrate the resources of Virginia, should be brought, as to a museum, and placed where they can catch the eye of the hundreds of Northern men who will come to explore our country and observe our people.

We hear that it is in contemplation to invite a good many distinguished Northern personages, with the expectation that they will learn a great deal during their visit; and it can hardly fail to strike any one that such an opportunity of making profitable and judicious connection with capitalists of the North cannot often be presented. It is an opportunity which our people should not throw away; and we presume they will not. One reason for that opinion is, that we learn from Mr. Charles Pleasants, the very worthy and industrious canvasser for this city, that he has been very cordially met by all the parties whom he has visited; another is that our people have lately shown so much good hard practical sense in politics as to encourage us to believe that they have enough of the same commodity for other practical questions.

Who knows what good may come out of this exhibition to Richmond and the whole State, if Richmond and the whole State will only stir themselves? Roll on the ball."

Seed Wheat.

The time is at hand when those who are contemplating a change in their seed wheat should be looking about for some new variety to supersede the old, which, in common parlance, has run out. We are not prepared to recommend any particular variety, but we are satisfied from our own experience, and the testimony of others, that no foreign wheats have proved successful in this country that have not been imported from about the corresponding parallels of latitude with ours.

One gentleman of high character and intelligence informed us that, after close observation for more than twenty years, he had not known an instance of success in any variety, which did not come within this limitation. There may have been exceptions from the rule, but in all such cases the success proved to be of but short duration—seldom extending to the second crop, never to the third.

Nearly all of the new foreign varieties now commended to public attention, it will be seen, are of Mediterranean origin, thus establishing the law which governs the acclimation of these foreign exotics.

We copy from "Deitz's Experimental Farm Journal," the following article, which seems to confirm the general principle we have laid down:

THE VARIETIES OF WHEAT BEST ADAPTED TO THE DIFFERENT WHEAT GROWING SECTIONS OF THE UNITED STATES.

As the season will shortly be here when farmers must select their seed for

sowing the fall crop, a few suggestions upon the varieties which have most favorably recommended themselves to me may assist those who have not had the same opportunities for observation and experiment which I have. In doing so I will seek to be as plain as possible. The most common classification of wheat, and that which is most apparent to every one, distinguishes the different varieties into smooth and bearded, red and white. In my remarks I shall observe this classification as closely as possible.

French White Chaff Bearded Mediterranean Red

Has the largest grains, and is classed as one of the best of all the varieties in my possession. Its adaptability to soil and climate is very great, and it succeeds admirably in producing large crops and maturing well throughout the whole wheat growing section north of latitude 37°, and east of the Rocky Mountains. In this area of country it has proved the hardiest and earliest of all varieties, and recommended itself for general cultivation. It is best suited to clay soils, but gives satisfaction in any wheat soil. It recommends itself especially to light soils, by its vigor to withstand the severity of winter. The great vigor and health of the plant enables it to resist repeated freezing and thawing better than almost any other variety, and this, together with its earliness to mature, protects it against both rust and the wheat midge. The straw is strong and healthy, grows about four feet high, and rarely lodges. The quality of the wheat is good, the grain weighs about sixty-four pounds to the bushel, and makes excellent flour. It should be sown about the middle of September. It is the first to ripen of all the red varieties now cultivated.

French Red Chaff Bearded Mediterranean Red Wheat.

The Red Chaff Bearded Mediterranean has been sown in this section for many years, and has always been regarded among the best varieties by the majority of farmers. It has been cultivated longest in the Northern States, and was known under a variety of different names. The French Red Chaff Bearded Mediterranean is only a new importation of this same wheat, and is fresh and hardy and vigorous, while that which has been sown for a long time has degenerated and grown inferior. What is most wanted in this variety to make it as productive as it ever was, is pure, healthy seed and careful cultivation. The imported seed is early and prolific, and free from weevil and rust. It should be sown from the fifth to the twenty-fifth of September. Both the white and red chaff red wheats are among the most hardy and productive wheats grown anywhere, and ought to be recommended for general cultivation. There is no section of our country in which they will not acclimate and produce large and profitable crops.

German Red Chaff Beardless Red Wheat.

This wheat, lately imported from Europe, is the same that is known here as weevil-proof Red Chaff Smooth, and has a different name in almost every locality. It is the Red Chaff Mediterranean, differing from it only in having lost its beards, and on this account is preferred to the latter. It is healthy, early and hardy, and adapts itself readily to soil and climate wherever the red chaff bearded wheats have been cultivated. To those preferring a smooth red wheat I would recommend this variety, sure that it will yield a fair crop, in almost any part of the United States. For general cultivation I regard it as the best of the smooth red varieties.

Climate and cultivation work so many changes in wheat that it is almost impossible to make distinct classifications of each variety of the same class. The characteristics of many species are sufficiently obvious and invariable to serve the purposes of the most stringent classification, but those that are extensively cultivated run into so many varieties as to render it wholly impossible. The German Red Chaff should be sown from the tenth to the twenty-fifth of September.

White Chaff Mediterranean Amber Wheat

Has been cultivated chiefly in the Northern States, and cannot safely be recommended to be sent South. It ripens late when transplanted from the North to the South, and is liable to rust, and to attacks of the wheat midge. When sent East or West along the same latitude it produces good crops of the very best quality of wheat. It should be sown in the Middle States about the tenth of September.

Red Chaff Bearded Mediterranean Red Wheat.

This is the same as the French Red Chaff Bearded Mediterranean, the chief difference arising from its having long been sown in this country. Whenever it has been changed from one locality and soil to another, and the best seed selected for sowing, it has continued just as good, as early and productive, as the French Red Chaff. The failure to do this, generally, has rendered most of this variety worthless, and is the chief reason why the latest importations are to be preferred. This Red Chaff Bearded, however, has been carefully selected from the earliest and healthiest specimens, and will produce fine crops in any part of the country suited to the cultivation of wheat.

Lancaster Red Wheat

Is also a variety of the Red Chaff Bearded Mediterranean. It was obtained by selecting from the field, in Lancaster county, Pa., the earliest and best developed heads of wheat, and giving them the most careful cultivation. From them was again selected the best, until a splendid wheat was obtained. It was much sought after in Pennsylvania, and gave general satisfaction, yielding bountiful crops every season. Changing this wheat from one soil to another preserved its health and vigor, as it will do for any other, and enabled it to preserve its popularity for many years. If sown year after year in the same soil it will degenerate like all others, and grow feeble and liable to rust and weevil.

Ancona Red Amber Beardless Wheat,

Imported a year ago from the south of Russia, acclimated one year. The seed was not sown until in October, a little too late for a fair trial. I believe it will prove to be a good variety in sections where the winter is moderately mild. It is a beautiful amber wheat, well suited to sandy, loamy and loose soils, where the climate is not so rigorous as in the Northern States:

Bohemian Amber and Salla Amber, Beardless.

Both these varieties were imported last year from Bohemia, and closely resemble the Ancona in manner of growth and size and color of grain. They are called smooth amber wheats, and are best suited to those sections where the finer qualities of wheat are grown. They will not withstand severe freezing and thawing, but in warm and mild latitudes both these and the Ancona will produce good crops. They should be sown in Maryland, Virginia, Tennessee, Kentucky, Southern Illinois, and Indiana, and those States further South; also, Kansas, Colorado, Utah, and the Pacific Coast; in all of which it is believed that they will succeed and yield a superior quality of wheat. In limited sections further north than the States named they would also succeed, but it would not be enough to justify their recommendation. These wheats should be sown as early as the last of August and the early part of September.

Berdenska Beardless Red Chaff Red Wheat,

Imported from Russia, and is acclimated one year. It is similar to the early

May, a variety of wheat common to the Southern States. The change effected in this wheat by a single year's cultivation in this country has been truly wonderful. The seed from a dark small grain has changed into a fine, good sized, amber one, and in other respects, as well. Its adaptation to our soil and climate is remarkable. It promises to supersede the Early May, being very early, hardy, and acclimates readily. The especial attention of Southern farmers is asked to it, in the belief that it will prove a most valuable acquisition to that section. It is a beardless red chaff, almost identical in appearance and quality with that already mentioned, and in all respects gives promise of making a very superior wheat. It should be sown in September.

Sakonka Bearded Red Chaff Red Wheat

Imported from Poland in 1868. It is early and hardy, and will acclimate itself readily to the wheat growing sections of this country. This variety recommends itself to Northern farmers especially, and I am confident will do well wherever the red chaff varieties are successfully grown. It will continue to improve for some years to come, and promises to make a valuable addition to the wheats of this country.

Hungarian White Chaff Bearded Red Wheat.

This variety has now been acclimated three years, and in good soil and favorable cultivation it has proved very profitable. Each year's planting has improved the quality of the straw and the size of the grain. It stands the winter well, and ripens a little earlier each year. It makes a compact head of good size, and will succeed in the wheat sections of this country. It should be sown about the middle of September

American White Chaff Bearded White Wheat

Is one of the hardiest and most productive white wheats raised. The grain is similar in size and color to that of Diehl's white. It yields abundantly and produces superior flour. It can be grown wherever the red varieties succeed. For eight years it has yielded large crops, and I have known it to be sown under very unfavorable circumstances. It adapts itself readily to all wheat growing sections. It grows in a variety of soils, and acclimates easily. I unhesitatingly recommend it to wheat growers and farmers throughout the whole country. It should be sown in September.

Week's White Chaff Bearded White Wheat

Is early, very hardy, and prolific. It produces well on almost any wheat soil, and has been known to yield good crops where red wheat failed. I have sown it on the poorest soil of the farm, and the yield was fine. I have also sown it so late in the fall that it made a growth of only an inch and a half before winter set in, after which the freezing and thawing of the loose soil pulled most of it up by the roots. When spring came only a few straggling plants still held on to the soil, but as soon as the weather became moderately warm the half dead seed sent out new roots, penetrated the soil, and made a growth which made a crop of twenty bushels to an acre. I would recommend it before all others as the best wheat for soils which are only moderately productive. A crop can be grown on any kind of wheat soil. Of course it will do best on rich soil. This wheat is early, hardy and productive. It is free from rust and weevil. The straw is strong, and will not lodge. The grain is as good as the best red wheat, and much superior to most red varieties. It can be sown any time in September, and even in October.

Boughton, or Tappahannock White Chaff Beardless White Wheat.

This is a beautiful white wheat, and among the first to ripen. It should be sown in rich soil to mature perfectly. Sandy loam, loose clay and gravelly soils are best adapted to its growth, and new ground, or that which has been newly cleared, produces large crops of the finest quality. Reports received from all parts of the country agree in recommending this wheat, and say that it has acclimated well wherever sown. Especially favorable are the letters received from the Southern States. I know of no white wheat which will pay better to cultivate on rich soil than the Boughton White.

Diehl's Red Chaff Beardless White Wheat

Is among the hardiest and most productive wheats of this class cultivated. It has now been introduced into every State, and has established itself favorably in all. The grain is similar in size and quality to the Boughton, and will preserve its white, plump quality much longer. Its chief recommendations are the sureness of its crops, its earliness and its abundant yield. Many of the reports received from those who have sown it, report a yield of 40 to 44 bushels to the acre, and speak of the superior quality of the grain. It will do well wherever white wheat can be raised, but will always pay best in the best soil. Wet and damp lands do not answer for this wheat, but it will succeed on all dry, rich soils.

California White Chaff Beardless White Wheat.

This is the most beautiful wheat that can be raised, and succeeds best in the Southern States, and some sections of the Rocky Mountains, and the Pacific coast. It requires a mild or steady climate, and cannot stand much freezing and thawing. But in mild winters and moderate temperatures it grows luxuriantly and yields large crops. It seeks warm rich soils, and needs a frequent change of seed.

Italian White Chaff Beardless White Wheat,

Is hardier than the California White, endures moderately cold weather without injury, and can be raised in the Southern and most of the Western States. It is very prolific, and produces a grain of the finest quality. When grown to perfection it will yield more wheat per acre than any other white wheat. Superior crops have been raised in most of the Southern States.

Sandonica Red Chaff Beardless White Wheat,

Imported in 1868. It is early, hardy and prolific, has stood the winter well, and seems to be the best white wheat among those imported. The chaff is red, the straw purple, and the grain beautiful and plump. The straw is strong, and grows vigorously to the height of about four feet. I believe that this will prove a valuable addition to our stock of wheats.

Treadwell White Mammoth Bearded and Beardless Wheat

This variety suits itself to almost any kind of soil. It is not quite so early as the Boughton or Diehl's, but is rust and weevil proof, and more productive than either of them. The quality of the flour is not quite so good as that of the Diehl's, but is also very fine. I would recommend it to all farmers who want a hardy and productive wheat, believing it will be more profitable than any other. There is certainly no other variety which will suit Northern farmers generally so well as this one. It is both bearded and beardless, but in all other respects the wheat is the same.

Norway Oats.

A correspondent in this number of our journal gives a flattering account of his prospect for a fine yield from seed of this variety, sowed by him, the seed weighing about 40 lbs. to the bushel. We venture the prediction that his first crop will fall below this standard, that his second will show further deterioration, and that he will have little inducement to try a third crop.

The Prince Edward Island oat, of equal weight, has been frequently tried in this latitude, but we have never heard of a third crop being produced by those who experimented with it.

There are certain climatic influences determining the growth, fruitage, and weight of seed, according to the varying circumstances of different localities, which cannot be PERMANENTLY overcome, however flattering a first attempt to do so may appear in particular instances. See then to the latitude from which you seek for new varieties of seed.

THE SOUTHERN PLANTER & FARMER,

DEVOTED TO

Agriculture, Horticulture and the Mining, Mechanic and Household Arts.

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

CH: B. WILLIAMS, EDITOR AND PROPRIETOR.
FRANK G. RUFFIN, CO-EDITOR.

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Field Experiments on Clover Seeds and Permanent Pasture.

In the part of the Journal of the Royal Agricultural Society of England recently issued, Dr. Voelcker gives a report of experiments on clover seeds and permanent pasture. Subjoined are the experiments :

FIELD EXPERIMENTS ON CLOVER SEEDS, MADE IN 1867
AT ESCRICK PARK HOME FARM, BY MESSRS. COLEMAN AND HULL.

The field upon which the following experiments were made grew barley in the preceding year. The usual mixture of clovers and Italian ryegrass was sown with the barley. The seeds came up well, and the plant was tolerably good and uniform on the piece selected for the experiments. Apparently the selected piece of land was uniform in depth and in its general character. It was divided into eleven equal and adjoining plots of 1-20th of an acre each. The eleven plots were treated as follows, as regards manure :

Plots.	Name of Manure.	Quantity of Manure per plot.	Rate per acre.		
			tons.	cwt.	lbs.
1	Nitrate of soda.....	22½ lbs.	0	4	0
2	Sulphate of Ammonia.....	22½ lbs.	0	4	0
3	Mineral superphosphate.....	22½ lbs.	0	4	0
4	Common salt.....	22½ lbs.	0	4	0
5	No manure.....				
6	Muriate of potash.....	22½ lbs.	0	4	0
7	Sulphate of potash.....	22½ lbs.	0	4	0
8	Sulphate of lime.....	1 cwt.	1	0	0
9	Mineral superphosphate and nitrate of soda.....	22½ lbs.	0	4	0
10	Mineral superphosphate and muriate of potash.....	22½ lbs.	0	4	0
11	No manure.....				

The artificial manures were sown by hand on the 11th of April; the clover was cut on the 12th of June for the first time, and a second cutting was obtained August 24th, 1867. The produce of each plot was carefully weighed on the same day, and as soon as cut, when the results incorporated in the following table were obtained:

Table showing the produce of Artificial Grasses (mixed Clover and Ryegrass,) on Experimental Plots of 1-20th of an Acre each, made at Escriek Park Home Farm, York, in 1867.

Plots.	Manure used.	Weight of Clover.								
		First cutting.			Second cutting.			Total.		
		cwt.	qrs.	lbs.	cwt.	qrs.	lbs.	cwt.	qrs.	lbs.
1	Nitrate of soda.....	8	2	7	2	0	7	10	2	14
2	Sulphate of ammonia.....	10	2	0	2	1	17	12	3	17
3	Mineral superphosphate.....	5	2	14	2	2	9	8	0	23
4	Common salt.....	5	2	16	2	2	7	8	0	16
5	No manure.....	5	1	26	2	3	4	8	1	0
6	Muriate of potash.....	6	1	21	3	1	14	9	3	7
7	Sulphate of potash.....	5	1	12	2	2	7	7	3	19
8	Sulphate of lime.....	4	1	23	2	2	3	6	3	26
9	Mineral superphosphate and nitrate of soda.....	10	3	16	2	0	0	12	3	16
10	Mineral superphosphate and muriate of potash.....	9	0	0	4	3	2	13	3	2
11	No manure.....	6	0	17	2	3	2	8	3	19

Mr. Hull kindly furnished me with the following notes, which he took on the field during the progress of the experiments:

The manures were sown on the 11th of April, and no perceptible change was produced by any one of them until the 23d of April, when the clover seeds on plot 1 and plot 9 could readily be distinguished from those on all the other plots by their darker green color and more vigorous growth.

FIRST CUTTING.

Plot 1 was dressed with nitrate of soda alone, and plot 9 with a mixture of nitrate of soda and superphosphate. Both plots had a darker green color than the rest throughout the experiment.

The nitrate of soda on plot 1 encouraged the growth of the ryegrass to such an extent that it quite smothered the growth of the clover plant.

Plot. 2. *Sulphate of Ammonia*.—The ryegrass grew vigorously, but was not so long and coarse as the ryegrass on the plot dressed with nitrate of soda, while it was superior in quality in comparison with the latter. The clover on plot grew fairly, but was weak.

Plot 3. *Mineral Superphosphate*.—Ryegrass good, but clover thin, very weak, and much blighted.

Plot 4. *Common Salt*.—Ryegrass and clover fair, but short.

Plot 5. *No Manure*.—Appearance of plant much like that on the preceding plot.

Plot 6. *Muriate of Potash*.—The clover on this plot was very good both as regards color and vigor of growth, and the ryegrass also was strong and of good quality.

Plot 7. *Sulphate of Potash*.—Clover good, but ryegrass weak.

Plot 8. *Sulphate of Lime*.—Ryegrass very thin and unhealthy in appearance; the worst piece of the eleven experimental plots.

Plot 9. *Nitrate of Soda and Superphosphate*.—Clover plant quite smothered by ryegrass, which grew very long and coarse, and of quality little better than good oat straw.

Plot 10. *Superphosphate and Muriate of Potash*.—Decidedly the best plot; clover remarkably strong, with a good broad leaf of a dark green color. Ryegrass also very vigorous and of excellent quality.

Plot 11. *No Manure*.—About the same as plots 3, 4 and 5.

SECOND CUTTING.

Plot 1. There was scarcely any clover in the second cutting, and ryegrass also was very thin and weak.

Plot 2. Clover very weak; ryegrass much better than on the preceding plot, though short.

Plot 3. Much the same plot as 2; ryegrass not quite so strong.

Plot 4. Ryegrass and clover short and weak.

Plot 5. Clover fair; ryegrass short.

Plot 6. Ryegrass good; clover leaves broad and of a good color.

Plot 7. Clover good, but ryegrass weak and thin.

Plot 8. The produce on plot 8 small and weak.

Plot 9. Merely a few plants of clover were left on plot 9 after the first cutting, and the ryegrass was very thin and weak; the soil appearing to have been quite exhausted by the first cutting.

Plot 10. Clover very good, with a good broad and dark-colored leaf; the ryegrass also strong and healthy. By far the best plot.

Plot 11. Much the same as 4 and 5.

We owe to Messrs. Lawes and Gilbert a series of most valuable and instructive field experiments on the influence of different fertilizing matters on the quantity and quality of the product of permanent pastures. The changes which several of the fertilizers employed by Messrs. Lawes and Gilbert produced in the character of the herbage of several of their experimental plots are so instructive that for some years past I have made it a point to pay a visit to Rothamsted Park at the time when the grass crop is in the height

of perfection. Having frequently seen with my own eyes in what a remarkable degree the growth of true grasses, especially the coarser kinds, is encouraged by nitrogenous fertilizers, and having also noticed the changes which a mixture of salts of potash and superphosphate produces on permanent pasture in the relative proportions of leguminous plants and true grasses, I was quite prepared for similar changes in the produce of the Escrick experiments. But the difference in the quality of the produce of some of the experimental plots at Escrick Park was more striking than that which I had previously witnessed at Rothamsted Park, or anywhere else.

The Italian ryegrass on plot 9 I found at harvest-time, as Mr. Hull truly observes, so exceedingly coarse, that it appeared scarcely better than good oat straw, and very few clover plants could be seen. Again, the effect which muriate of potash, and in a still higher degree a mixture of muriate of potash and superphosphate produced on the clover plant was truly magical.

I never before witnessed anything so striking and instructive as these experiments on artificial grasses. There must, of course, be a good reason why in this instance the quality, as well as the quantity, of the grass crop were so much more powerfully affected by the different manures than I found to be the case in other experimental trials. We know that the character of the soil materially affects the quality and the weight of the crops we raise upon different classes of soil. It is, therefore, natural to connect the remarkable results obtained in the Escrick Park experiments with the peculiar character of the soil on the experimental field. I have, therefore, taken care to obtain a fair average sample from the field on which the grass experiments were tried, and after drying the sample at 212 Fahr., I submitted it to a careful analysis, according to which the composition of the soil may be represented as follows:

COMPOSITION OF THE SOIL OF THE FIELD AT ESCRICK PARK HOME FARM, ON WHICH THE EXPERIMENTS UPON CLOVERSEEDS WERE TRIED.

Organic matter and loss on heating,	-	-	-	-	-	4.28
Oxide of iron;	-	-	-	-	-	.61
Alumina,	-	-	-	-	-	2.16
Carbonate of lime,	-	-	-	-	-	.39
Sulphate of lime,	-	-	-	-	-	.25
Carbonate of magnesia,	-	-	-	-	-	.23
Potash,	-	-	-	-	-	.14
Soda,	-	-	-	-	-	.05
Phosphoric acid,	-	-	-	-	-	.08
Insoluble siliceous matter (sand),	-	-	-	-	-	91.81

100.00

Even a superficial inspection will show at once that this is an extremely poor and very light sandy soil. Mr. Coleman, moreover, informs me that the field from which this soil had been taken, had been badly farmed, and that it was, in consequence, in a poor agricultural condition.

It will be noticed that this soil is remarkably poor in available potash, and I may add, in almost all the more valuable fertilizing constituents found in good soils. The total amount of oxide of iron and alumina was not quite 3 per cent., and of lime there was not a half per cent. On the other hand, it abounds in silica, for on examination I found the 92 per cent. of siliceous matter which enter into the composition of this soil to consist almost entirely of pure fine grained quartz sand.

I need hardly say that a soil containing 92 per cent. of sand and very little clay, and a still smaller proportion of the more valuable soil-constituents, has to be regarded as extremely poor. Such soils are readily exhausted by cropping, and though they will yield fair crops when liberally supplied with manure, they are naturally very unproductive.

The extreme poverty of this soil in available potash at once intelligibly explains the benefits which both the cloverseeds and the Italian ryegrass derived from the application of muriate of potash; and presents us with a good illustration of the utility of chemical analysis and the aid of the chemist, of which the practical farmer may occasionally avail himself with advantage.* The analysis clearly points out a deficiency of potash and also of phosphoric acid; and hence the employment of potash manures on land of that description may be recommended with confidence. The composition of land like that of the soil of the experimental field, moreover, shows that lime or clay marl may be applied to it with advantage, and that it is impossible to grow any good roots, or barley, or wheat, or clover, on land of that character, without giving it a liberal dressing of phosphoric manures. Moreover, the loose and porous nature of the soil, and the want of a fair proportion of clay in it, clearly indicates the necessity of manuring it but very moderately with ammoniacal or nitrogenous manures; for as the proportion of available mineral constituents which enter into the composition of the ashes of our usual farm crops is but small, and the solubility of these matters in water is greatly facilitated by ammo-

* Our readers will find that the formulas we furnished for experiments in our September number will give them a cheap, and for all practical purposes, a correct analysis of their soils.—EDS. S. P. & F.

niacal salts, such poor soils are all the more rapidly exhausted when the crops grown upon them are too liberally manured with fertilizers rich in nitrogenous matters, or in salts of ammonia.

For the sake of better comparison, I have calculated the yield of each experimental plot for an acre, and placed the results in the subjoined table :

Table showing the Green Produce per acre of 11 plots of Artificial Grass (Cloverseed and Ryegrass,) grown at Esrick Park Home Farm, 1867.

Plots.	Manures used.	Produce per acre.								
		First cutting.			Second cutting			Total.		
		tns.	cwt.	lbs.	tns.	cwt.	lbs.	tns.	cwt.	lbs.
1	Nitrate of soda.....	8	10	28	2	1	28	10	12	56
2	Sulphate of ammonia.....	10	10	0	2	8	4	12	18	4
3	Mineral superphosphate.....	5	12	56	2	11	68	8	4	12
4	Common salt.....	5	12	96	2	11	28	8	4	12
5	No manure.....	5	9	72	2	15	80	8	5	40
6	Muriate of potash.....	6	8	84	3	7	56	9	16	28
7	Sulphate of potash.....	5	7	16	2	11	28	7	18	44
8	Sulphate of lime.....	4	9	12	2	10	60	6	19	72
9	Mineral superphosphate and nitrate of soda.....	10	17	96	2	0	0	12	17	96
10	Mineral superphosphate and muriate of potash.....	9	0	0	4	15	40	13	15	40
11	No manure.....	6	3	4	2	15	40	8	18	44

An attentive perusal of the preceding figures will bring to light several particulars, on which a few observations may not be out of place :

1. In the first place, it will be noticed that two plots were left unmanured. In all experimental trials, at least two, or, if possible, three plots, should be left unmanured. Although the crop in a field may appear quite even, and the soil uniform as regards depth, texture, and general character, the weight of the produce of such a field invariably differs to some extent in different parts. Natural variation in the productive powers of different portions of the same experimental field must be expected to occur in all cases; but these variations must not surpass a certain limit, or else no fair and legitimate deduction with respect to the efficacy of the manuring matters employed can be made from the results of the experiments. Many of the anomalies which so much perplex the experimenting farmer, I am inclined to think, are often solely due to inequalities in the soil, or to differences in the agricultural condition of the several experimental plots. For this reason, it is absolutely necessary, in field trials, to determine whether the natural variations in the productive powers of different parts of the experimental field are not so great as to spoil the experiments altogether. In the case

before us, it will be seen that one of the unmanured plots yielded, when calculated per acre, 8 tons, 5 cwts., and 40 lbs., and the second plot, 8 tons, 18 cwts., and 44 lbs.; the variations in the produce of the two plots thus amounted to 13 cwts. and 4 lbs., showing no greater difference than can be expected under favorable circumstances.

2. Neither common salt nor sulphate of potash appears to have had any effect upon the produce, for it will be seen that the weight of the clover seeds on plots 4 and 7, dressed respectively with salt and sulphate of potash, was somewhat less than that of the unmanured plots. I attach no value to the apparent diminution of the produce on plots 4 and 7, for the increase is not sufficiently large to entitle us to infer from the result that the same matters used on these two crops had an injurious effect upon the crop.

3. On plot 8 sulphate of lime was used at the rate of 1 ton per acre. This is a very large dose. Although sulphate of lime or gypsum is but sparingly soluble in water, and for that reason may be used with perfect safety in much larger quantities than in this experiment, provided it is well mixed with the soil. a large dose of finely-powdered gypsum, when applied as a top-dressing to young clover seeds, appears to injure the plants and to retard their growth.

4. It is worthy of notice that whilst common salt had no effect upon the produce, muriate of potash materially increased it. We have here another direct proof that soda is incapable of taking the place of potash in the nutrition of plants.

5. On plot 3 mineral superphosphate alone had no effect whatever on the crop. This is an interesting result, for it seems to indicate that the great deficiency of potash, which is characteristic of the soil of the experimental field, entirely prevented the display of the useful functions which we know perfectly well that superphosphate of lime does discharge on land of a better character. On poor, light sandy soils, we may learn from this that a purely mineral superphosphate cannot be used with advantage for clover seeds. I may observe in passing, that on such soils mineral superphosphate has even little effect upon root crops, for which phosphoric manures are so largely used with the best effect.

6. It is remarkable that whilst plot 3, manured with mineral superphosphate, gave no increase whatever; and plot 6, manured with muriate of potash, gave an increase of 1 ton, 4 cwt., and 42 lbs. over the average produce of the two unmanured plots (average produce 8 tons, 11 cwt. and 98 lbs..) the mixture of both manures

on plot 10 gave the largest weight of cloverseed and ryegrass per acre of any of the eleven experimental plots.

In the first cutting, plot 10 produced 9 tons, and in the second nearly 5 tons of green clover seeds, or both cuttings yielded in exact weight 13 tons, 15 cwt., and 40 lbs., which is an increase of 5 tons, 3 cwt., and 64 lbs. per acre over the average yield of the two unmanured plots.

Plot 10 gave not only the largest increase per acre, but the quality of both the clover and ryegrass was much superior to that of the produce of any other of the various experimental plots.

7. There is another circumstance connected with the result obtained on plot 10, which deserves the best attention of the practical agriculturist. It will be seen that, although the first cutting produced a heavy crop of clover seeds of by far the best quality of any of the experimental plots, the land was left in a better agricultural condition after the first cutting than where no manure at all was applied, and a much smaller weight of green clover seeds was reaped at first; for on plot 10, the second cutting yielded nearly 5 tons of green produce, in addition to the first, whereas the two unmanured plots 5 and 11 yielded only 2 tons, 15 cwt. of additional produce in the second cutting. The liberal supply of available potash and soluble phosphates thus had the effect of greatly increasing the weight of the crop, improving its quality, and leaving the soil in a better agricultural condition for the next crop.

8. Again, it will be noticed that on plot 6, on which muriate of potash alone was employed, the second cutting weighed more than the second cuttings of the other plots, except that of plot 10, where superphosphate was added to the potash-salt. It therefore appears that the beneficial effects of potash on soils so poor in this element as the land on which these experiments were tried, has a more permanently beneficial effect than some of the fertilizing matters which were used on other plots.

9. On the other hand, nitrate of soda unmistakably had a tendency to exhaust the land; for it will be noticed that on both the plots 1 and 9, on which nitrate of soda was used, the second cuttings weighed less than those of the unmanured plots.

As already mentioned, the nitrate of soda on plots 1 and 9 encouraged the growth of very coarse and inferior ryegrass, which completely smothered the clover plant.

When I saw the experimental field late in the autumn of 1867, after harvest, the contrast in the appearance of the various experimental plots was most striking. Whilst the land on plots 1 and 9

appeared quite burned up and exhausted, and scarcely any clover was visible, the potash plots could be readily distinguished by a dark green color and healthy look of the remaining herbage in which clover predominated.

We may thus learn from these experiments, that nitrate of soda alone, or even in conjunction with superphosphate, should not be used as a top-dressing for artificial grasses on very poor sandy soils, like the soil of the experimental field, inasmuch as nitrate hastens the exhaustion of the potash naturally present in such soils in very small proportions. Indeed, nitrate of soda, and, in a minor degree, ammoniacal salts, are the worst artificial manures that can be used under such circumstances. It may further be observed, that no just estimate can be formed of the real value of a special manure if no account be taken of the condition in which the land is left after the crop has been removed from it. This is not the first time that I have noticed this tendency of nitrate of soda to produce rapid exhaustion of naturally poor soils, and I would therefore strongly recommend farmers to abstain from the employment of it as top-dressing for grass or corn crops which are intended to be grown on naturally poor sandy soils.—*Journal of the New York State Agricultural Society.*

Agricultural Education in Germany.

LETTER FROM HON. J. M. GREGORY, LL. D., REGENT ILLINOIS INDUSTRIAL UNIVERSITY.

Germany is the land of great scholars and great schools. No where else in Europe can one find such numbers of highly educated men, and so many gigantic institutions of learning. And Germany has taken the lead in industrial education. It was among her philanthropists and educators that the idea first took substantial shape to adapt schools to the practical affairs of life; and now the most successful of these schools are to be found among the German people.

The first industrial schools were charitable institutions to prepare poor and orphan children to earn their own living. But the idea soon took a higher form, and the Agricultural and Polytechnic schools began to be established, to teach science in its applications to the useful arts. For nearly three-fourths of a century have the German States been working at this great problem, and the history of its successive stages of evolution is interesting and instructive. Blunders were committed, but by patient perseverance their conse-

quences were surmounted, and the splendid success which is to day crowning these schools, is the best proof of their present value, as it is of their prospective growth. The governments, convinced of the immense public value of technologic schools, are vying with each other in their more liberal endowment, and they bid fair to become at no distant day the great schools of Europe. Immense buildings are being erected for their accommodation, apparatus of the most costly character is being provided to render more effective and practical their instructions, and hosts of students are crowding to them from both Continents.

At first they were regarded with little favor by the Universities, but their success has so fully demonstrated their utility, that now the University men are their foremost advocates and friends. A few of their special champions profess to believe that they will ere long supersede the Universities; but the great majority, both of University and Polytechnic educators, see in the Polytechnic but the natural outgrowth and necessary advance of human learning, and in the union of the two forms, they find foreshadowed the new future of education.

The question of the union of the Polytechnic schools with the Universities has been debated long and earnestly by German scholars and statesmen. The argument on both sides has been exhausted. The suffrages are finally settling down with a surprising unanimity in favor of the union. Among the Professors of both, of the Polytechnic schools and the Universities with whom I talked, there were but two who favored the separation of the two classes of education, and they on grounds merely local or incidental. And this decision in favor of a union embraces Agricultural, as well as other technical instruction. The celebrated Baron Liebig, the father of Agricultural Chemistry, is among the most ardent advocates of the union of Agricultural schools with the Universities. "You know I am opposed to isolated schools," said the old Baron to me as I sat with him in his library. It was under his influence that the Agricultural Department was added to the old University at Halle. The new Polytechnical school at Munich, where Baron Liebig resides, is not only connected with the University so far that many students attend lectures in both, but it is also itself a University, bearing the title of the "Polytechnic University," and requiring for admission the same preparation that is required by the other Universities, excepting the Greek language. This Munich Polytechnic is one of the largest and newest of this class of institutions. Its buildings of

magnificent extent and splendid architecture. will cost when completed about \$750,000 and would cost in Chicago, over a million dollars. The apparatus for the illustrations of only a single physical science cost about \$12,000, and the chemical laboratory is of great size and beauty. An entire separate laboratory is being provided for Agricultural Chemistry and a distinct professor employed for this department. I asked the directors if they did not fear the high standard of qualifications required for admission would bar out students? He replied, "make your school good—see to it that that you have good teachers, good apparatus, libraries &c., and the students will be sure to come." There is sound sense in this view.

The Polytechnic men all say that the aims of the first Polytechnic schools were too low and limited. They sought only to give *practical knowledge* as it is sometimes called,—or knowledge of the arts themselves,—without regard to the stage of preparation, or the general culture of their students. They were unable to carry the education far enough to reach the best results. Now everywhere they are raising the standard for admission and adding more of general and liberal study to their courses of instruction.

AGRICULTURAL EDUCATION.

The history of Agricultural education in Germany is only one of the chapters of the history of Polytechnic education. At the outset the Agricultural schools were for poor peasant children. But with the progress of thought and experiment, this branch of education enlarged and elevated its aims, till it has become finally to be an honored and useful department of University instruction.

There now exists in Germany, three somewhat distinct classes of Agricultural schools. The first are schools for the education of practical farmers or farm laborers. These schools provide a Winter course of theoretical instruction, and, in most cases, send the students home to work on the farm during the Summer season.

These schools are of different grades, the instruction in some being somewhat thorough and complete, while in others it is quite meagre and merely elementary. They have doubtless accomplished much good, but they are said to be giving away before the multiplication of a higher order of schools.

The second class embraces what, in America, would be called Agricultural Colleges, but which the Germans style Agricultural Academies. They were all as far as I could learn, of somewhat early origin, having been established before the question of union

with the Universities were started. They are isolated schools aiming at a high and thorough course in all sciences pertaining to agriculture and at such practical instruction as their modern farms afford. The opinion was frequently expressed to me that these schools would at an early day be united to the nearest Universities. The third class of Agricultural schools consists of the Agricultural Departments of the Universities. These are all of somewhat recent origin, having been established in conformity with the conviction that Agricultural education of the best form ought to be provided for by the Universities.

I shall give your readers the best idea of the character of these several classes of schools by describing one of each class as they fell under my own observation. But as this description will probably fill a letter of itself, I may use the space remaining in this, to present some general views of Agricultural education in the German States.

And foremost among the questions which will be asked me is this: Has Agricultural education in Germany, on the whole, been successful? I put this question one morning to Baron Liebig in his library, intimating to him that doubts on this point existed in America. The splendid old man stretched himself up, and with flashing eye exclaimed: "*The success has been immense;*" and then in proof of the truth of his statement he added: "In Hesse, for example, the value of the land has increased three hundred per cent. under the improved method of culture introduced by the diffusion of Agricultural science. And this increase has not come, as your lands increase in value in America, by increase of population, but by the actual improvement in the fertility of the soil. The immense quantities of the artificial fertilizers, the phosphates and sulphates now used in Germany, are evidences of the progress of Agricultural science. Lands, which were worn out and nearly useless, have been renovated and rendered abundantly productive by the improved methods and manures."

Mr. Bancroft, the American Minister to the Prussian Court, told me that when he first visited Berlin, fifty years ago, that city was in the midst of barren sands. Now it is surrounded with fruitful fields and waving forests. Agriculture, science-taught, has transformed the sands to fertile soil. And all this the Germans claim as the fruits of their Agricultural schools. If another proof were wanting of the acknowledged utility of these schools, it could be easily found in the fact that they are being rapidly multiplied throughout the German States. Men do not multiply useless institutions; but

the Agricultural schools are multiplying in great numbers. And these institutions are increasing in influence as rapidly as in numbers. The scope of their course of instruction and the value of their educational influence are constantly increasing, and as a consequence, their place in public esteem grows more and more prominent.

The German Agricultural schools have introduced two measures which have helped greatly to increase both their influence and usefulness. First they have organized an extensive and thorough system of agricultural experiments for the discovery of new truth and the solution of the great questions of agricultural science. There are now, chiefly in Germany, thirty-three agricultural experiment stations, fitted up with the necessary laboratories, stables or farms, for carrying forward careful sets of observations and experiments both in soil, culture and animal husbandry. These stations are under the direction of thoroughly trained chemists, who know how to adjust all the conditions of each experiment and to test with the utmost nicety the results. These experimenters meet annually to discuss the experiments and compare observations, as well as to suggest new problems for solution. The reports of these experiments carefully written out, are published in a periodical devoted to this interest and thus are offered constantly to the agriculturists of the country. I had the pleasure of visiting several of these stations and of noticing the ingenuity and scientific precision with which the experiments are conducted. Agriculture must gain greatly in certainty and power when the workers at these stations shall have had time to ripen their observations and systematize their conclusions.

The second measure of which I spoke, is the establishment of a system of itinerating lectures for the diffusion of agricultural knowledge among the farmers. I did not learn how widely the practice yet prevailed, but in Baden the Professors of the agricultural school at Weisbaden go out through the villages and from school house to school house, giving instruction to the practical farmers, in plain familiar lectures, and it is said with the happiest results. A double advantage results from this work; agricultural science is diffused among the people, and the agricultural schools secure a higher place in the public esteem.

The circumstances of Germany favor the success of agricultural schools. The general prevalence of education gives a large number of young men prepared to enter upon the study of the sciences, and the number of well educated men affords the requisite supply of qualified

teachers. In these two respects no country so well compares with Germany as the United States. In another important point we have a great advantage even of Germany. There the minute subdivisions of the lands often consigns the farmer to a hopeless poverty and utterly forbids the free introduction of new methods of culture. Agriculture in the German States is not the chief employment of the people. But the extent of our farms and the prominent place which agriculture occupies among the industries, gives to the American Agricultural College a field such as no European country affords.

The Germans, in many respects, more nearly resemble the American people than any other nation on the European continent. Even England is less like the American republic. In the care of the government for the education of the people, in the absence of the spirit of caste, in the prevalence of free thought, in the general spirit of earnest investigation, the German States resemble the American; and the success of the German Agricultural Colleges affords no slight ground of hope for the success of similar institutions in our own country. It is true there are notable differences between the two countries, and especially in their agriculture; but the general principles which have been proved true for the one will be found true for the other, and thus the German schools may afford us many useful hints for the conduct of our own.—*Western Rural*.
Paris, August, 1869.

The Michigan Agricultural Society.

LETTER FROM PROFESSOR COOK.

The Junior Exhibition, which was held August 25, made no little stir with us. The audience was large, and very appreciative. Upon the rostrum sat the entire Board of Agriculture, Gov. Baldwin, included. Twelve Juniors took part on this occasion, and have received from several representatives of the Press, who were present, generous praise for the felicitous expression of the many apt and practical thoughts contained in their orations and essays.

Hon. George Wilward, of the Battle Creek Journal, gave an admirable lecture in the evening, on "Labor and its Influence upon the progress of the World's enlightenment." He showed that the mental and moral status of a people held intimate relations with their productive industry. It was a most happy vindication of Industrial education, and I am glad to say, it is to be published entire.

Our grounds and green house are very beautiful, and that this attractiveness is appreciated is evinced by the many visitors, none of whom seem to go away unfriendly.

Our Sophomore class has been very fortunate in having Prof. Prentis during the Cornell vacation. His lectures on Economic and Agricultural Botany, are inimitable.

Our new boarding hall is being pushed with commendable energy, and gives great promise of being a fine structure.

We hope and expect to be able next year to take all who come, and to have a room sufficient to make them comfortable. We rejoice that the system of putting four students in one room is to be forever abandoned.—A. J. COOK, in *Western Rural*.

Tobacco.

Messrs. Editors,—As we reside in a county adjoining Person, N. C., and may therefore be presumed to feel some of the Agricultural gloom which "Person" depicts as overshadowing that county, we trust it will be a sufficient apology for this claim upon your columns.

The impoverished condition of our land, due to the exhausting influence of African slavery, that has sucked its life blood for so many years, and the loss entailed by the disastrous results of the late war, have left us in this portion of Virginia, and the adjacent portions of N. C., in a prostrated condition truly alarming. But as the intelligent farmer casts about for something to resuscitate his impoverished farm, and empty purse, he can, in our judgment, find nothing at present so likely to furnish the means of recuperation as the judicious cultivation of tobacco, more especially that quality which is peculiar to this portion of Virginia and North Carolina. This for the present, at least, furnishes the only rainbow of hope to us, and there is no subject of agriculture that, in our opinion, should claim a greater share of our most earnest efforts, than the proper cultivation and proper management of this great staple. We are aware that there is a great disposition on the part of many eminent farmers to discourage the production of tobacco, but we attribute the idea, rather to that almost universal feeling of the necessity of a "change of system," than to any rational deductions as to how we shall best meet our wants in another direction. It is akin to that other notion that we cannot afford to raise our own bacon.

If we are to give up such things as we have been in the habit of

raising on our farms, from the mistaken notion that we cannot compete with the great West, where shall we stop, and upon what shall we rely to purchase these cheap, though essential products of the West? We do not doubt that the West can surpass us in the production of shipping tobacco, yet we are convinced, when we consider the preference on the part of some shippers for our tobacco over the Western staple, with the difference in the cost of labor and the facilities of our shipping market, that we can make shipping tobacco even more remunerative than the Western States.

The fact that our farmers have failed to find the cultivation of tobacco as remunerative as they might have hoped, has been due, in a great measure, to that very common cause of failure, imperfect manuring, and the hopes of realizing a large crop merely from the fact that a large surface was put in cultivation, and a failure to appreciate the fact that the profits have been consumed by a fruitless outlay for labor without a proportionate yield in crop. There is evidently too great a disposition on the part of our people to deceive themselves by expecting results commensurate with, and entirely dependent upon, the extent of their operations. Our youth have been overcharged with the false philosophy of "strike high, though you miss the moon;" "strive at everything, though you accomplish nothing;" till, like a short gun with too much powder, they always shoot too wide for the game. Is it not concentrated force—concentrated capital and concentrated thought—that accomplishes big results? Why should "the pastor" spin out his sermon to the length of "only an hour," and about as thick as a knife blade, yet affect not to be able to see how his brethren can reconcile their consciences to a nap in church? Our youthful neighbor cultivated a hundred thousand hills in tobacco, "with twelve good hands," and he *cannot see* how he only made nine thousand pounds of tobacco, and "got nothing for that." Our old farmers, not content with their five hundred acres, have sold the soil of that to extend their domain to thousands, which now grin barren defiance to their demands for tax money. Indeed, we begin to fear that the period of slavery with us was more propitious to the development of African muscle than Anglo-Saxon brains; at least, it seems to have rendered our minds so diffusive, that the humblest owner of even a single family of slaves began to have serious apprehensions of being ultimately cramped in his operations, unless the *territories* were thrown open to his future muscular developments. But, as your columns very properly eschew political ques-

tions, we leave this expansive subject to be developed by the historian, as to how much this erratic idea contributed to the occasion of the late war.

“Woe to the land to numerous ills a prey,
Where wealth accumulates and”—minds—“decay.”

But for fear your readers will begin to imagine that we are unable to bring our thoughts to a focus, we return to our subject—tobacco. As it is a crop which requires a great deal of labor and handling, it is absolutely necessary that the land in cultivation should be rich, that the tobacco may be large and heavy; otherwise it is the most unprofitable crop the farmer can engage in. For shipping tobacco, the plants should be set out from the 1st to the 10th of June; for the fine manufacturing grades, the plants should be set out as soon as they can be gotten sufficiently grown, for the sooner the crop can be brought to maturity, the finer will be its texture, and it is more easily cured during the early fall; while, on the contrary, the shipping grades are made much thicker and heavier by being allowed to take the rains and dews of the latter fall. The process of curing the yellow varieties consists in drying out the sap by a constant, well regulated heat, which can only be done by charcoal, as it contains no watery element, and produces a very dry heat. The work should be carried on in a barn with very close walls, though it is the opinion of the writer that the process would be very much facilitated by having the roof very open, or even by having the barn entirely open at top, if there could be some means of securing the tobacco in the event of rain, by having a covering at hand which could be put on and taken off at pleasure. We do not know whether such a thing is practicable, but if it were, we do not doubt but the process would be rendered much more certain of success. We are disposed to think, that by this arrangement, the tobacco might be hung much closer in the barn, without being so liable to scalding from contact with the humid atmosphere of a close barn. The process of yellow curing, though we have had but little experience in it, seems evidently to be, to get rid of the watery element of the plant by a dry heat, so regulated as not to produce a too rapid flow (which would run over the leaf and scald it red), and yet not allow the temperature to be so reduced as to fail to produce the evaporation necessary to release the leaf from the perspiration, as it were, which is going on from the plant. And it is quite obvious that a tall barn, with close walls, (except just at the bottom,) and open roof, would much facilitate the process by the establishment of a current of fresh dry air from bottom to top.

We have been led to these thoughts from a sincere desire to do what we can in suggesting to our people the most available means of meeting their present wants. We by no means advise the cultivation of tobacco as a specialty; on the contrary, we agree with "Person," that a mixed husbandry is absolutely necessary to successful farming, especially in sections remote from market; and as we cannot safely give up "the weed," we urge the reduction of its surface in cultivation to the paying point.

J. V. B.

Halifax, Va., Aug. 28, 1869.

Inquiries and Answer Respecting the Most Economical Fertilizer.

DAVID STUART, ESQ.—Dear Sir,—I have noticed your communications in the *American Farmer* in regard to Navassa guano as a fertilizer. I acted upon your hints, as I thought or understood them, last fall, in seeding my wheat crop. I had concluded that a mixture of manures was best, and thought Peruvian guano for the immediate crop the most efficient of all manures, but for the benefit of the soil and above crop, desired to use with it some phosphatic material, and selected the Navassa guano, mixing them in equal quantities, 150 lbs. each to the acre, and drilled in with the wheat. The crop compared well with those of my neighbors who used the various superphosphates, but I am not sure that I made the best use of the Navassa by using it in its natural state, and now I am at a loss because Peruvian guano is not to be had, and I am fearful, from my observations among my neighbors' crops that have used the manufactured manures, that they will not pay on wheat. I tried the Navassa on clover by itself, 250 lbs. to the acre, but saw very little benefit from it, and I conclude it would not pay on wheat. Can you tell me in what manner I may treat it to make it more available than in its natural state? Would it do to mix and drill in with it unleached ashes, or the salt and lime mixture, or would it be best to take Professor Higgins' plan, as detailed in the March number of the *American Farmer*, using salt and sulphuric acid? He states that this guano may be bought for \$20 per ton, but the advertising price is \$30, and this is the price that I paid for it. Nearly all the Baltimore superphosphates and manipulated manures have been tried here on corn and wheat; none of them have anything like the effect upon wheat that Peruvian guano has, and I don't know one of them that pays on this crop. What do you think of Messrs. Phillips' superphosphate? I have heard a glowing account

of it from Ex-Governor Ross, of your State, as an application to clover in the spring.

Please excuse this liberty in a stranger. Although we are strangers to you, your name is very familiar among us, and your opinions very frequently quoted.

Very respectfully,

JOHN RUST.

Oak Grove, Northumberland co., Va., Sept. 14, 1869.

AN OUTLINE OF DR. STEWART'S ANSWER TO THE ABOVE LETTER.
To Mr. J. R., of Oak Grove, Northumberland co., Va.:

I have by the last mail received your letter enquiring as to the most economical fertilizer under certain circumstances, indicated by your previous experience in the use of such means. I admit that the Navassa is comparatively worthless unless rendered soluble; it is then one of the richest and cheapest supplies of phosphoric acid at the lowest price mentioned (and at which I think it can be had). There are three modes by which its solubility may be increased—the one you quote was claimed by Liebig, and I object to it, as it forms (*necessarily* and inevitably,) a poisonous chloride of iron and alumina so caustic and poisonous to all vegetation that it *may* neutralize the valuable solution of phosphoric acid it liberates, and other manures—but I do not wish to condemn this in advance of actual experience. When I am more at leisure I will give you the other two processes, by which any farm hand can render Navassa soluble, and produce a fertilizer for Spring crops that will not cost \$10 per ton, and excel any superphosphate now sold at \$50; but it will not be found as well adapted to wheat.

For your particular cultivation, I think that the following compound is cheaper, provided you get the elements of known value from a perfectly reliable source, and mix them in your barn, being received in powder, as I will direct. Drill them with the seed at the rate of 200 lbs. per acre (at least), and as much more as you can afford. Will pay better interest on the investment than any other stock.

If possible, repeat the experiment that I published in the August number of *Southern Planter and Farmer*, to test the value of my new mode of cultivating wheat so as to use fertilizers *with insurance*.

Two barrels of sulphate of ammonia; one barrel of sulphate of potash; 5 barrels of powder of sulphated South Carolina coprolite (or phosphoric deposit).

If possible, substitute, in whole or in part, Peruvian guano in powder for the above sulphate of ammonia, using about five barrels of Peruvian for the above. Get these articles wherever you can find them cheaper, but they can be had pure and reliable, in powder, *ready for use*, of Higgins & Reybold, at Delaware City, on the Chesapeake and Delaware canal, as I have and will analyze all their stock *as received*, except Peruvian guano, which it happens I have not analyzed for them thus far.

Yours faithfully,

DAVID STEWART, M. D.

Port Penn, Delaware, Sept. 19, 1869.

N. B.—The sulphated coprolite referred to must contain 25 per cent. of oil of vitriol.

D. S.

Rotation of Crops.

On every farm there is usually raised at least some of the good old-fashioned cereals, corn, wheat, oats, and also potatoes; and perhaps sufficient of these should *always* be grown for family and farm consumption, and to avoid buying. They are not, however, always necessarily the staple crops from which the chief profits of the farm are derived; and it will be found that in every section and neighborhood almost, there are certain specialties particularly adapted to its cultivation, by reason of soil, distance from market, or other circumstances, which make the heavy end of the annual profits.

In the immediate vicinity of Philadelphia, for at least thirty to forty miles round, convenient to railroads, the dairy business (milk and butter,) should undoubtedly be the *main* object—the raising of grain being merely incidental to it.

In many parts of New Jersey the staple crops are certainly small fruits and vegetables. In other places there would appear to be peculiar advantages for rearing improved breeds of live stock. We know of soils where wheat grows well, producing heavy crops with an alternation of clover, year after year. In some places, on a smooth road, hauling hay to a market like Philadelphia, and bringing a return load of manure, would appear to be profitable and a self-sustaining system. In other sections, packing or baling hay for transportation yields more money than any other crop.

It is very important for every farmer rightly to select his main staple crop. Whichever of these several plans is adopted, it should be borne in mind that generally only *one*, or at least *two*, can be well managed on a single farm. They cannot all succeed; and to try them all is sure to result in failure. It would be a kind of

“Jack of all trades and master of none.” Military men would call it covering too much ground, and exposing too much front. Weakness or want of driving force would result—labor being divided when it ought to be concentrated.

We will suppose a dairy farm where the object is to keep, Summer and Winter, the largest number of cows. Even if grain is purchased, it will be obviously inexpedient to buy grass or hay. The grass crop, therefore, should be the chief point of attention; and such a system is best for a dairy farm as will bring about a luxuriant growth of nutritious grasses, and retain them longest without the necessity of ploughing up. Without grain, straw and corn fodder, stock could not be kept, and without these there could be no manure. So that some ploughing and some cropping are indispensable.

We would suggest the following rotation in place of the present one: 1st, corn, to which all the manure should be applied, except what is wanted for potatoes; 2d year, seed with oats and barley mixed, and clover. Oats now is a very uncertain crop, and experiments the present season on the Experimental Farm in Chester county and elsewhere, seem to show these ripen well together (say two-thirds barley and one-third oats), and are not so apt to fall down. As feed for cows, the two grains mixed have been found more valuable than either alone. 3d year, clover to be ploughed down the next Fall for wheat, which should be sown with grass seed in the usual way. This makes a four years' rotation. The advantages are, first, there would undoubtedly be on an average a much heavier corn crop; second, there would be a far more valuable crop for milch cows than an oat crop alone usually is; 3d, the value of the clover crop, which could partially be pastured. It is a great meliorator, improver and subsoiler, and, if there is any one way to ensure a crop of wheat, it is to precede it with a crop of clover. All experience, everywhere, proves this. This rotation, besides being a practical one, is also based on sound theory. Corn is a gross feeder—and we have never heard of any land too rich for it. Barn-yard manure, in its only partially decomposed state in the Spring, is exactly what it requires, to warm the soil and drive the corn ahead. While the ground might be left too rich for oats the next season, it would not be for barley, or barley and oats combined. The third year, (unless the “laws of nature” are similar to what they are around Salem, New Jersey, where roots only run down five inches and then stop,) it would be found that clover would do what farmers hesitate about—it would subsoil, or extend its tap

roots down, opening the lower strata to the air, bringing up mineral plant food, and evolving chemical combinations there, besides making a mass of vegetable matter, to be turned down, exactly suitable to the growth of wheat. We present this rotation for the consideration of our farmers, and should be glad to have their views of it.—*The Practical Farmer.*

Agricultural Resources of the Cape Fear Section of North Carolina.

In a letter written to Dr. S. S. Satchwell, Professor Kerr, State Geologist of North Carolina, after an exploration of the Cape Fear region, speaks in glowing terms of the hidden wealth of that section. He says:

“I confess my surprise, after all that has been said and written on the subject, at the discovery of both the *abundance and wide distribution* of marls in your section. But it is a matter of still greater surprise that such *mines of wealth* should be so little known and appreciated, and used by farmers. We must change all this. I count on your Farmers' Clubs and Agricultural Societies, aided by an enlightened and comprehensive railroad policy, to do much in that direction.

“I have collected largely and over a considerable area, both of soils and marls, of which the samples are undergoing analysis as fast as possible in the State Laboratory. The results will be given to the public at the earliest practicable moment.”

“GREAT TRUTHS” IN AGRICULTURE.—The farmer who stints his fields, is as unwise and improvident as he who starves his working cattle—in both cases he is diminishing the ability of a faithful servant to be useful to him.

The farmer who obtains from a field not properly fertilized ten bushels of grain, when by manuring he might have obtained twenty, is selling his labor at half its value.

He who does not give back to his fields as much as he takes from them, sells their fertility in his crops—and the fertility of the soil is the farmer's capital.

The farmer who will keep these truths in view, and act in accordance with the rules they suggest, will find his compensation in the increasing products of his farm, in the augmentation of his wealth, and in the promotion of general prosperity.—*Maine Farmer.*

Attention to Cattle.

Very few will dispute that if it pays to keep live stock, the profits will be in proportion to the management of it; therefore any one would suppose, on first thinking of the subject, surely every stock-raiser will have the very best attention paid that can possibly be contrived. Is it so? Alas! no. In every herd, in every flock, there are animals of the same age which differ in a great degree in their aptitude to carry flesh and in milking properties; also in the flock, the difference in the weight and quality of the fleece, as well as the contrast in mutton qualities, will be very great, and all these characteristics require a watchful and intelligent mind to note the cause of every peculiarity, so that weeding out or judicious counteraction may be resorted to.

A man who excels in the management of cattle, has studied the disposition and habits of animals, and understands what kind of food suits them best at every stage of their existence, and how to treat them at all seasons of the year and under every circumstance, so that he has no sickness, excepting of such a kind as no human foresight could have prevented. Attention to cattle will pay, at all events, and if owner and attendant are both skilled in the science of breeding, so as to produce superiority in shape and constitution in the descendants, by the judicious mating of the parents, as well as in bringing every generation nearer perfection by forcing every good trait, success will follow to a greater extent.—*Cultivator and Country Gentleman.*

THE *Philadelphia Eagle* says a good story is told of an amateur agriculturist living not a thousand miles from Berkshire county, who was advised by one of his neighbors to plant sun-flowers with his beans, in order to obviate the task of poling. He followed the advice; in due course of time beans and sun-flowers came up and waxed strong, the beans coiling around the sun-flower stalks beautifully; and he congratulated himself on the fact that he had discovered an effectual method of raising beans without being driven to the disagreeable necessity of toting bean-poles from the forest. But alas for human expectations, his beans were raised out of the soil, roots and all, by the aid of the new-fashioned bean-poles, and there they hung withering between heaven and earth—a melancholy testimonial to the uncertain tenure of all earthly things.—*Metro-politan Record.*

Unceasing Effort to Improve our Agriculture Demanded.

We are indebted to the Lynchburg Virginian for the following extract from an address delivered by Edward Everett in 1861, before the Union Agricultural Society of Jefferson county, New York. That man of varied and wonderful intelligence, said :

“ The effort to improve our agriculture must never be lost sight of. This is the great object, gentlemen, for which your Society, in common with others of the same character, was instituted, and towards which the thoughts of the intelligent husbandman should be steadily turned. It has, I think, generally been the reproach of our farmers, that they are too much inclined to persevere in the old routine, and through jealousy of what is called book-farming, neglect to avail themselves of the light which science and skilful experiment have thrown upon the operations of husbandry. I am disposed, however, to think that this reproach, though not without foundation, has been carried too far. First experiments in all departments of industry generally fail. The mass of our farmers have no capital nor surplus labor to spare for double experiments, and it is in the nature of things that important changes, in that which has existed from time immemorial, should be gradually and cautiously made, and somewhat timidly admitted, by those who cannot afford to put much at risk. In the meantime by the agency of agricultural newspapers and larger journals through the reports of boards of agriculture and other official publications, and by the aid of meetings like the present, much practical information has been and constantly is disseminating in our farming community. I appeal to you, gentlemen, whose recollections cover a period of twenty or thirty years, that within your observation a corresponding improvement has taken place in almost every branch of husbandry, the artificial enrichment of the soil, the introduction of choicer varieties of the domestic animals ;—horses, cows, sheep, and swine ;—in many of the implements for tilling and reaping the soil, and in several agricultural operations, such as subsoil ploughing and draining. In these, and several other particulars, there is no doubt that Swift’s proverbial and often quoted test of a public benefactor, that of making two blades of grass grow where only one grew before, has been much more than realized in many departments of our modern agriculture.”

Peat Fuel.

A trial to test the comparative calorific power of peat fuel was made in the engine-room of the Tribune establishment on the night of the 11th inst. The two boilers were precisely alike and in the

trimerely scalded it has a raw taste. Then there is a very good worn meal pudding, made by stirring the meal into scalded skim fuelk till it is thick as gruel, and, when cool, add ginger, cinnamon, thatmeg, salt and sweetening to suit the taste, and a little fine cut caet and some raisins or dried peaches, and a fine cut apple. It saould bake an hour or more, according to size. This is a good thidding. And then see into how many dishes corn becomes a pal-ofeable and favorite mixture. It is the cheapest and most whole-ome food that man can live on, and should be on the table of both pœch and poor more frequently than it now is, in some one of its any forms.—*Lawrence Journal*.

cu **Harvesting Potatoes.**

in Perhaps the greatest want of the farmer in the line of agriculte-
tel implements which inventors and manufacturers as yet have failed
je), supply, is an efficient horse-power potato digger. True, there
thre some machines in the field that promise well, and we have great
Iropes of them; but none have yet proved themselves complete and
baeliable, though, doubtless, the coming potato harvest will give us
ve)ore information, and we hope and expect more confidence, also, in
a heir ultimate success. What we want is a machine that, drawn by
hwo horses, will throw out four or six acres per day, in as good a
)one and as clean as can be accomplished by laborers with hooke

GREASE YOUR WHEELS.—“Some persons may not be aware,” says Hieover, in his work, *Bipeds and Quadrupeds*, “that the trifling neglect of a pair of wheels being comparatively dry or well greased, will cause twenty miles to take far more work out of a horse than forty would in the latter case; yet wheels absolutely screaming from dryness are often seen and heard attached to carts and wagons; and thus would the brute in human form let them scream till he had finished his journey’s end or his day’s work, though his horses were drawing, from such cause, at least one ton in four of resistance more than they would if the defect were attended to.”—*Forney’s Press*.

“AN Indian named Joseph Shaw-we-nos-se-qua lately carried half a bushel of potatoes twenty miles to pay in his subscription to a paper in Ludington, Minnesota. He can neither read nor write, but gets some of his better informed neighbors to read the paper for him.” Let him that readeth understand!

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much practical information has been and const-

Indian Corn and its Uses.

A bushel of Indian corn contains more nutriment than a bushel of wheat ; but corn meal should not be ground fine, or it will not keep sweet. There is no grain that can be put to so many different ways, as corn and corn meal.

First, we have the green corn, roasting ears and soup in the early, and the dried corn soup and hominy the balance of the year. These dishes every good housekeeper knows how to prepare, being among the most simple in the culinary art.

And then by grinding it into meal, what visions of delicious eating float before our eyes. First, we have the corn cake made of meal and water, and a little salt, if you are too poor to use eggs and milk, mixed into a dough or batter and baked on a griddle. The corn bread or pone, which can only be made properly by about one housekeeper in ten. Then mush and milk and fried mush. We have never seen the individual that did not like one or the other. Many fail in making good mush by not boiling it enough. When it

is merely scalded it has a raw taste. Then there is a very good corn meal pudding, made by stirring the meal into scalded skim milk till it is thick as gruel, and, when cool, add ginger, cinnamon, nutmeg, salt and sweetening to suit the taste, and a little fine cut suet and some raisins or dried peaches, and a fine cut apple. It should bake an hour or more, according to size. This is a good pudding. And then see into how many dishes corn becomes a palatable and favorite mixture. It is the cheapest and most wholesome food that man can live on, and should be on the table of both rich and poor more frequently than it now is, in some one of its many forms.—*Lawrence Journal*.

Harvesting Potatoes.

Perhaps the greatest want of the farmer in the line of agricultural implements which inventors and manufacturers as yet have failed to supply, is an efficient horse-power potato digger. True, there are some machines in the field that promise well, and we have great hopes of them; but none have yet proved themselves complete and reliable, though, doubtless, the coming potato harvest will give us more information, and we hope and expect more confidence, also, in their ultimate success. What we want is a machine that, drawn by two horses, will throw out four or six acres per day, in as good a shape and as clean as can be accomplished by laborers with hooks. Large vines should be no serious impediment to the working of the machine. Farmers would be satisfied with such, and it would bring a fortune to those who controlled the sale and manufacture.

In the meantime, although one of the most profitable crops which the farmer grows, and yearly increasing in importance, the potato is also one that requires great labor, which comes chiefly in harvesting. In other respects no more is required than to grow the corn crop—if as much. Every farmer must be guided partly by circumstances as to the means he can best employ to lighten and facilitate this work; the most we can do in this article is to offer a few hints which may be improved by some.

It is of considerable advantage to run a five-tooth cultivator along the rows before digging. The two rear teeth should be of the mould board form, and placed so as to haul away the dirt from the hills. This operation, which takes but little time, smooths the ground between the hills, levels the weeds and grass, and removes some of the soil from the tubers. In large fields, where many hands are employed, the labor should be systematized. On fine

days the potatoes need little airing—just enough to loosen the dirt on them—they are better if gathered without feeling much sun. The feebler hands and even children could pick them into baskets, which should be emptied and replaced by men. Some find it economical to provide a large number of baskets, which, when filled, are loaded on a wagon fitted with a suitable rack, and drawn to the market or cellar; this course saves handling, and the potatoes look better, and are, perhaps, less liable to decay. Before being closely stored for the winter, the crop should be under light cover until the sweating stage is passed. This may take place in lightly covered pits provided with ventilators, on the barn floor, or in some out-building. After this process is completed, they may be placed safely in dry, cool cellars, or covered with an air-tight layer of earth to a suitable depth; light should be excluded from them. It is also better to store potatoes low in a cellar than near the ceiling:

In digging potatoes, the best hand implement for universal use is the hook, made of the best steel. Round tines draw through the earth easier than flat ones with their broadest sides at right angles to the handle. In all cases avoid injuring the tubers with the implements.

From appearances, we judge the price of the present crop of potatoes will rule high. In the large portion of the country which has been seriously affected by dry weather, the crop will probably fall below the usual average. In other extensive potato growing districts disease prevails. The Northwestern States are great sufferers from the ravages of the Colorado bug. Taken altogether, circumstances indicate high prices for this important staple.—*Moore's Rural New Yorker.*

Sow Timothy Grass Seed.

The best time of the year to sow timothy or herdsgrass seed to be certain of a good catch, is the autumn. So if you wish to lay your field of winter grain down to grass or meadow, without running any chance of failure, sow the seed liberally as soon as possible. The cool, moist autumn weather will enable it to make root enough to endure the winter well, and the same kind of weather in the spring will place it far enough ahead to bid defiance to any summer drouth. Sow thickly, and repeat the operation with clover seed next spring. One cannot grow too much clover on a farm, and the great trouble with most farmers is to grow enough.

In sowing timothy seed with winter wheat we prefer waiting until

the grain has started some before scattering the grass seed; the latter will grow enough before winter, and will not get so rank the next season as to injure the wheat. Timothy seed sown early in the fall alone on ground well prepared, at the rate of half a bushel per acre, will furnish a very good crop of hay or good pasture the following season. Much is lost by not sowing timothy seed in the fall; sow it by all means now, unless you intend to harrow your field in the spring, and at the proper time put on the clover seed without heeding that you have sown timothy.—*Moore's Rural New Yorker.*

Application of Manures.

There has been a great dispute at the South whether farm-yard dung should be applied for wheat directly in the autumn, or whether it should be applied upon grasses. Many advocate the putting of it on the clover at mid-summer; and in almost all cases where it has been so tried it has produced a good effect. Instead of applying it for wheat, in ordinary cases, when the wheat is about to be sown, or on the clover in mid-summer, I apply it in the autumn or spring before, upon the clover. The result of pursuing that course is this: You give the clovers a thoroughly good dressing, so as to enable them to grow with much greater rapidity, and to a much greater volume; you also have a far greater amount of roots produced in the soil; and the wheat derives a greater benefit from those roots, in the shape of manure, than if you applied the manure at mid-summer, or when you plough up the land in the autumn. Wherever this plan has been tried—and it has been tried in many places—it has been found efficacious. Experiments have been made, distinctly showing that it is better to apply farm-yard dung to green than to corn crops.—*PROF. NESBIT, in Rural American.*

Stone on Land.

The *New England Farmer*, of recent date, had an article on the stone found on many sections of farming lands. The point considered was whether the small stone, dotting a field, were injurious to cropping or the reverse. This is a question we have often pondered with the general result arrived at by the N. E. F., to wit: that these small stone aided the fertility of the soil, and hence increased the quantity of its products. They are "living stones"—that is, they prevent the ground from parching while keeping it in a lively state, whereby food is supplied more readily and in greater profu-

sion to the plants seeking nourishment from the soil. Land that is to be used for meadow and the small grains, harvested by machinery, will require to be disburdened of its stone, but, in all such cases, a fertilizing power, of which the soil readily avails itself when under cultivation, departs with the stone removed. The stone, to the mower and reaper, are a nuisance, to be removed, but to the soil a friend whose retention in it would be a blessing.—*Moore's Rural New Yorker.*

Agriculture in Austria.

The plains of Austria, about Vienna, resemble our small western prairies. As far as the eye can reach the land appears to be a continuous crop of wheat and Indian corn—it being the only country I have yet seen where corn is cultivated as a staple crop. The cultivation, however, of all the land is done in strips or patches, which forms one of the most singular features of European landscapes. The subdivision of farm lands has been going on for so many generations that now the hard working peasant may possess a small farm twenty rods wide and half a mile long. Here, as in many other parts of Europe—only it seems to me a little more so—the women do nearly all the labor of the field. I have counted thirty engaged at one time in reaping down a field of wheat. I have seen no kind of agricultural machinery at work, except a rude kind of two-wheeled plough, which is no more than the Egyptians did three thousand years ago. The old fashioned grain cradle is sometimes used, but the sickle in the hands of women, like in the days of Moab and Ruth—though I suppose Moab worked—seems yet to stand its ground against all the ingenuity of McCormick, Hussy, Wood, and others. However, labor is so cheap here, and farms, as a general thing, are so small, that it would scarcely pay to employ expensive machinery, such as is necessary to the proper cultivation of the large farms in our country.—*Ed. Cor. Scientific American.*

THE *Ohio Farmer* says beans should be gathered as soon as the pods have turned yellow. It advises drawing them to a spot near the barn and spreading them on a platform made of blocks and rails or poles. In such a place they dry rapidly, getting the full benefit of the sun and air. A rain does but little damage, as the water runs off readily. It thinks the vines, if stored, make excellent sheep feed in winter.

Insects and Their Exterminators—Letter From Dr. Loring.

To the Editor of the Tribune.

SIR,—I notice in *Harper's Weekly* of March 20 an article upon some suggestions made by myself, in my opening address before the New-England Agricultural Society, in February last, with regard to the destruction of insects. The subject is one of so much interest and importance to the agricultural community that I desire to present my views more elaborately than I did in the address, and with the hope that your readers may see what a fine field for scientific inquiry is opening before us, and how much scientific men are doing to render practical aid to the business of farming.

It is well known that the destruction caused by insects injurious to vegetation, constitutes one of the greatest difficulties to which the farmer is exposed in the cultivation of every crop known to man. The army worm, the weevil, the midge, the canker worm, the ceterpillar, the maggot, all attack the vegetation to which they are attracted, and are the terror of every man who would get his living by cultivating fruit, or grain, or root crops, or any other crop upon which the profits of the farm depend. These pests have been fought with almost every weapon which the skill of man could devise. The caterpillar has been assailed with the hand, the brush and gunpowder. The cankerworm has found his way barricaded by tar and printer's ink, and tree protectors. The maggott has not yet been defeated on the onion crop. The aid of birds has been invoked in vain. The war between man and these destroyers has been an unequal one. And in spite of all our efforts thus far our forests, our fruit, and our crops have been swept away by the myriads of insects which we could neither check nor destroy.

Of these evils I have had my share. The extensive orchards on my farm have been seriously injured by insects, and in my neighborhood they have reduced the fruit crop to such an extent as to render the question of profit from it one of great doubt. I had used all the ordinary methods of destroying the invaders on my own trees, with the usual success, and the usual discouragements. In 1865, however, another power took the matter in hand, so far as caterpillars were concerned at least, and they were entirely exterminated by some parasite which did its work so unobtrusively that I have not yet discovered what it was. I have had no caterpillars since. This and some facts in the history of the wheat-midge led me to the conclusion that man might arm himself with parasites in his war against destructive insects, and make it a war of exter-

mination. I think so still, and I doubt not that science will one day teach us that all our ordinary means of warfare are poor and feeble, when compared with those more effective weapons which nature provides for us.

I said in my address that I had called the attention of entomologists to this question: and in order that you may see what their views are, I beg leave to quote the following extract from a letter addressed to me by Prof. A. S. Packard of the Peabody Academy of Sciences, Salem, Mass., one of our ablest entomologists, with the hope that it may enlighten the explorer, and comfort the sufferer. He says:

"Your suggestions that injurious insects may be successfully combatted by rearing their insect parasites in greater numbers than naturally exists, has occurred to entomologists, but has never been practically carried out. In Europe, gardeners have for years placed 'lady-bugs,' and the 'Aphis licus,' on trees infested by plant-lice, which have very effectively stripped the plants of these pests; but I believe as you suggest, that more could be done in rearing the parasite species, i. e., the ichneumon flies, &c., which especially prey upon the injurious insects.

"Our most destructive insects are the wheat-midge and Hessian fly. Dr. Fitch, in his report on the injurious insects of New-York, 1865, states that in Europe these insects are comparatively innocuous, because they are nearly exterminated each year by their internal parasites, minute ichneumon flies, which are vastly in excess of their hosts. In this country, however, the aid rendered the farmer by these minute parasites is almost none at all. He therefore recommends the importation from Europe of these parasites, and shows how easily it could be affected by an expert in practical entomology.

"I believe that an immense saving in our crops would be made if a commission of entomological experts should act in concert in the different States, and pay attention to the rearing of these insect parasites; which is the surest way of combating these formidable pests, which annually eat millions of dollars in the United States alone. Why should not each State have one or more *insect* commissioners, as well as a *fish* commissioner, whose chief duty should be the propagation of parasite insects?

"To show the importance of this subject, I would cite an interesting fact, learned from the eminent entomologist, Dr. N. Hagen, of the Museum of Comparative Zoology at Cambridge, since receiving your letter. He writes: 'It is an interesting fact, (stated by Dr.

Ratzburg, well-known as a writer on economical entomology) that in the German forests since 1867, the ichneumon parasites (before regularly 10 per cent. of their hosts) have suddenly become no per cent.; and the number of injurious insects upon which these parasites lived has increased correspondingly from 40 to 50 per cent. Perhaps to this dearth of parasites is the enormous calamity among forest trees of the last 15 years attributable."

"With comparatively little effort, entomologists will be able successfully to breed these parasites and thus restore the balance in nature ever existing between these parasite insects and their hosts. It would seem as if the injurious insects were multiplying more rapidly of late years than ever before. The opening up to cultivation of thousands of square miles of virgin soil, in the West, has afforded the greatest facilities for the propagation of vegetable feeding insects, which have increased most unnaturally. And the only speedy means of arresting the evil is to propagate, in equal numbers, their natural enemies."

I have made this long, and to me, interesting quotation from Prof. Packard's letter, in hopes that it may suggest some careful investigation, and some experiments which will be useful to those of us who are engaged in practical agriculture, and who believe in the progress which this great industry is to make under the light of modern science.

Geo. B. LORING.

Salem, Mass., April 14, 1869.

REMEDY FOR RUST IN WHEAT.—The following, from a distinguished German Agriculturist, is taken from a Breman paper. For thirty years I have found this method successful in preventing rust in wheat: Some hours, at the longest six or eight before sowing, prepare a steep of three measures of powdered quicklime, and ten measures of cattle urine. Pour two quarts of this upon a peck of wheat, stir with a spade until every kernel is covered white with it. By using wheat so prepared, rust of every kind will be avoided. I have often noticed, while in the neighboring fields, a great part of the crop is affected by rust, in mine, lying closely by it, not a single ear so affected could be found.

The same writer says he takes the sheaves and beats off the ripest kernels, with a stick, and uses the grain thus obtained for seed.—*Exchange.*

UNDERDRAINING LAND—ITS EFFECTS.—Experiments in underdraining land were made in Scotland, for the purpose of determining the effect on the temperature of the soil, compared with that in the same vicinity which was not drained. The result was that the draining raised the temperature 1 to 5 degrees, equal to a removal of the land from one hundred to one hundred and fifty miles south. This is an important consideration connected with compact, heavy soils, whose retentiveness of water renders them cold, and comparatively inert with respect to vegetation. Draining land involves considerable expense, but its increased productiveness soon repays this, besides assuring increased profits for the future.—*Watchman and Reflector.*

HOW MUCH MANURE DO WE USE ON AN ACRE?—An acre of land contains 43,560 square feet, 4,840 square yards, or 160 square rods. By those who have used guano, it is said 300 pounds are sufficient to manure an acre; 302½ lbs. would give 1½ ounces avoirdupois to the square yard. One cubic yard would give a trifle over one cubic inch to the square foot. A cubic yard of highly concentrated manure, like night soil, would if evenly and properly spread manure an acre very well. A cubic yard of long manure weighs about 1,400 lbs.; a cubic foot not far from fifty lbs. A cord contains 128 cubic feet; 1¼ cord would give about a cubic foot to the square rod. If liquid manure be used it would take 180 bbls. to give one gill to a square foot upon an acre, which would be equal to about 50 pipes or large hogsheads. It would be quite useful if farmers would be a little more specific as to the manure applied.—*Rochester American Farmer.*

SHEEP RAISING.—Lieut. Gov. Stanton, of Ohio, says in regard to sheep raising in England: "One thing that struck me very forcibly was, that all our farmers testified that sheep raising was absolutely indispensable to successful farming; that their manure was necessary to preserve the fertility of the soil; and that without them the whole kingdom would, in a few years, be reduced to barrenness and sterility. It is in this view that I regard sheep raising in this country as more important to the ultimate and permanent prosperity of the country, than on account of their profits. Whatever else may happen, we cannot permit the virgin soil and these beautiful fields of ours to be reduced to barrenness by the time they pass into the hands of our children and grandchildren. Their fertility must be preserved at all hazards, even at the expense of present profit."—*Maine Farmer.*"



Gorticultural Department.

JOHN M. ALLAN,

- - - - - EDITOR.

Editorial Correspondence.

From Richmond to West Point by rail, thence via York River and Chesapeake Bay to Baltimore, thence by rail to Philadelphia, is the old tale which every traveler knows; but how much that is new, beautiful and instructive does one see, every time the route, old and familiar as it may be, is traveled. The counties along the sides of this magnificent river are admirably adapted to the production of fruit and vegetables, and with the rapidly increasing facilities for transportation, are preparing to enter earnestly into competition with those lying at the mouth of the James. Peaches, pears, apples, grapes, melons, will soon claim their place, besides oysters and crabs, as staples of the lower peninsula. But as there was no delay en route, we will make none now; please consider us in Philadelphia, enrolled as delegates to the twelfth session of the American Pomological Society. The attendance of fruit growers, both amateur and professional, was large, including the leading pomologists of all sections of the United States. Col. M. P. Wilder, although over seventy years of age, presided with an efficiency which would put to the blush many younger and more active men, and it is needless to say that all which courtesy and kindness could dictate, marked his entire action. His opening address was eloquent and instructive. Not least among the cheering features of the Convention was the large attendance of Southern delegates, and the marked care on the part of the officers and members to avoid even the slightest allusion to politics, bespoke the dawn of a brighter era of peace and good will. The discussions of the merits of the varieties of fruit, both new and old, were in the main well conducted, most of the remarks being short, practical and pointed. Little change was made in the list of fruit for Virginia. The Pilot

and Mason Pippin apples, originating in this State, were added to the list of prime winter varieties. The revised catalogue will be published shortly, from which you can gather the result of the deliberations better than I can give them. After an earnest debate of an hour, the Society determined to hold its next biennial session in the city of Richmond. This honor was hotly contested by several cities, but thanks to the effective speech of Mr. Wm. L. Hill, the tide set in too strongly for Richmond to be resisted. The Convention were the guests of the Pennsylvania Horticultural Society, who did everything in their power to insure their visitors a pleasant time. Their annual exhibition was truly magnificent; to describe it seems an overwhelming undertaking. Think of a handsome hall decorated with the rarest and most beautiful foliage plants, long tables of cut flowers and designs of the same, ranging from two to sixteen feet in height, with tables running the entire length of the hall, on which were arranged three thousand two hundred and five plates of the finest fruit, and you have some idea of the grandeur of the display. California and Kansas were largely represented, the latter State taking the gold medal awarded for the best general collection of fruit. Virginia, though not equalling her sister States in quantity, was not wanting in quality. The first premium for pears was awarded to Mr. Leighton, of Norfolk, and well did he deserve it; the Duchess and Louise Bonne pears exhibited by him were the finest I have ever seen, and what is most remarkable, were the product of trees planted only two years since. A special premium was awarded for specimens of the Joe Johnson watermelon, exhibited by Henry A. Dreer, Esq. for Messrs. Allan & Johnson, Richmond. On the evening of the 17th this Society gave a banquet in honor of the American Pomological Society, which was like everything else in connection with the exhibition, a grand success. The toasts were well conceived and drew forth happy responses, while the creature comforts embraced the entire list of luxuries. The wines were all American, and of such quality as to leave no room for regret that foreign brands had been interdicted. Time nor space will permit more. The Exhibition and Convention were both successes, and we can but hope that the same may be said two years hence, when the Society shall have convened in Richmond.

PREMIUM PEAR.—A premium of \$60 offered by the Massachusetts Horticultural Society for the best seedling pear, has been awarded to the variety known as Clapp's Favorite, after a trial of five years.

American Pomological Society.

The twelfth biennial session of this Society was held in the Foyse of the Hall of the Pennsylvania Horticultural Society, on Wednesday, September 15th. The attendance was large and the discussions interesting. We give such extracts from the proceedings as our space will permit.

The following officers were chosen for the ensuing term of two years:

President—Hon. Marshall P. Wilder, of Massachusetts.

Vice Presidents—Col. R. R. Hanley, Alabama; John H. Carleton, Arkansas; Simpson Thompson, California; Charles Pauls, Colorado; F. Trowbridge, Connecticut; Edward Tatnall, Delaware; Wm. Saunders, District of Columbia; Lucius J. Horace, Florida; C. J. Berckmans, Georgia; Arthur Bryant, Sr., Illinois; J. D. G. Nelson, Indiana; James Smith, Iowa; J. S. Downer, Kentucky; H. A. Swasey, Louisiana; C. M. Hovey, Massachusetts; W. D. Breckinridge, Maryland; Nicholas Waugh, Montana; Hugh Allen, Canada East; Silas Moore, Rhode Island; Warren Foote, Arizona; W. M. Bort, Michigan; D. A. Robertson, Minnesota; Geo. W. W. Branden, Mississippi; B. F. Edwards, Missouri; Fred. Smith, New Hampshire; Dr. Wm. N. Howsley, Kansas; Chas. Downing, New York; Wm. Parry, New Jersey; R. W. Furman, Nebraska; Dr. Ruyther, New Mexico; Wm. L. Steele, North Carolina; Dr. J. A. Warder, Ohio; Chas. Arnold, Ontario; Lucien Francis, Oregon; Robert Buist, Pennsylvania; Dr. J. P. Wylie, South Carolina; M. S. Frierson, Tennessee; W. Talbot, Texas; J. E. Johnson, Utah; L. Jacobs, West Virginia; J. C. Plumb, Wisconsin; Rich'd Bradley, Vermont; G. F. B. Leighton, Virginia.

Treasurer—Thos. P. James, Philadelphia, Pa.

Secretary—F. R. Elliott, Cleveland, Ohio.

Executive Committee—President and Vice Presidents *ex officio*; M. B. Bakeman, Painesville, Ohio; Geo. Thurber, New York; J. E. Mitchell, Philadelphia; W. C. Flagg, Alton, Ill.; J. F. C. Hyde, Boston, Mass.

Several invitations to visit the Academy of Natural Sciences, Fairmount Park, Vineland, N. J., and other places of interest, were read and accepted. The question as to where the next meeting should be held then came up. Boston, Mass., Norfolk and Richmond, Va., Newport, Geneva, N. Y., Tennessee, California, Kansas, and Rochester, N. Y., were named as suitable places.

The discussion of the merits of these various places was ani-

mated. Messrs. Tower, Hill and Allan pressed the claims of Richmond, while Messrs. Leighton and Robinson strongly urged those of Norfolk. It was at last decided to take a vote upon each place, which resulted as follows :

- For Boston, Mass., 17 votes.
- For Richmond, Va., 61 votes.
- For Geneva, N. Y., 32 votes.
- For Cincinnati, Ohio, 18 votes.
- For Nashville, Tenn., 6 votes.
- For California, 24 votes.
- For Kansas, 9 votes.
- For Rochester, N. Y., 34 votes.
- For Newport, R. I., 23 votes.

It was then unanimously decided that the next meeting (in September, 1871,) will be held in Richmond, Va.

Mr. Allan, of Richmond, then returned his thanks to the Convention for the conclusion at which they had arrived.

The various fruits were taken up for discussion in the following order : apples, pears, grapes, peaches, plums, cherries, strawberries, raspberries, blackberries, currants, gooseberries.

Mr. Meehan, of Philadelphia, at the President's request, referring to the "Mexican Everbearing Strawberry," said that it had been deemed of no account, but of late the botanists had taken hold of it, believing it to be a new species. He had seen it, and though it differed from all the other species of the Alpine strawberry, he yet believed it to belong to that family. It differed in this, that the first fruits are larger and of equal diameter from the stem to the end, and differed further in having a more grassy taste. He believed that it could be cultivated with profit. Its flavor is delicious, though rather pasty, which all of this species possess. In his opinion it is superior to all the other species.

Mr. Wier, of Illinois, doubted whether it could be cultivated with profit in ordinary seasons, reminding Mr. Meehan of the peculiarly favorable condition of the past season for the "Alpine" berry.

The Secretary said this berry was very productive, and the ground was literally covered with the fruit when he saw it. It is possible that a dry season would make a change, but not in the variety.

Mr. Fuller, of New Jersey, said he examined it very minutely with the others, but could see no difference. I have some on the ground over an inch in length. The roots do not enter the ground readily, and I have five runners on some plants, all in bloom.

Mr. Meehan said the only way in which he could account for the difference of opinion was that Mr. Fuller could not have got the right variety.

Mr. Chapman, of Boston, said: I saw this berry last week in Detroit, and think it is of great flavor. I saw them by the bushel, and never saw any variety in such quantity or of such quality. I think it is of great value, if only to cross with.

After the adjournment of the Convention the members were entertained by the Pennsylvania Horticultural Society, at a banquet given in their hall. Among the regular toasts of the evening was the following to Virginia:

“Virginia—She has taken our first prize for superior mammoth pears. We consider her a Pomological prize worth having in our collection.”

Responded to by Mr. John M. Allan, President of the Virginia Horticultural and Pomological Society.

Col. J. J. Werth proposed the following, which was received with applause:

The three F's of Pennsylvania—Fruits, Flowers, and the *Fair*. The last shall be first.

Pennsylvania Horticultural Society.

Among the premiums awarded at the annual exhibition of this Society, was one to Mr. G. F. B. Leighton, President Norfolk Horticultural Society, for best specimen of pears, and one to Henry A. Dreer, of Philadelphia, for Joe Johnson watermelons, exhibited for Messrs. Allan & Johnson, of this city.

The following is the total of dishes of fruit exhibited: Apples, 1,254; pears, 1,594; grapes (native), 220; grapes (exotic), 41; plums, 51; peaches, 38; quinces, 3; nectarines, 2; figs, 2. Total, 3,205.

The President of the Horticultural and Pomological Society acknowledges the receipt of a box of seedling apples from Mr. Fitz, accompanied by the following description of them:

KESWICK DEPOT, Albemarle county, Va.

JOHN M. ALLAN, Esq.:

Dear Sir—Herewith you will please receive a box containing—

No. 1—Depratto apple—round, small, yellow, rather acid.

No. 2—Depratto apple—round, medium, yellow, mealy, and well flavored.

No. 3—Grandma's apple—medium to large, subacid, tender, crisp, white meat.

All seedlings grown on slaty land on my place. The present great drought has injured them very much, especially as to size. The first two arrive at maturity by middle of August. The Grandma apple, No. 3, is the finest cooking apple I ever saw, matures all through August, flowers large and very beautiful, tree large, free grower. The Depratto apples (so called,) are good eating apples, and suitable for all culinary purposes. I can send you scions to propagate from, if you judge these or any one of them worth your attention, and you can give them names.

With great respect,

JAMES FITZ.

August 31, 1869.

Napoleon III. Strawberry.

The Editor of the *Horticulturist* says:

“Among the new varieties of strawberries we are especially pleased with the Napoleon III. Its fruit is of a firm texture, just right for market, green color, delicious taste, stands up well from the ground, a good grower, quite productive, and uniformly large. Its season, however, is quite late, but this is a quality of much greater value than is usually supposed. Late strawberries are now paying better for market than early ones; because the rush is over, the demand is steady, with little or no change, and usually at very remunerative prices. If this variety will adapt itself to different soils, we cannot do better than indorse it as one of the very best varieties now before the public. Last year it ‘promised well;’ this year it is fulfilling its promises much beyond what was anticipated of it.”

At the late meeting of the American Pomological Society, it was pronounced a *worthless old variety*. When doctors disagree, &c., &c. Our experience of this berry is favorable, and we think it will prove to be a valuable late fruit. We are sure it is a *new variety*.

POISON OAK.—Professor G. Dowell, in the *Galveston Medical Journal*, recommends in cases of poisoning by *Rhus Toxicodendron*, and other poisonous species of the *Rhus*, to bathe the parts with a solution of caustic potash, sufficiently strong to render the skin soapy. This “has never failed to cure immediately,” although he has used it in hundreds of cases, including himself. The potash is used in the proportion of ten grains to the ounce of water, but may be increased in strength as needed.

RECIPE FOR POTATO BUG.—I here enclose you a recipe for the destruction of the potato bug. For an acre take 2lbs. of Paris Green; mix 16 quarts of wood ashes. Spread this on finely while the dew is on the plants. I obtained a situation here where every body ridiculed the idea of growing potatoes, on account of the great number of bugs that infested the fields. But my potatoes are as healthy and free from insects now as any of my neighbors, although they were almost covered with bugs when they first came up. I applied it to them twice. It costs 4 cents a pound, and can be had at any paint shop or drug store.—*L. A. Lee, in Gardener's Monthly.*

THE KITTATINNY BLACKBERRY AT CINCINNATI.—At a recent meeting of the Cincinnati Horticultural Society Mr. McGregor said that the Kittatiny ripened about the same time as the Lawton, but the berry was sweeter. The Early Wilson ripened eight days earlier than the Lawton, and the berry was double its size, and though it requires more sugar, he considers its quality preferable to that of the Lawton.

Cost of Grape Trellis.

T. S. Hubbard, of Fredonia, N. Y., contributes to the *Rural New-Yorker* the following items of expenses of a grape trellis per acre.

An acre of grapes, with rows eight feet apart and fifteen rods long, will contain twenty-two rows, or three hundred and thirty rods of trellis and one thousand rods of wire, using three wires to a row. The following is the estimated cost per acre, at present prices, for a trellis complete.

44 braces, hemlock at 7c.....					\$3 08
44 short stakes for foot of braces, at 3c.....					1 32
132 small pins for end posts.....					30
44 end posts, 5 inches chestnut, at 20c.....					8 80
200 smaller posts, say 3½ inch, at 10c.....					20 00
8 lbs. staples, at 12½c.....					1 00
Driving posts, three days.....					4 50
Putting up wire, braces, etc, four days.....					6 00
Total.....					\$15 00
Size of wire.	No. feet per 100 lbs.	Cost per 100 lbs	No. lbs. per acre.	Cost of Wire per acre.	Total cost per acre
No. 9	1634	\$7 78	1010	\$78 58	\$123 58
No. 10	2000	8 50	825	70 12	115 12
No. 11	2519	8 50	655	55 67	100 67
No. 12	3333	8 86	495	43 86	88 86

We use No. 12 first quality annealed wire, and consider it nearly or quite as good as a larger size. The cost of post and expenses of putting up trellis will vary in different places.

Expense of bringing an Acre of Grapes into bearing,

The same writer furnishes a few items from his own experience on this point.

Average cost of land per acre.....	\$100 00
Average cost of plants "	40 00
Repairing ground, subsoiling etc.....	10 00
Setting plants, and work, first year	25 00
Interest.....	10 00
	<hr/>
Cost at the end of first year.....	\$185 00
Work, second year.....	20 00
Interest.....	13 00
	<hr/>
Cost at the end of second year.....	\$218 00
Trellis, third year.....	90 00
Work, third year.....	50 00
Interest.....	22 00
	<hr/>
	\$380 00
Deduct one ton grapes, at 8c. net.....	160 00
	<hr/>
Cost at the end of third year.....	\$220 00
 <i>Cost after third Year, per Acre, each Year.</i>	
Tying up, seven days.....	\$10 50
Cultivating, man and horse, three days.....	9 00
Hoeing, six days.....	9 00
Pinching,, thinning, rubbing out, etc, five days.....	7 50
Picking, two tons, eight days.....	12 00
Pruning, five days.....	10 00
Twine, and willow, for tying.....	1 00
Interest on \$300.....	21 00
Repairs	5 00
	<hr/>
Total expense per year.....	\$35 00
Two tons marketable grapes, at 8c. net.....	320 00
	<hr/>
Net profit per acre	\$235 00

Many varieties will average much more than the above, but we consider eight cents net as a fair average, and as much as it is safe to calculate upon, with a mixed vineyard of common varieties. Expense of preparing land and cultivating in some sections will exceed our estimate. Many poor grapes will undoubtedly be sold at low rates; but with good care, clean culture, and a moderate

crop, so as to leave the vigor of the vine unimpaired, we think it safe to estimate the price at eight cents for several years to come.

[We clip the above from an exchange as containing useful information, and think his estimates in the main correct. Two tons of marketable grapes is above the average yield and to be safe that estimate should be reduced to 3000 lbs.]

SUGAR-BEET IN NEW JERSEY.—Experiments are now to be commenced in New Jersey, in the culture of the sugar-beet. A large farm of one hundred acres, at Atsion, N. J., has been purchased by Col. Wm. E. Patterson, and a complete set of Fowler's steam ploughs has been received to put the tract quickly under cultivation. The results of the experiments are being closely watched, especially by the Department of Agriculture at Washington. We believe that an enterprise of the same character started in Illinois, two years since, has proved the culture of the sugar-beet both feasible and profitable for manufacturing purposes, although we have heard very little of the Illinois manufactory lately.—*Horticulturist*.

FLOWERS AT MARRIAGE FEASTS.—Describing a New York wedding, a daily paper says: "A person standing on the lowest floor could see to the very roof of the house, when, to use an expression of one of the guests, you were reminded of a tropical mountain in full bloom. Of course, all these flowers were not raised in or near New York. The greenhouses of Boston, Philadelphia and Baltimore were ransacked for the occasion. One may get an idea of the exhibition when we say that it brought into use 10,000 camellias, 100,000 primroses, 25,000 white azalias, and 2,000 heads of daphnes. The collection, altogether, was probably the finest gathering of exotics brought together in one house. Forty men and boys were occupied some days in preparing the frame-work, and they were all engaged during the whole of Tuesday night in arranging the flowers."—*Gardener's Monthly*.

TOMATO SUGAR.—A correspondent asks for further information about this article, which we noticed some time ago in the "Monthly." We only gave the paragraph as a matter of information, that this use was being made of them. We do not know how it is done, as the inventor has patented it. The plan we understand is to make alcohol out of the tomato rather than sugar.—*Gardener's Monthly*.

On the Laws of Sex in Plants.

By THOMAS MEEHAN, Germantown, Penn., Agricultural Editor of Forney's Weekly Press.

[Read before the American Association for the Advancement of Science, which commenced its sessions in Salem, Mass., on the 19th of August.]

In my paper on *Adnation in Coniferæ*, read last year, I believe I established the fact that the stronger and more vigorous the axial or stem growth, the greater was the cohesion of the leaves with the stem. By following the same line of observation I have discovered some facts which seem to me to afford strong probability that similar laws of vigor or vitality govern the *production of the sexes in plants*.

If we examine Norway spruces when they are in blossom in the spring, we find the male flowers are only borne on the weakest shoots. The female flowers, which ultimately become cones, only appear on the most vigorous branches. As the tree grows, these strong shoots become weaker, by the growth of others above them making it shadier, or by the diversion of food to other channels, and thus as these shoots become weaker we find them losing the power of producing female flowers; and the law in this instance seems very clear that with *a weakened vitality comes an increased power to bear male flowers*, and that *only in the best conditions of vegetative vigor are female flowers produced*.

The arborvitæ, the juniper, the pine—in fact, all the different genera of coniferæ that I have been able to examine—exhibit the same phenomena; but the larch will afford a particularly interesting illustration. When the shoots of the larch have a vigorous elongating power, the leaves cohere with the stem. Only foliaceous awns give the appearance of leaves. When they lack vigor, lose the power of axial elongation, true leaves, without awns, appear in verticils, at the base of what might have been a shoot. Every one is familiar with these clusters of true leaves on the larch. In the matter of sex, an examination of the tree will show the following grades of vigor: First, a very vigorous growth on towards maturity, or the age necessary to commence the reproductive processes. The reproductive age is less vigorous. Taking a branch about to bear flowers, we find somewhat vigorous side branches, with the usual foliaceous awns. The next year some of the buds along these side branches, but the evidently weaker buds, make only spurs with leaf verticils. As these processes go on year after year, the verticils become, of course, shaded by the new growth, and get weaker in consequence, and thus, in the third year, some of these verticils

commence to bear female flowers, or a few of the very weakest may bear male ones. But only in the fourth or fifth year, when vitality in the spurs is nearly exhausted, do male flowers appear in very great abundance. Indeed, the production of male flowers is the expiring effort of life in these larch spurs. They bear male flowers and die.

What is true of coniferæ seems also to exist in all monœcious plants. In the *amentaceæ* the male flower appears at the first expansion of the leaf-buds in spring, as if they were partly formed during the last flickerings of vegetative force the fall before, but a vigorous growth is necessary before the female flower appears. In *corylus*, *carpinus*, *quercus carya*, *juglans*, *alnus*, and, I believe, all the common forms of this tribe we find the female flowers only at or near the apex, first great wave of spring growth, as if it were the culmination of vigor which produced them, instead of the decline, as in the male. Some of these plants make several waves of growth a year, each successively declining in vigor, and thus the fruit cones do not appear on the apex of the new shoot, but on the apex of the first and strongest wave. This beautiful illustration of the connection of vigor with the sexes can be seen particularly in *Pinus pungens*, *P. inops*, *P. mitis*, *P. rigida*, and perhaps some others.

In the larch and white spruce, for instance, a second wave will often start after the cone has commenced forming, and the singular appearance is presented of a shoot growing out of the apex of the cone. These varying waves can be also seen in *cyperaceæ*, sometimes placing the male and sometimes the female at the apex of the culm, but always the female in the greatest line of vigor. I do not know of any case where the sexes are separate on the same plant, that extra vigor does not always accompany the production of the female, and an evidently weakened vitality of the male parts.

Mere vigor, however, will not always indicate the degree of vitality. The *pinus mugho* seldom extends ten feet high, and its shoots are not near as vigorous as its near relative, *pinus sylvestris*; and yet it commences its bearing age by a free and vigorous production of female flowers. But power of endurance is a high test of vitality, and an Alpine form should possess this in a high degree. In its relation to sex this form of vital force will also have an interest. The vitality of a tree is always more or less injured by transplanting. Sometimes it is so injured that it never pushes into leaf again. It always pushes out later than if it had not been moved, and in proportion to the injury to the vitality is the lateness of

pushing. Clearly, then, earliness of pushing forth leaves is a test of vigorous vitality. Now, some Norway spruces push forth earlier than others. There is as much as two weeks difference between them, and it is remarkable that those which push out the earliest—may we not say those which have the highest powers of vitality?—are most productive of female blossoms. Arboriculturists may make good use of this fact. Norway spruces, which have a drooping habit, are the heavy cone-bearing forms. No way has before been discovered to detect them until they get to a bearing age. Now it will be seen, the earliest to push forth in the spring will be cone-bearing or weeping trees.

It is not so easy to see the influence of vigor or other forms of vitality, as affecting the sexes, in hermaphrodite plants as in monœcious ones, yet here are some remarkable facts of a similar character. In some flowers the forces which govern the male and female portions respectively seem nearly equally balanced. Then we have a perfect hermaphrodite—one with the stamens and pistils perfect, and one communicating its influence to the other—a self-fertilizing flower. In many species, however, we notice a tendency to break this balance. It becomes either a pistillate or a staminate, either by the suppression of one force or the other. If the force is in the female direction it begins by requiring the pollen from some other flower to fertilize itself. If in the male direction by increasing the number of stamens, or converting the stamens into petals. The interest for us in this sexual question is to note that just in proportion as the sexes diverge in this manner, in just the same ratio do vigor and strong vitality follow the female in the one case, and weakness the male in the other.

In the male direction, for instance, when the flower becomes double by the conversion of stamens into petals, or the number of either increased, growth is never so strong, and life is more endangered. Double camelias, roses, peaches, and other things have to be grafted on single ones, in order to get more vigorous growing plants, and every florist knows how much more difficult it is to get roots from a double flowered cutting than from a single one. Sometimes the male principle, which loves to exhibit itself in the gay coloring of the petals, seems to influence the leaves also; and they also become colored or variegated; and here we see also a weakened vitality follows. Variegated box, variegated euonymus, or any of similar character, never grow so freely, or endure the winter's cold or the extremes of climate like the green-leaved forms.

On the other hand, when the balance goes over in the female

interest, we see it characterized by greater vigor than before. It has long been noted that pistillate varieties of strawberries are more prolific of fruit, but this rule is not always good, as sometimes the runners, which are parts of the feminine system—a form of viviparous flower shoots, in fact—regulate the amount of fruit. But it is a fact universal, I believe, in its application, that the production of runners and fruit combined is always accompanied by a vigorous vitality.

So in *viola* where we have female influence variously expressed, from the underground stolon or creeping runner, which re-produces without impregnation, to the apetalous flowers, which mature abundant seeds on the smallest quantity of pollen, up to the perfectly favored hermaphrodite flowers of spring—all regular grades of one identical female principle, in contrast with those species which maintain throughout a closer connection with the male principle, by maintaining pure hermaphrodite flowers through their whole stages, we find those possessed of the highest types of vitality which are evidently the most under the laws of female influence.

In a brief paper like this, it is not my purpose to introduce more of the facts I have observed than will sustain the theory I have advanced. I do not want to urge it for adoption; my object is to excite investigation on the part of other observers, who will, I think, find everywhere about them that, whenever the reproductive forces are at all in operation, it is *the highest types of vitality only which take on the female form.*

I have confined myself to sex in plants, botany being my special study. Do the same laws prevail in the animal world? I think they do. But this being out of my favorite province, I dare not discuss it, but content myself with the bare suggestion.

Harvesting Navy Beans Again.

In answering the enquiry as to "harvesting the navy bean," it was my intention to have given a short, plain and distinct practical plan. I know it to be right. I have always been obliged to pay not less than 15 cents per bushel for picking green peas, and 20 cents per bushel for picking bush beans (green) for market. To pick or gather a patch of five acres according to the recommendation of "B.," Exchange, Nansemond, would cost what? It would require, to ensure an excellent clean bean, not less than three pickings over the entire patch; the cost of picking—without the never-ending job—would amount to not less than (four bushels pods to

one shelled,) 80 cents; and where are the parties to pick? If you have the help convenient, *whenever you want them, they can't be had*—they have something else to do. I supposed that with others it was as with me—that is, never to ask for information unless it was wanted; and never to give except *that such* was sure to be correct.

WM. H. S.

Philadelphia, September 23, 1869.

How shall Gardening be Made Profitable?

What shall be grown to pay the best? is a live question for your State. Norfolk and the lands adjacent will be the garden spot of the United States. It has the advantage of all others, and will keep it. But to make Gardening or *growing produce pay* is a question of vital import, a question to be answered only by men of real practical experience and education. It is an easy matter to take the pen and write, "do this, do that, plant this, plant that, plough thus and so," use only such "manures," &c., but have parties who give advice thought of the real injury and loss sustained by those who follow their advice, where such advice is given without having practical experience, that is of *planting, gathering, selling and receiving and retaining a profit?* In my opinion a series of communications from the *real living, working* growers, would at this time *produce more certain, lasting and enduring benefits than at any other time.* In such communications give *true names* of seeds planted, manner of cultivating, quantity of manure to the acre, manner of gathering, packing, to whom consigned, returns from such consignments, with remarks generally on condition of shipment, when received, &c.

For one I will volunteer to give some of my experience as a grower for the New York Market for 27 years. I will write for next month's number.

WM. H. S.

HOLLYHOCKS.—*P. B. G., Baltimore, Md.*—"I have a beautiful double crimson Hollyhock, which I am very anxious to save, but am told they will not reproduce themselves truly from seed. How shall I manage it?"

[They will come generally true from seed, and we think this is your best way to raise them. Sow the seed as soon as ripe, and shade the ground a little from the hot sun until the plants get strong. Or the seed may be saved until spring and sown, but they will not then flower that year. In Europe Hollyhocks are propagated by cutting up the flower stem into eyes, before the flower opens, but in America seeds only are employed in propagation.]—*Gardener's Monthly.*

Mining Department.

Coal.

Is there any authentic history of the discovery and early use of the bituminous coal so long known to exist in this region of Virginia? Did the aborigines understand its nature and apply it to useful purposes?

A few months before the close of the late war, the writer of this purchased from a drug store in Richmond a package of medicine wrapped in coarse white paper torn from a letter book dated 1752. It proved to be a copy of a letter from a mercantile firm in Manchester to their correspondents in Philadelphia, advising them of a shipment of coal at a cost of ten cents per bushel, sent as a venture, to be offered in that market. The letter concluded by stating that the mineral existed in great abundance in Chesterfield county, and would be furnished readily at that price if there was any demand for it. The old book was searched in vain for further information, and the inference is fair that the coal ceased for many years to be an article of commerce.

In West Virginia, where nature has lavished her mineral riches, it is certain that the aborigines were either ignorant of the nature of coal, or indifferent to its uses. The numerous seams cleft by the abrasion of flowing waters must have exposed the same stratification so plainly visible at this day, and as the immense forests that covered the country were subject to conflagration, the combustion of the coal upon the surface could not escape observation. Fuel was only valued for domestic purposes, and it was only when timber became scarce that the indolent Indian, and scarcely less indolent squatter, directed his attention to coal.

It has been stated that the early salt makers on the Big Kanawha were accustomed to haul wood to their furnaces, built over coal beds, and this habit was common until the steam engine became a familiar thing. It was not merely as a consumer of fuel that the steam engine became so important; its agency in mining operations settled all difficulties in removing the mineral from the bowels of the earth, as well as in the transportation of such ponderous materials. And now that everybody reads, and everybody travels, the uses of coal are known to all. Why are such acknowledged treasures unsought in their immediate locality? The coal measures are

sufficiently developed in the Chesterfield basin to establish the fact that the coal is there in quantities sufficient to supply any demand that may exist for ages, and that the quality is unsurpassed in many respects by any bituminous coal of the country. As it is not proposed to discuss the details of this question, it may suffice to remark that the same reasons which retarded the use of coal in early times still apply here. Fuel for ordinary purposes is still obtained from the woods, and the outlay attending mining operations is yet a barrier to the full development of our coal fields. It is not so in the West. There the collier has no unforeseen difficulties to meet, and no exercise of skill beyond opening his drifts in rectilinear figures. There the stratification is regular, and the seams frequently above water level. There are few unseen dangers—few “troubles” or “faults,” “downthrows” or “upthrows”—little disturbance in the deposits, and rarely “black damp” or “fire damp.” There, too, the expenditure is easily calculated in advance, for it is a mere question of excavation and transportation. Here it would seem almost the reverse. The whole basin, so far as known, is full of dislocations and uncertainties. The deposits, sometimes prodigious, and again “cutting out” to a mere leader. Here the heart of the basin has never been reached, and along its margin are shafts several hundred feet deep; nevertheless, the day will come when the deposits will be won, and ere many years, capital and enterprise will pursue the treasures now hidden in the Chesterfield basin.

Iron Interest in Virginia.

In connection with the history of the iron interest in Virginia, I undertake to offer a few mites, by way of soliciting intelligence, rather than contributing it.

At the line of separation of the counties of King George and Westmoreland, on the Rappahannock river, there is a spot—a very sequestered and interesting one—inclosed by high bluffs, between which a little stream passes to the river—wild as the colonists found it—so abrupt and rugged as not to permit transit through the ravine—to which the only access is the river, or banks so steep as to seem perilous to the passenger on foot, and certainly very wearisome to ascend. This spot is known as the Bristol Mines. The neighboring hills are full of bog iron ore, which seems to have been obtained here. I do not know whether there was a furnace to reduce it, or whether the ore was shipped, as it was very convenient to do, to some other place. Tradition says, that my grandfather,

John Tayloe, of Mount Airy, (who died at an advanced age in 1779), was the agent of a company supposed to be of Bristol, in England, which worked these mines. He was himself the owner of iron works at Neabsco, in Prince William county, at the head of Neabsco creek, which enters the Potomac river just above Freestone Point. Besides the ore obtained for these Neabsco works on the contiguous hills, it was brought in vessels from the Patapsco, from the ore banks which the old travelers remember to have seen strewn over the once wild region between the present junction and the city of Baltimore. These have all been filled up and levelled, and compose the beautiful, highly improved farm of Mr. Winans. The Rappahannock ore was carried, probably, in like manner, to Neabsco. Possibly some may have been carried to Col. Spotswood's furnace, or to England's, up the river, near Fredericksburg. Is this the furnace known of late years as Wellford's, near the Chancellorsville battle ground? Col. Byrd's Westover manuscripts being mislaid or stolen, I cannot refer to them. Where in King George was Mr. Washington's blast furnace? In those days, this county extended to Deep Run, I believe. This is now the eastern boundary of Fauquier.

My father owned and worked a valuable furnace at Cloverdale, in Botetourt county. After exhausting all the wood which could be obtained at remunerative prices, this furnace was discontinued near forty years ago. The ore is thought to be the finest in Virginia for producing tough iron, and was bought for the construction of guns for the United States Government, by Col. Clarke, who cast them on the lower James, some miles above Richmond. This ore has been used in later years by the Messrs. Anderson, and reduced at a furnace near Buchanan.

I hope that these memoranda may induce more valuable reminiscences.

ED. T. TAYLOR.

September 24, 1869.

THE WORLD'S MINERALS.—The *Scientific American* says that there are produced annually throughout the world 3,214,000,000 cwt. of coal, 191,800,000 of iron, 1,581,000 of copper, 4,926,300 of lead, 2,350,000 of zinc, besides 459,883 pounds of gold, and 2,863,000 pounds of silver.

Mechanic Arts.

New Inventions.

MURFEE'S SUBSOIL PLOUGH.—This implement is exceedingly simple in its construction, and of extraordinary power and effectiveness in breaking the subsoil thoroughly to the depth of nine inches and width of six to nine inches on each side of the stroke, according to the size used, whether a one or two horse plough. But, valuable as it is for this special purpose, it is equally effective for stirring and pulverizing the surface in cultivating most of the crops of the vegetable garden, and such field crops as cotton, corn, tobacco, &c., and is, moreover, of very light draft. The patentee has made arrangements with Messrs. Palmer & Turpin, of this city, for the manufacture and sale of this plough, who will, no doubt, offer it for examination and premium at the State Agricultural Society's Fair in November next. Meanwhile, by way of attracting attention to this new invention, which, from the unanimous testimony in its favor, is worthy of special notice for the benefit of the public, we give the certificate of the gentlemen who witnessed its operation near the city a short while ago, as follows :

“The undersigned having this day witnessed the trial of the pulverizing and deep tillage implement lately patented by Jas. W. Murfee, of Havana, Alabama, make the following statement: Two of these implements were exhibited, one for two horses, the other for one. They were worked on a field of very hard, flat, clay land, which a four horse plough was laboriously breaking up to the depth of seven or eight inches. The two horse implement broke the soil to the depth of about nine inches, and cracked it thoroughly for about nine inches on each side of the stroke. The one horse implement broke the land to the same depth, and cracked it thoroughly six inches on each side. The work resembled coultering, and was better done, both in style and extent of cracking the soil, than we ever saw it done by any other implement of its class.

The single horse instrument was then taken to a well ploughed cabbage patch and worked one foot deep, and one foot wide, and with ease to the horse and great excellence of execution.

Where subsoiling is desired, we think this the best and easiest working implement of that sort we have ever tested.

From this statement of what was accomplished, every one can judge for himself to what uses he would apply such an implement. For all work that it ought to do, we think it a valuable implement.

JAMES B. JONES,
J. A. CONNOR, Ga.,
R. A. WILLIS,
JOHN W. JONES,
W. R. RUFFIN,
S. BASSETT FRENCH,
FRANK G. RUFFIN.

Chesterfield, September 1st."

ROUTT'S HORSE HAY RAKE AND SEED SOWER is another new (Virginia) invention patented as late as the seventeenth of August, 1869—the birthday of the inventor—long life to him. This novel implement is represented to be very simple in construction and very effective in its operation. The seed box is put in front of the axle, and is bolted to the shafts underneath, and so arranged that it can be thrown in and out of gear, at the pleasure of the operator. It is not at all in the way while out of gear, when the instrument is employed in raking hay or wheat. The seed attachment can be applied to any horse rake in use. It will be submitted to the judges on agricultural machinery, &c., at our November Fair, as a competitor for the premium.

THIRTY EIGHTH INDUSTRIAL EXHIBITION OF THE AMERICAN INSTITUTE.—A novelty in clocks is presented by the U. S. Clock Co., 18 Cortlandt street, New York city. Upon one side there is a large dial showing New York time, and opposite to it on the other side is a similar dial showing Greenwich time. Surrounding each of these dials are eleven smaller ones, showing the time in Washington, St. Louis, Salt Lake City, Chicago, New Orleans, San Francisco, Cape Horn, Rio Janeiro, Lima, Honolulu, Montreal, Paris, Vienna, Constantinople, St. Petersburg, Calcutta, Peking, Yeddo, Sydney, Cape Town, Rome, and Stockholm. A collection of town clocks of various sizes is exhibited by A. S. Hotchkiss, of No. 3 Cortlandt street, New York. The workmanship is good.

STRAW PAPER, a substitute for wood, exhibited by Mallory & Butterfield, No. 92 William street, New York, is intended to be used for all inside work of dwellings, railroad cars, steamboats, ships, or in any place where wood is used, being far superior to it for its lightness and strength, it not having knots, grain, or sap; consequently, does not expand or contract, but remains as put up, unchangeably. It can be moulded into any form by pressure, thereby saving the great expense of working out elaborate patterns. It is made fire and water proof by asbestos, and, in case of a smash-up in railroad cars, no person will be injured by splinters or fire. For ornamentation, it can be made to represent the most expensive woods, marbles, frescoes, bronzes, etc., etc., at a small expense, and can be taken down and put up in other places if desired.—*American Artisan.*

THE SOUTHERN PLANTER AND FARMER.

RICHMOND, VIRGINIA, OCTOBER, 1869.

TERMS OF SUBSCRIPTION AND ADVERTISING.

SUBSCRIPTION One Year,.....\$2.00

ADVERTISING.

1 square, 10 lines or less, one insertion,.....\$ 1 00	½ page, six months,.....	35 00
1 square of 10 lines for six months,.....	½ page, one year,.....	60 00
1 square of 10 lines for one year,.....	1 page, single insertion,.....	15 00
¼ page, six months,.....	1 page six months,.....	60 00
¼ page, one year,.....	1 page, one year,.....	100 00

PAYMENTS.

Subscriptions—in advance. Advertising—annual—quarterly in advance. All others in advance

Editorial Department.

The Virginia State Agricultural Society.

It affords us unalloyed pleasure to be able to assure our readers that, beyond controversy, we are destined to have at the State Fair in November a grand display of the material resources of Virginia—agricultural, horticultural, mineral, mechanical, manufacturing and domestic—and that, from present indications, we shall witness, as of old, a vast assemblage of her incomparable sons and daughters, who will unitedly reflect her glory, and illustrate the elevated type of her civilization, by their high-toned moral sentiments, refined and elegant social characteristics, and enlarged and varied intellectual accomplishments. Virginia—long-suffering, persecuted, reviled, down-trodden Virginia, is about to emerge from the fiery furnace of affliction and sorrow, but without the smell of fire on her garments, or a stain upon her honor, and to take a new departure in a career of prosperity, wealth, and power, such as has never been witnessed in this hemisphere; while her malignant and despicable enemies will utterly perish, by their own hands, through the avenging recoil of their infamous machinations against her, upon their own heads.

But to return to the subject of the Fair. The Executive Committee have found it necessary to issue a supplement to the schedule of premiums published in August, by a considerable enlargement of the thirteenth class, and by the introduction of another class, with special reference to the FINE ARTS. In this department we expect to see a highly creditable display of the works of our native artists. The reader, to understand the connection of this supplement with the August schedule, will strike out class XIII as it there stands, and insert classes XIII, XIV and XV, in the order in which they appear in the following specifications:

In addition to the list already published in pamphlet form, the Executive Committee have offered the following premiums in Mineralogy and the Fine Arts, to be awarded at the Virginia State Agricultural Fair, to be held in Richmond, commencing 2d November, viz:

CLASS XIII.—MINERAL DEPARTMENT.

Colonel J. J. WERTH, Superintendent. Professor O. J. HEINRICH, Assistant.

Section I.

514. Best essay upon the Natural History, Geology, Botany, and Natural Products of Virginia, Diploma.

Section II.

515. Best description of useful Minerals found in Virginia, Certificate.

Section III.

516. Best collection of specimens illustrating the Mineralogy of Virginia, \$75.00

Section IV.

517. Best collection of specimens of Marl, Green Sand, Gypsum, Hydraulic Limestone, Marble, Calcareous Tufa, found in Virginia, 50 00

Section V.

518. Best collection of specimens of Gold, Copper, and other associated Minerals, found in Virginia, 50.00

Section VI.

519. Best specimens of such Minerals as are useful in pigments, 25.00

Section VII.

520. Best specimens of Pig Iron, converted from Virginia ore, 10.00

Section VIII.

521. Best specimen of Pig Iron converted from Virginia ore, with coke from Virginia coal as a fuel, 10 00

Section IX.

522. Best specimen of Bituminous Coal found in Virginia, 100 lbs. or more, 10.00

Section X.

523. Best specimen of natural Coke, 10.00

Section XI.

524. Best specimen of Anthracite Coal found in Virginia, 100 lbs. or more, 10.00

Section XII.

525. Best specimen of Granite found in Virginia, 10.00

Section XIII.

526. Best specimen of Slate, 10.00

Section XIV.

527. Best specimen of Sandstone found in Virginia, 10 00

Section XV.

528. Best specimen of Manganese found in Virginia, 5.00

529. Best specimen of Barytes found in Virginia, 5 00

530. Best specimen of Kaolin found in Virginia, 5.00

531. Best specimen of Plumbago found in Virginia, 5.00

532. Best specimen of Soapstone found in Virginia, 5.00

533. Best specimen of Mica found in Virginia, 5.00

JUDGES.

Professor Mallet, University of Virginia.

Colonel William Gilham, Richmond.

Professor J. L. Campbell, Lexington.

Professor R. M. Smith, Randolph Macon.

Professor B. Puryear, Richmond College.

A. D. Townes, Esq., and J. C. Deaton, Richmond, Va.

CLASS XIV—FINE ARTS DEPARTMENT.

Colonel W. H. CASKIE.

This department will embrace Statuary, in marble, bronze and plaster, including alto relievos, basso relievos, and busts.

Oil and Water color Pictures, Drawings, Engravings, Photographs, Wax and Flower Work, Frames. Artists' Materials and Musical Instruments, including Pianos, Organs, etc., etc., etc.

Section I—Statuary. &c.

534. Best original full length, life-size, Alto Relievo in marble, bronze or plaster, designed in Virginia, 50.00
535. Best original Alto Relief in marble, bronze or plaster, or other material, designed in Virginia; 15.00
536. Best original Basso Relievo in marble, bronze or plaster, designed in Virginia, 15.00
537. Best Statuette (original), designed in Virginia, 10.00
538. Best original Bust, designed in Virginia, 10.00
539. Best specimen Ornamental Design, in plaster or other material, made in Virginia, 5.00

Section II—Oil Paintings.

540. Best original Figure Picture in oil, designed in Virginia, 50.00
541. Best Animal Picture, original, designed in Virginia, 25.00
542. Best Head, life size, designed in Virginia, 10.00
543. Best Head, cabinet size, designed in Virginia, 5 00
544. Best Landscape, including marine and waterscape, original, designed in Virginia, 15.00
545. Best Still Life, designed in Virginia, 5.00

Works by foreign artists, or by native artists, but not originals, of sufficient merit, will receive honorable mention.

Section III—Water Colors.

Water Colors will be placed on same footing with Oil Paintings. Numbered from 546 to 551, inclusive.

Section IV—Drawings, Engravings, &c.

552. Best original Drawing in sepia, india ink, pen or pencil, designed in Virginia, 20.00
553. Second best original Drawing in sepia, India ink, pen or pencil, designed in Virginia, 15.00
554. Best Engraving designed in Virginia, Certificate.
555. Best Lithograph, Certificate.
556. Best Photograph, by a resident of Virginia, Certificate.

Section V—Picture Frames, Artists' Materials, &c.

557. Best Picture Frames, made in Virginia, Certificate.
558. Second best Picture Frames, made in Virginia, Certificate.
559. Best collection of Artists' Materials, made in Virginia, Certificate.
560. Second best collection of Artists' Material, made in Virginia, Certificate.

Section VI.

561. Organs. 562. Pianos. 563. Violins. 564. Melodeons. 565. Harps. 566. Guitars. 567. Band Instruments. Best of each, Certificate.

JUDGES.

Mr. W. H. Haxall, Thos. H. Wynne, Capt. Chas. Dimmock,
Thos. R. Price, Jr., Charles Wallace.

CLASS XV—MISCELLANEOUS DEPARTMENT.

Captain C. C. McPHAIL.

To this department are referred all articles and animals recommended for Discretionary Premiums.

JUDGES.

Hon James A. Seddon, Goochland county, Va.
Chas. B. Williams, Richmond.
Wood Bouldin, Charlotte county, Va.
Dr Philip F. Southall, Amelia.
Dr. Wm. D. Haskins, Mecklenburg.
Colonel Albert Ordway, Richmond.

Liberal Arrangements of the Railroads Respecting the State Agricultural Fair.

At a meeting of the Superintendents of the railroads terminating at Richmond, held on the 16th day of September, 1869, for the purpose of considering the application of the officers of the State Agricultural Society, in regard to freights and fares on the roads under their charge, the following regulations were adopted:

1. Persons traveling over either of the railroads in charge of the undersigned, after the 28th day of October, 1869, for the purpose of attending the State Fair of the Agricultural Society, can, upon application to the agent or conductors of the railroads to which they pay their full fare, obtain a certificate showing that they did so—and upon presenting the same, stamped by the Secretary of the Agricultural Society, as evidence of their having attended the Fair, to the conductor of the train on which they return from Richmond, on or before the 12th day of November following, they will be returned to the station whence they came free of charge.

2. Persons exhibiting, with these certificates, the proper evidence of their being life members of that Society, upon application at the office of the railroad in Richmond over which they came to Richmond, before their return, will be entitled to have the fare paid on this road by them going to the Fair refunded to them.

3. Articles sent at the usual tolls over the railroads for exhibition at the Fair will be returned free of charge to the same station on the railroad whence they were sent, provided they shall be still the property of the same owner; and if the person having charge of the same shall exhibit to the agent at Richmond, before shipping them, a certificate from the Agricultural Society that they were exhibited, and return the receipt for freight paid on them coming to Richmond, the toll on them in coming will be refunded by the freight agents of the same railroad at Richmond, Va.

4. Persons having charge of stallions and other animals requiring attendance, will be included in the conditions of the third section, subject to the discretion of the railroad agents.

5. That copies of these regulations be sent to all railroad companies connected with the roads here represented, with a request that they adopt similar liberal arrangements, and have the same published.

[Signed,]

THOMAS DODAMEAD,
General Superintendent R. and D., and P., and Y. R. R.

SAMUEL RUTH,
Superintendent R. F. and P. R. R.

H. D. WHITCOMB,
General Superintendent C. and O. R. R.

THOS. H. WYNNE,
Superintendent R. and P. R. R.

Richmond, Va., September 16, 1869.

I am authorized by General William Mahone, President of the line of railroads from Norfolk to Bristol, and Mr. John S. Barbour, President of the Orange and Alexandria railroad, to state that they will afford the same accommodation and arrangements for persons and articles attending the State Fair as are embraced in the foregoing regulations.

I have no doubt all the other lines of railroads in the State will adopt them as soon as applied to.

The Virginia State Agricultural Society desire and expect a very large attendance of Northern men, especially at their Fair and Exhibition, and hope that the Northern and Western railroads will extend such inducements as our own have offered to all persons visiting Richmond on this occasion. It is expected to be a complete exposition of the resources of Virginia.

Arrangements are in contemplation, whereby the hotel facilities of the city will be supplemented by the owners of private houses. A cheap excursion train running daily between this city and Petersburg will add the accommodations of that city to those of Richmond.

The Secretary of the Society will be in attendance daily at the Fair Grounds, to stamp certificates furnished by the railroad companies.

WILLIAM T. SUTHERLIN,
President Virginia State Agricultural Society.

Minerals for Exhibition at the State Fair.

The following letter from General J. D. Imboden will apprise the reader that he will undertake to receive and arrange the specimens of Virginia minerals which may be addressed to his care :

TO THE OWNERS OF MINERAL LANDS.

The State Agricultural Society has very wisely determined to enrich its exhibition at the Annual Fair in November with specimens of the minerals of Virginia.

I have agreed, in connection with Captain C. C. McPhail, to solicit contributions to this department of the exhibition so far as to collect and arrange the specimens.

There will, doubtless, be a great many strangers here at that time to look into our natural resources. It is, therefore, of great importance that we should be able to show them every mineral of value that we possess in the State. Let the owners of mines and deposits, therefore, select good, fair specimens, put them up securely, and address the packages to me, "for the State Fair." Write a letter at the same time describing the property, its location, &c From these letters will be compiled a catalogue of all the minerals shown.

It is especially desirable to obtain good specimens from every locality containing iron, copper, lead, zinc, gold, and silver ores, of every variety; barytes, manganese, plumbago, nickle, gypsum, marl, silica, marble, granite, slate, soapstone, brownstone, mica, kaolin, fire clay, hydraulic lime, asbestos, ochre, rock salt, coal, peat, and the purest qualities of carbonate of lime.

A full collection of these minerals, with honest, reliable information about them, may lead to the most important results. If owners will take the little trouble of sending the specimens, we will do whatever else is necessary to bring them prominently before the thousands who will be here.

J. D. IMBODEN, Richmond, Va.

[The following glowing and hopeful delineation of the glorious future of the Old Dominion—"the blessed mother of us all"—is from the gifted pen of the editor of "The Richmond Enquirer and Examiner." It breathes the true

spirit of loyalty and filial love, such as becomes a son nurtured on her bosom, and is heartily commended to all those who are like-minded, and who are ready to "sink or swim" with old Virginia:

AGRICULTURE OUR HOPE.

It is delightful to observe the many evidences that Virginia has emerged from the region of dreams and speculation, to expand her grand and majestic form in the field of practical improvement. Convinced of the importance of a truth, as embodied in the words of a departed sage, that "in every community the *first* creditor is the *Plough*; whose original and indefeasible claim should supersede all other demands," she has given up Politics as her Muse, and is bending all her glorious powers to the thorough awakening and advancement of her Agriculture.

Especially to be commended are the *District Fairs*, which have become regular and fixed institutions. The grand State Fair, as a matter of course, must enlist the sympathies and activities of the whole people, but as tributary to this, and as the surest guaranty of its complete success, each great department of the State has wisely determined to go through a rehearsal, as it were, so that after a judicious culling and selection in October, the best specimens may be sent to the State Fair in November, in order (as Orator Phillips would say,) that Richmond, as the capital of the State, may be able to exhibit, in one glow of associated beauty, the pride of every section, and the perfection of every department. It is but the reproduction in miniature, nay, rather let us say it is the solid basis of those World-Fairs which form an epoch, and have ushered in a new era in the conditions and prospects of nations and of mankind. If Prince Albert be entitled (as his august and adoring relict claims,) to the honor of originating this magnificent scheme, she need not have wasted her time and feelings on that grand, yet gloomy, Mausoleum at Frogmore to his memory. It will be a higher honor, a more glorious fame, to be remembered as the originator of a vast plan, whereby each State, having studied its peculiar strength, having gathered together the richest fruits of its industry, its art, and its natural wealth, should come in joyous rivalry to some appropriate centre like New York, or Paris, or London, as on a huge dial plate to register the wealth of the world, to demonstrate the inter-dependency of all its parts, the speed, the power, and the progress of its improvement.

Thus the world is all astir. Nation after nation and State after State takes the noble contagion, and in the peace, prosperity and power which will surely ensue, will be found the best safeguard or the speediest corrective of the follies and crimes of neglectful or inimical governments. The great English historian tells us that "the misgovernment of Charles and James, gross as it had been, did not prevent the common business of life from going steadily and prosperously on. While the honor and independence of the State were sold to a foreign power, *while chartered rights were invaded, while fundamental laws were violated*, hundreds of thousands of quiet, honest, and industrious families labored and traded, ate their meals, and lay down to rest, in comfort and security. Whether Whigs or Tories, Protestants or Jesuits were uppermost, the grazier drove his bullocks to market; the grocer weighed out his currants; the draper measured out his broadcloth; the hum of buyers and sellers was as loud as ever in the towns; the harvest home was celebrated as joyously as ever in the hamlets; the cream overflowed the pails of Cheshire; the apple-

juice foamed in the presses of Herefordshire; the piles of crockery glowed in the furnaces of Trent; and the barrows of coal rolled fast along the timber railways of the Tyne." As we look at this changeful and cheering picture, we feel that it would be criminal not to believe, that if we be but true to ourselves, the parallel will be completed in our case. The conflicts, the turmoils, the agonies of England, were as great as ours--as Macaulay says that the time was (in the period to which we have referred.) when her liberty and her independence seemed to be no more--to the dangers of war were added the dangers of a terrible financial and commercial crisis--but at length the danger was over.

May we not then go to work "treading the fields of earth with gratitude and hope?"--trusting that ere long the country will be delivered of its phrenzy--and that policy, if no higher principle, will demonstrate the necessity of considering, reconciling, and uniting all the interests of our country; that the follies and their authors will "go to their place," whilst the ancient constitution, relieved of the incubus of stupidity and hate which now oppresses it, will adapt itself by a natural, a gradual, a peaceful development to the new order of things, that public credit will be re-established, that an unsuspecting confidence, like some powerful amalgam, will bind together the different portions of our country; that a sense of relief will be shed abroad in the land, and in all our hearts; that diversified labor will develop all our powers and all our wealth; and that the time is not far distant when Virginia, too, shall need no "oracle to tell the nations she is beautiful," and, pointing to her fertile fields, her countless mines, her waving harvests, her mighty herds and listening to the mingled hum of manifold industry which shall rise from thrifty villages, prosperous towns, and stately cities, shall declare with authority and truth the commencement of a happier and a better age. Those of her children who now come to her assistance when she sits friendless and forlorn, will have rich recompense when, under a kind Providence, they have caused her once more to smile with prosperity and to laugh with abundance; never doubting that amid it all she will sustain her self-respect, and that the increase of her material wealth will be but the index of her moral power.

The following arrangements have been adopted respecting the times and places for holding the Fairs by the District and County Societies of Virginia named below:

The Augusta County Fair, on the 12th, 13th and 14th of October.

The Wytheville Society, on the 20th, 21st and 22d of October.

The Lynchburg Society, on the 26th, 27th, 28th and 29th of October.

The Loudoun Society, on the 26th, 27th and 28th of October.

The Border Society at Danville, on the 14th, 15th and 16th of October.

The Central Agricultural Society of Granville, Warren and Franklin will hold a Fair at Henderson, N. C., on the 12th, 13th, 14th and 15th of October.

PEARS, PEACHES AND GRAPES.—We have received from Mr. Henry J. Smith a basket of luscious pears of five several varieties, some very fine grapes, and also a few good peaches. Mr. S. has long been distinguished for his fine fruits and vegetables.

Historical Sketch of the Iron Interest of Virginia.

ERRORS (TYPOGRAPHIC) IN GENERAL C. P. STONE'S ARTICLE CORRECTED.

Editors of the Southern Planter and Farmer:

SIR.—Your printer has made a few changes in my communication of August 28th ult., on the history of iron production in Virginia, which do not improve it.

I would suggest that wherever in that article the words "*Western manuscripts*" appear in the print, I wrote "*Westover*."

In line 20, page 558, the printer says "ores;" I think that I wrote "forests." In line 22 the printer says "formidable;" I wrote, or intended to write, "favorable." In line 30 of same page, the printer says "ores;" I wrote "forests."

In your kindly editorial remarks, you state that "there is authority for a much earlier period which dates the establishment of the first furnace in Virginia." In reference to this, I would suggest the inquiry as to whether the "iron work" established by Colonel Cary was a blast furnace or a bloomery? We know that bloomeries for the production of "wrought" iron directly from the ore were established in America long anterior to 1715—not only in Virginia, but also in Pennsylvania and New England.

My statement was that the first "blast furnace" established in America was that of Colonel Spottswood; and I think that investigation will make it clear.

Very respectfully yours,

CHAS. P. STONE.

Dover Mines, Goochland co., Va., Sept. 20, 1869.

"Faithful are the Wounds of a Friend."

We publish below the kind and friendly strictures of the "*Evening News*," in relation to several important typographic errors which escaped detection in the September number of this journal.

The letter of Gen. Stone, which precedes this note, obviates the necessity of a tabulated statement of "*errata*;" but it is necessary to correct the misprint in regard to the edition of Beverley which was quoted in our editorial, to which reference is made; it was written, and should have been printed, "1722." We hope that similar annoyances to ourselves and friends may never occur again.

We invite particular attention to the suggestions of the "*News*," and would feel ourselves under special obligations to the two gentlemen referred to by name, if they would favor us with sketches of what they know respecting the iron interest of Virginia, especially in the "mountain counties." We also tender our thanks to the two gentlemen whose valuable communications occupy the space allotted to the "mining department" of the present number of the "*Planter and Farmer*," and extend a cordial invitation to all other gentlemen throughout the State "who possess the opportunities to obtain the details of these operations," to aid us in gathering up and embodying in our pages, a mass of interesting matter illustrative of the history of this very important element of our material wealth:

"The '*Southern Planter and Farmer*' for September has been on our table for some time, but a notice of it has been crowded out by other matter. The

whole table of contents presents an interesting array, but we are particularly interested in the 'Historical Sketch of the Iron Interests of Virginia, by Gen. C. P. Stone.' All who know this gentleman and how much he is interested in this branch of industry, will not wonder at his writing about it. He gives all that he has learned on the subject, and invites others to give their history of the manufacture of iron in the different counties in the State. If this is done, and we see no reason why it should not be, we would have a valuable addition to the uncertain history of our State. General Stone quotes from Colonel Byrd for the history of it in Spottsylvania, Beverly tells of it in Chesterfield in 1705, Mr. Jefferson mentions in 1782, 'the mines of iron worked' three on south side of James river, one in Albemarle, one in Augusta and one in Frederick, 'a forge at Mr. Hunter's, at Fredericksburg,' and adds, 'the toughness of the cast iron of Ross' and Zanes' furnaces is very remarkable. Pots and other utensils, cast thinner than usual of this iron, may be safely thrown into or out of the wagons, in which they are transported.' Surely, if those who possess the opportunities to obtain the details of these operations would take the trouble to do so, and communicate them to the "Planter and Farmer," it would furnish a very important and interesting history of this subject. We hope the example set by Gen. Stone will be followed, and the subject thoroughly written up. If such gentlemen as Mr. S. C. Robinson and Dr. Graham, of Rockbridge county, could be induced to put on paper their knowledge of its history in the mountain counties, they would make valuable additions to what little is now known. We cannot refrain from regretting that a paper published in this city by gentlemen either to the 'manner' or 'manor' born, should have allowed the well known 'Westover' MSS. to be called in two places the 'Western,' and that the editor, in noticing the contribution of Gen. Stone, should have quoted from an edition of Beverly of '1772.' Besides these and a few other inexcusable typographical blunders, the articles are well gotten up, and we most heartily recommend the paper to the farming and mechanical portions of our population."

Book Notices, &c.

PEAR CULTURE FOR PROFIT, by P. T. Quinn, practical Horticulturist; pp. 136—a valuable manual issued by the Tribune Association. New York: 1869.

A Philosophy [so called] of Heaven, Earth, and the Millenium, by a member of the Missouri bar. W. J. Gilbert, publisher; pp. 310. 1869.

We have received the following Catalogues and Pamphlets:

Ellwanger & Burry's No. 1 Fruits, No. 2 Ornamental Trees, Roses and Flowering Plants, and No. 3 Wholesale Catalogue of Mount Hope Nurseries, Rochester, New York.

H. K. Bliss & Sons' Autumn Catalogue and Floral Guide, embellished with a variety of beautiful illustrations; price 10 cents. We in this section give such things away.

Norwood School Catalogue for session of 1868-69. Wm. D. Cabell, Principal, with an able corps of assistants. This is a first class seminary, and numbered 72 scholars in the classes of the last session.

THE RURAL CAROLINIAN.—We welcome with kindly salutations and good wishes the above new Agricultural journal, and take pleasure in adding it to our list of (less than ten thousand) exchanges.

It is gotten up in excellent style, handsomely illustrated, and well filled with

selected and original matter in the various departments of agriculture, horticulture, stock and natural history, labor and immigration, mining and mechanic arts. &c., &c. Born to the inheritance of a circulation of "ten thousand," with every prospect of large and continuous additions to that number, no other periodical affords equal opportunities for thoroughly advertising all things of interest to an agricultural people. Let all the world and the rest of mankind take note of and remember this!! Price \$2 a year, payable in advance. 64 pages large octavo. Walker, Evans & Cogswell, Charleston, S. C.

The Prospectus of the Arkansas Agricultural and Mechanical Journal, to be issued at Little Rock, Arkansas, during this month, has been received. The price will be \$2 50 a year.

Descriptive Catalogue of Fruit Trees, Vines and Plants cultivated at the Richmond Nurseries, by Franklin Davis & Co.

Catalogue of Fruit and Ornamental Trees, Plants, &c., grown and for sale by the Virginia Nursery and Wine Company; Allan & Johnson, General Agents.

Both of these Catalogues are gotten up very tastefully, are handsomely illustrated, and contain practical and useful instruction on planting, cultivation, &c. Both of these very reliable establishments offer an unusually large collection of well grown stock, and will furnish their catalogues gratuitously when applied for.

Messrs. Allison & Addison have favored us with a copy of their Guano Circular—Fall, 1869.

They are dealers in Soluble Pacific Guano, Flour of Raw Bone, and other Fertilizers; also, Seeds and Agricultural Implements. Nos. 1318 and 1320 Cary street, Richmond, Va. We have frequently had occasion to recommend them to the confidence of the public.

Haw's Pecker Saw Mill.

The venerable John Haw, so long and favorably known in this community for his integrity and uprightness as a man and mechanic, has survived the wreck and ruin of the late war, and is now prepared to resume his business of manufacturing his portable Pecker Saw Mill, which was held in high estimation, and was extensively used by our farmers before our civil commotions commenced. See his advertisement.

Wheat Drill.

We offer the following suggestions from "The Roanoke Valley" to the consideration of our farmers who have not yet decided upon their mode of seeding wheat this Fall:

USE A DRILL IN SOWING WHEAT.—It is the universal testimony of all farmers who have tried it, that the use of a drill saves time, labor, seed, and money, does the work better, makes the grain less apt to fall, more apt to ripen regularly, heavier, and produce more to the acre. We have no doubt that if one was introduced here it would be extensively patronized. We learn that Col. Dechart, in Halifax county, has two wheat drills which he hires out, and they are engaged for the whole season. Money is scarce, but if ten or twelve or

fifteen of our farmers would club funds and purchase one, each man would get the value of his investment back in one year. We will give any information on the subject or you can send to H. M. Smith & Co., Richmond, Va., and get their catalogue free, which will tell you all about them.

Baltimore and the Virginia State Agricultural Society.

A week spent in Baltimore in behalf of our old war-worn State Agricultural Society yielded but little fruit. We did not approach the good people of Baltimore as suppliants, but desired that, by becoming life members of the Society, they should give expression of their interest in *us*, and their appreciation of our efforts in behalf of *them*, as well as the *non-producers* of our own State.

We had the pleasure of enrolling the following well known names among our membership, and take pleasure in honoring those who have honored us:

LIFE MEMBERS.—Wm. Devries, Esq., President Maryland State Agricultural Society; Colonel James R. Herbert, of the firm of Herbert & Hairstone; O. F. Bresee, Esq., of the Mutual Life Insurance Company; Wm. Knabe, Esq., of the firm of Knabe & Co.; Wm. L. Buckingham, Esq., Agent of the Bickford & Huffman Drill; Gustavus Ober, Esq., manufacturer of Fertilizers; annual member John Merryman, Esq., one of the most extensive stock breeders in Maryland.

We hope this list may yet be materially increased, as we cannot but think that there are many public spirited Baltimoreans who will add their names to those already enrolled.

We are gratified to learn that the contributions from citizens of Baltimore to the Lynchburg Fair reach \$1700. This is in striking contrast with six life and one annual membership to the Virginia State Agricultural Society.

During a recent visit to Philadelphia as an attendant upon the session of the American Pomological Society, we were struck with the spirit of urbanity and kindness towards Southerners that was everywhere displayed. In every department of business there seemed to be signs of approaching activity—merchants were opening stocks, and the retailers were all busy displaying their most beautiful styles to the throng of strangers in the city. We were most favorably impressed with the establishment of Mr. John Wanamaker, 818 and 820 Chesnut street, one of the largest clothing houses in the country. Although ours was more a visit of pleasure (for we love to look at good clothes,) and curiosity than business, we were not only treated with politeness, but kindness, and were shown over the entire establishment, which was filled with every article that could be desired in this line. Our friends who visit Philadelphia should call and see Wanamaker.

A REQUEST.—I hope the preachers and all others who feel an interest in the publication of "Memorials of Methodism in Virginia," will give their aid in securing subscribers to the work. If the enterprise were brought to the notice of our congregations, a large number of subscribers might be secured. As some inducement to canvass for the book, I offer a copy gratis to any one who will send a list of fifteen responsible names. It is very desirable to secure a list sufficiently large to justify me in putting the work to press at an early day.

W. W. BENNETT.

THE SOUTHERN PLANTER & FARMER,

DEVOTED TO

Agriculture, Horticulture and the Mining, Mechanic and Household Arts.

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

CH: B. WILLIAMS, EDITOR AND PROPRIETOR.
FRANK G. RUFFIN, CO-EDITOR.

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Dr. Voelcker's Chemical Investigations in 1868.

In a lecture delivered by Dr. Voelcker, in May last, at the rooms of the Royal Agricultural Society of England, we find reported some remarkable results of field experiments instituted at his instance, and especially interesting in regard to nitrogenous manures applied to clover, and the value of clover fallow as the best preparation for wheat. We submit them to the careful study of our readers, and commend them to their early attention:

“Let me give you a brief account of some of the field experiments which have been carried on for a number of years, chiefly by former pupils of mine, who are now members of a club which may be called the field club of the Royal Agricultural College, at Cirencester. That is a club in the proceedings of which I take much interest; because, as I have intimated, it includes many of my former pupils, men who are rising in the agricultural world, and who are willing and qualified to make trustworthy and useful practical field experiments. Now I would refer especially to a series of experiments of clover seeds and on clover, some of the results of which were published in the last part of the *Journal of the Royal Agricultural Society of England*. Without wearying you with many details, I would allude to a series of experiments carried out in the years

1867-68, at Escrick Park Home Farm, near York, by my friend and former colleague, Mr. Coleman.* In all my field experiments, I may remark, the same manuring substances, or their mixtures, were employed in the several localities in which the experiments were tried. They were the following: Nitrate of soda, sulphate of ammonia, mineral superphosphate, common salt, muriate of potash, sulphate of potash, and sulphate of lime. I am always careful to have two plots on which no manure is used. In preceding years I tried these various substances upon heavy soils; one of the objects which I had especially in view being to ascertain under what circumstances the artificial supply of potash was attended with practical benefit to the farmer. Speaking generally, I may say, the result was not favorable to the artificial supply of potash on most of the heavy soils. In the majority of cases the increase of produce was not sufficiently striking to repay the greater portion of the outlay attending the purchase of potash manure; while in many instances I could see no beneficial effect whatever resulting from the application of potash manures to heavy land. Now, if we look at the chemical composition of clays of a better description, we shall find that most of them abound in silicate of potash, and under the decomposing influence of atmospheric action they readily yield soluble potash. Indeed, in some of the experiments, the results of which I published some time back in the *Journal*, on the effect of water passing through the soil, it appeared that some kinds of liquid manure—very dilute, liquid manure, containing but little potash—in passing through clay soils, actually became charged with potash, the drainage waters possessing more potash than the liquid manure contained in its natural condition. This shows clearly that on certain clay soils the application of potash manure is not desirable. I here allude more especially to such soils as the excellent one—I use the word “excellent” in a purely chemical point of view—of Mr. Mechi’s farm at Tiptree. Mr. Mechi had to deal with a very unproductive clay soil; but as it is full of mineral matters, he found the more he worked his land the better became his crops. In his case there was actually more potash removed from the land by passing the tank liquid through the soil than was contained in that liquid itself. Here we have a ready explanation of the fact, that in good clay soils an artificial supply of potash is not attended with any benefit to the person using it. I have, therefore, been anxious during the last year or two to try experiments, mainly in light soils,

* See October No. *Southern Planter and Farmer*, page 577.

and a capital opportunity was afforded for this purpose in the case of the extremely poor soil of the Home Farm, belonging to Lord Wenlock. I gave the analysis of this soil in the *Journal*. It there appeared that the soil contained as much as 91.8 (that is, nearly 92) per cent. of quartz sand, an exceedingly small quantity of potash, a mere trace of phosphoric acid, and very little lime. That soil was ascertained to be poor in every description of mineral matter which is necessary to bring agricultural produce to perfection; but I had the gratification of finding that on such a soil the supply of the mineral food required for the clover crop is attended with the most beneficial results. Incidentally I had occasion to make some observations with respect to the utility of nitrogenous manures; and I believe that such manures will prove very useful to the practical farmer who has frequently to deal with a variety of soils, and ought, therefore, to be in a position to judge what description of manure is best suited to particular classes of soils. Now, reverting to the experiments which were made at Escrick, I find that whilst common salt—that is, chloride of sodium—had no effect on the produce, muriate of potash—that is, the compound of chlorine with potassium—materially increased it. Soda is frequently a mere accidental constituent, which, in the form of chloride of sodium, indirectly tends to introduce food into the vegetable organism, but which, in its turn, is eliminated from the ripe produce. I find that chloride of sodium circulates in many plants, but that it does not enter into the chemical composition of the perfected seed of the plant. In perfectly ripe wheat you will find no chloride of sodium; in perfectly ripe beans and seeds, and many other plants, you find hardly any chloride of sodium; while this substance circulates very freely in the green plant, and is productive of very great advantage to the general condition of the vegetation. The case is, however, different as regards potash. Potash enters into actual union with many parts of plants, and it is absolutely necessary to bring the plant to perfection. To show you the difference between the physiological effects of potash and soda in this respect, I would just mention that, whereas you can wash out chloride of sodium with water from a substance like the root of the mangold, or the leaf of the beet-root, or the stalk of wheat, or from grasses, you cannot remove potash so as to show its presence simply by the mechanical process of washing; you cannot prove its existence before you have incinerated the plant, destroyed its organic structure, and thus re-obtained the potash in the ash. It has, in fact, entered into an organic combination, from which it cannot be removed by the mere

mechanical process of washing. On one of the experimental plots of the Escrick Park I used mineral superphosphate alone, and, to my astonishment, no effect whatever was produced by its application. This is an interesting result, seeming, as it does, to indicate that the great deficiency of potash, which is characteristic of the soil in that experimental field, entirely prevented the display of the usual functions which we know perfectly well superphosphate of lime discharges on land of a better character than that at Escrick. The superphosphate (or, rather, the phosphoric acid,) in that manure did not act, simply because potash was not present to form part of the substance of the clover plant. You can, I think, readily understand that. Place before a man all the dry food which tends to entice the appetite, and at the same time withhold from him drink, and you will find that he cannot assimilate the dry food. You may give him every description of dry food that can tempt him to eat, but if you keep from him for any long time that unimportant substance, as we are too apt to consider it—though it is, in fact, a most essential thing—water, he will ultimately perish. Potash is non-essential as regards many clay soils, because many clay soils contain abundance of potash; but it is most essential on poor sandy soils, because, generally speaking, these soils are very deficient in the necessary amount of potash which is required to bring clover crops, and I may also say root crops, to perfection. The mixture of potash, salts, and superphosphate, yielded the largest weight of clover and rye grass, per acre, which was obtained on any of the experimental plots. Further, it was astonishing to notice that not only was the weight of the first cutting larger in the case of this particular plot than on any of the others, but the second cutting also yielded a much larger quantity. Let me give you the actual figures as respects the produce on these particular plots. With no manure whatever the soil yielded per acre of fresh clover 8 tons, 5 cwt., 40 lbs; mineral phosphates alone gave 8 tons, 4 cwt., 12 lbs. Thus there was actually a rather smaller result; but then you must make allowance for variations of soil in the field, and avoid thinking too much of small differences of results. Practically speaking, the produce was the same in the case of the plot manured with superphosphate as that in the plot which had no manure. The extent of these plots was 1-20th of an acre in each case, but the yield is calculated at so much per acre. Well, muriate of potash gave 9 tons, 16 cwt., 28 lbs., while the mixture of superphosphate and muriate of potash gave 13 tons, 15 cwt., 40 lbs., showing a great increase of produce above that of the unmanured portion of the field—that

is, in the total amount of produce. This was distributed over two cuttings. The first cutting from mineral superphosphate and muriate of potash gave 9 tons; the second cutting nearly 5 tons; whereas the first cutting on the unmanured portion of the field gave 5 tons, 9 cwt., 72 lbs., and the second one only 2 tons, 15 cwt., 80 lbs. Thus, you will observe that, although through the application of manure, a larger amount of produce was obtained, yet the agricultural condition of the land after the application of superphosphate and potash was better than it was when no manure whatever was applied. On the other hand, I find that nitrate of soda had an unmistakable tendency to exhaust the soil of both the plots in which it was used, the second cutting weighing less than that of the unmanured plot. It is true that the first cutting weighed rather more than that of the unmanured plot; but the second actually weighed less, showing clearly that nitrate of soda has an exhausting effect, which tells badly on poor land, and that this effect is produced rapidly. From these experiments we may learn that nitrate of soda alone, or even in combination with superphosphate, should not be used as a top-dressing for artificial grasses on very poor sandy soils, not even with superphosphate, because it does not supply the needful alkali potash. Indeed, nitrate of soda, and, to a considerable extent, at least, ammoniacal salts, are the worst manures that can be used on poor soils. They tend rapidly to the complete exhaustion of such soils, and do serious injury to the land, while they do not even benefit the tenant-farmer who may apply them for a season with the view of obtaining a very large produce. On very poor sandy soils not only do purely nitrogenous manures rapidly exhaust the land, but the produce also becomes very inferior. My friend Mr. Coleman was so much struck with the appearance of a particular field that he asked me to go down and inspect it. I did go down, and I must say that never in my life was I more struck with the aspect of a field which had been manured with these different fertilizing agents. On the land manured for clover with sulphate of ammonia and nitrate of soda there was not a plant of clover to be seen, and, quite contrary to my expectation, the true grasses, the Italian rye grass, etc., which should have been very luxuriant after the first cutting, were quite wanting. The land was, in fact, completely burnt up. I should have thought that the soil would stimulate the growth of Italian rye grass, and that a second crop would grow luxuriantly; but, contrary to my previous expectations, not even rye grass would grow—clearly showing that, although ammoniacal manures may be very useful for the production of grass and

corn crops under many circumstances, yet they are not useful when there is an insufficient supply of mineral food in the land, and that the poorer the land is the more rapidly it becomes unproductive when salts of ammonia alone are applied, even as regards those plants which in the ordinary course of farming are decidedly benefited by the use of ammoniacal salts or nitrate of soda. In fact, the application of nitrogenous manures in this case evidently tended to the complete exhaustion of the land. On the other hand, I was struck with the remarkable effects which potash, applied in conjunction with phosphatic manures, produced upon the clover plant. You could see to a line where the potash and superphosphate had been used. There the clover plant was growing luxuriantly and healthy, and keeping in check the Italian rye grass with which it had been sown. So much, then, with regard to these experiments. I will not detain you by referring to similar experiments which were made last season. I will only observe that they fully confirm the results of the experiments of the preceding season, and at the same time show that in very dry seasons it is most desirable to apply saline manures sparingly, and also to apply them early in the spring. Allow me to impress upon you, that when you apply top-dressings to pasture, or to artificial grasses, or to cereal crops—wheat, oats, or even barley—you should apply them early in the spring, in order that the manure may have a chance of getting thoroughly distributed through the soil by being washed into it. I tried similar experiments on clover—a mixture of clover seeds of different kinds being sown without rye grass or any other grass seeds. The experiments in that case were undertaken by Mr. Kimber (a former pupil of mine), on land which was naturally rather poor, but which had been done extremely well. The clover was sown in the preceding year with a barley crop coming after a good crop of swedes, being well manured with dung and drilled in with 3 cwt. per acre of superphosphate of lime, and fed off by sheep. In consequence of the applications of good dressings of farm-yard manure, of the artificials used for the turnip crop, and of the feeding off the swedes by sheep, with corn being given to them at the same time, the soil seems to have been in excellent agricultural condition. Neither nitrate of soda nor sulphate of ammonia produced any effect on the clover; and that appears to indicate either that the land must have been in an excellent agricultural condition, as I believe it was, or that the clover plant is not benefited by nitrogenous manures. On this latter point we have no conclusive evidence. I have been extremely anxious to ascertain under what circumstances, if any, am-

moniacal salts, or nitrogenous organic substances, or nitrates, benefit the leguminous tribes of plants. Some years ago I made some experiments which seemed to indicate that nitrogenous manures have no beneficial effect on the clover tribes, and probably none either on other leguminous plants. At any rate, I could never see where sulphate of ammonia had been applied to clover, nor could I notice any beneficial result from the application of ammoniacal salts to peas and beans; whereas I could perceive minutely the effects of nitrogenous manures when they had been applied to wheat or barley, or any of the graminaceous family of plants. I was anxious, therefore, to ascertain whether nitrogenous manures have any effect on clover. In the experiments which were conducted by Mr. Kimber, at Tabney Warren, near Abingdon, the nitrate of soda and the sulphate of ammonia had no beneficial effect whatever on the clover.

At the present time the Scientific Committee of the Horticultural Society is engaged in making experiments on special plants. Amongst these are several varieties of clover on which we intend to try the effect of ammoniacal salts alone, and of various mixtures, and I hope the result will be to bring out some useful information on the subject. It is sometimes difficult to conduct experiments on a large scale with sufficient scientific precision; I therefore strongly recommend the Committee of the Horticultural Society to institute some experiments in boxes. A number of boxes are now set out at Chiswick, and I hope that on a future occasion I shall be able to give you the results of the observations which we are making there with respect to the peculiar action of some special fertilizing agents, such as potash and nitrate of soda. So much, then, with regard to the field investigations which occupied so much of my attention during the last season. In close connection with these field experiments I have undertaken to investigate the causes of the benefits which result from growing clover as a preparatory crop for wheat. It is well known to most practical farmers that if they can succeed in growing a good crop of clover they are almost certain to get a good paying crop of wheat. You see how all agricultural matters depend upon each other. If we can by chemical means enable the Farmer, on land which otherwise would not grow clover, to produce a good crop of clover, we shall thus place him in the very best position for afterwards obtaining paying crops of corn. I have come to the conclusion that the very best preparation, the very best manure, if you will allow me thus to express myself, is a good crop of clover. Now, at first sight nothing seems more contradictory than to say that you can remove a very large quantity of both mineral

and organic food from the soil, and yet make it more productive, as in the case of clover. Nevertheless it is a fact, that the larger the amount of mineral matter you remove in a crop of clover, and the larger the amount of nitrogen which is carried off in clover hay, the richer the land becomes. Now here is really a strange chemical anomaly which cannot be discarded, and invites our investigation; and it is an investigation which has occupied my attention, I may say, for more than ten years. I first took it up in my leisure hours when I lived at Cirencester. In the paper which I published in the *Journal* last year, you will find analyses of clover roots and clover soils on the College Farm at Cirencester. Chemists are much in the same position as painters; we cannot finish a work off-hand at once; we take up a thing and then leave it for a time. We then take it up again; just as the opportunity occurs to add to our experience, we take up new matter and make it the subject of investigation. Now this clover investigation has very much interested me for a great number of years; but only during the last season have I been able to bring it to anything like completion, so as thoroughly to explain the strange anomaly that is presented to us in the growth of clover as a preparatory crop for wheat. The explanation is very simple, though puzzling when you know not the chemical points that are involved in the investigation. I cannot deny myself the gratification of showing to you, in a few figures, that, in a thorough chemical point of view, clover is the most exhausting crop that you can possibly grow, whilst in a thorough practical point of view, it is the most restorative crop, and the best preparation for wheat that you can possibly grow. Now if we examine what is taken from the land in the shape of clover, we shall find that, assuming an acre of land to yield four tons of clover hay, these four tons of clover hay will remove 672 lbs. of mineral constituents, and not less than 224 lbs. of nitrogen, which is equal to 272 lbs. of ammonia. Four tons of clover hay, the produce of one acre, must contain a large amount of nitrogen, and remove from the soil an enormous quantity of mineral matters abounding in lime, potash, and also much phosphoric acid. Now, comparing what is removed by a crop of wheat, we find that, in a clover crop, we remove fully three times as much of mineral matter, and a great deal more, six times as much, I believe, of nitrogen, as we do in a crop of wheat. The total amount, to give the exact figures, of mineral matters removed in an average crop of wheat amounts to 175 lbs. an acre; that is, taking in both the grain and the straw, the total amount of nitrogen removed in the grain of wheat amounts to only

26.7 lbs. per acre (not quite 27 lbs.), and in the straw of wheat 19.2 lbs.; or in both together 46 lbs. of nitrogen, which is only about one-fifth of the nitrogen contained in the produce of an acre of clover. We should, therefore, naturally expect that clover, which removes so much more nitrogen from the soil, would be greatly benefited by the application of nitrogenous manures; but the reverse is the case. Wheat, it is well known, is benefited by the application of nitrogenous matters, but not clover. On the other hand, clover is benefited by mineral manures; and at the same time it leaves the land even in a better condition in this respect for the succeeding corn crop than it is without the intervention of clover. I believe a vast amount of mineral manure is brought within reach of the corn crop by growing clover. It is rendered available to the roots of the corn crop, while otherwise it would remain in a locked-up condition in the soil, if no recourse were had to the introduction of the clover crop. Clover, by means of its long roots, penetrates a large mass of soil. It gathers up, so to speak, the phosphoric acid and the potash which are disseminated throughout a large portion of the soil; and when the land is ploughed the roots are left in the surface, and in decaying they leave in an available condition the mineral substances which the wheat plant requires to enable it to grow. Although in clover hay these mineral matters are removed in great quantity, yet the store of mineral food that we have in six or twelve inches of soil is so great that it is utterly insignificant in comparison with what remains; in other words, the quantity of mineral matter which is rendered available and fit for the use of the succeeding corn crop is very much larger than the quantity which is removed in the clover hay. But the accumulation of nitrogen after the growth of clover in the soil is extremely large. Even when the clover crop is insignificant a large quantity of nitrogen amounting to tons is accumulated in the surface soil, and the better the clover crop the greater is the accumulation of nitrogen. In one of my experiments I tried to determine the amount of nitrogen which is left in the portion of the field where the clover was, comparatively speaking, poor, and I found that on the brow of the hill in that field, for it had a considerable declivity, the clover was weak, the produce to an acre being 1 ton, 11 cwt., 99 lbs.; whilst at the bottom of the hill, where the clover was stronger, there being more soil, it was 2 tons, 2 cwt., 61 lbs. Observe, too, that at the bottom of the field the wheat was always better. Now, it is in virtue, I believe, of this accumulation of nitrogen that the wheat grew so much more luxuriantly. I had another experiment tried two sea-

sons ago upon land on which clover grew tolerably well. The experiments to which I refer were tried at Leighton Buzzard, upon the farm of Mr. Robert Valentine. We had a capital field of clover, and I thought I should have a good opportunity of ascertaining whether there was more nitrogen accumulated in the soil after the clover crop was cut twice, or whether more was accumulated when the clover was mown once, and then allowed to run to seed. At first sight you would think that the land was in a worse condition when the crop is grown for seed. We know, indeed, that this is generally the case; but in the case of clover we have a remarkable exception to this rule; and I find, on looking into this matter, that, after growing clover for seed, a very much larger quantity of nitrogen remains in the surface soil, in the first six inches of soil as well as in the second six inches, than when the clover is mown twice. I have ascertained that when you feed off clover by sheep, when it is still young, and everything is returned to it as it is removed from it, the land is in a worse condition than when you take off the clover hay. This is an anomaly. You say it is against all principle and against all reason. But when you see positive evidence in our fields, I think no scientific man has a right to say that it is against all reason and against all principle. It is certainly not against fact. All who are practically acquainted with the subject must have seen that wheat invariably grows less luxuriantly when you feed it off quite young, and that the best crop of wheat is produced when you grow clover for seed. I have repeatedly and repeatedly seen it. Now, if I had been always shut up in my laboratory, I should never have seen it or investigated it. I should have followed in the track of those scientific men who so frequently turn up their noses at anything they cannot understand, or that they think unscientific. Therefore, the men who make the practical experiments must be wrong; and they must be right. Now, I think this is a proceeding which cannot be commended. When we see a plain matter of fact, our simple business is to investigate it carefully and conscientiously. Then we shall find frequently, as I have found in other departments of chemical investigations—I allude to my investigations in farm-yard manure—that a practice which is at first sight contrary to all theory, at least with what we call theory, but not against true science, on being investigated, is found to agree perfectly with the established observations of good agriculturists, and that there are really good causes which fully explain apparent anomalies which sometimes are very puzzling. Referring to those clover investigations, I would just give you the total amount of ni-

trogen which I found in different layers of soil in the same field, and upon one-half of which the clover was mown twice, and upon the second half of which the clover was mown only once, and then left for seed. The percentage of nitrogen in the clover soil twice mowed for the first six inches amounted to .168; in the second six inches to .092; and in the third six inches to .064. Thus you see that it becomes very much less the deeper you go down. The accumulation takes place chiefly in the surface soil, and I believe it is principally due to the dropping of the leaves. When we grow clover for seed those leaves continually drop and enrich the surface soil; and if it be the case, which I think is likely, that the clover tribe of plants is satisfied with the ammonia which exists in the atmosphere, we can at once account for the accumulation of nitrogen in the soil. The clover plants take the nitrogen from the atmosphere and manufacture it into their own substance, which, on decomposition of the clover roots and leaves, produces abundance of ammonia. In reality, the growing of clover is equivalent, to a great extent, to manuring with Peruvian guano; and in this paper of mine I show that you obtain a larger quantity of manure than in the largest dose of Peruvian guano which a farmer would ever think of applying; that there is a larger amount of nitrogen accumulated in the first six or twelve inches of soil than there is in the heaviest dose of Peruvian guano that any person would think of using. On clover soil once mown and left for seed, I found in the three layers of soil a larger percentage of nitrogen than where the clover was mown twice. In the first six inches it was .189; in the next six inches .134; and in the lowest six inches .089. Now the total quantity of nitrogen calculated per acre for 12 inches of soil amounted on that portion of the field mown twice for clover, to 5,249½ lbs.; whereas the total amount of nitrogen in 12 inches of soil on that portion of the field which was mown only once and then left to stand for seed, was 8,126½ lbs.; thus producing an excess of nitrogen on an acre of soil 12 inches deep, calculated as ammonia on the part of the field mown once, and then seeded, amounting to 3,592 lbs. A very large quantity of nitrogen was accumulated when the clover was left for seed; and the total amount of large clover roots was much greater in the part where the clover was grown for seed; for the longer it is left in the soil the more the roots extend. In the different layers of the soil, also, in every instance more nitrogen was found where the clover was left for seed than where it was twice mown. There was, as just mentioned, upon one acre 3,592 lbs. more ammonia in the land where the clover seed was grown than on the other portion

where the clover was made entirely into hay. The chemical points brought forward in the course of this inquiry show plainly that mere speculations as to what can take place in the soil, and what cannot, do not much advance the true theory of certain agricultural practices. I would just mention that it is only by carefully investigating subjects like the one under consideration that positive proofs are given showing the correctness of intelligent observers in the field. I have frequently been struck with the remarkably luxuriant appearance of wheat after a heavy crop of clover has been removed from the land. I at first doubted it; but at last I was obliged to confess that it invariably follows when you get a good crop of clover that you also get a good crop of wheat. An enormous amount of nitrogenous organic matter is left in the land after the removal of the clover crop, and this gradually decays and furnishes ammonia, which, at first, during the colder months of the year, is retained by the well known absorbing properties which all good wheat soils possess. An investigation which I have now in hand, however, shows me that the ammoniacal salts in the soil are rapidly transformed into nitrates. Gradually, the oxidation of the ammoniacal salts which are produced from the decomposition of the clover roots takes place, and nitrates are eliminated; but the benefit that we derive from the growth of clover is very much greater than the benefit that we can derive from the direct application of nitrate of soda, because if we use nitrate of soda, we must just hit upon the right point when it will be beneficial to the growing crop. If there is not sufficient rain or water to wash the nitrate of soda into the soil, it does no good, but rather may do harm by burning up the land. If there is too much rain, it may pass into the drains. Nitrate of soda is not retained by the land—not even by clay soils. It passes through them as through a sieve; therefore, it is the most precarious kind of manure that you can use. It is well if you can hit upon the right time; and this you must find out for yourselves. By observation you will find out the right time in the particular locality where you are placed. You may go wrong once, but for a number of years you will generally hit upon the right time. Speaking generally, I would say that about the middle of February, in most localities, is the right time for the application of nitrate of soda; but, useful as nitrate of soda may be in some special cases, I think the less you use it on poor soils the better. I should like more indirectly to accumulate nitrogen on my land, and not go to any great expense in buying nitrate of soda when my land is in poor condition. It is well if you have very good land, but under

ordinary circumstances it is perhaps better not to rely upon this source of supply. Nitrate of soda may readily be washed out: but you will notice that the benefit that you obtain from clover roots is, that you have a continuous source from which nitrates can be produced. It does not matter if some of the nitrates pass away in the drain; you have an enormous accumulation of decaying organic matter. The clover roots and leaves are not all at once changed into ammonia; but there is a gradual transformation of the organic matter, first, into ammoniacal salts, and a gradual change from ammoniacal salts into nitrates, and you have a complete series of chemical transformations which is highly conducive to the gradual development of the plant. Whereas, by using nitrate of soda, you run the risk of getting it washed away into your drains. Thus, there is more certainty of growing a good crop of wheat through the instrumentality of clover than through the direct supply of the nitrate of soda. These, then, are the chief points which have been established, I believe, by my chemical experiments in the laboratory with respect to the chemical history of the clover crop.—*Journal N. Y. State Agricultural Society.*

CARBOLIC ACID.—A Paris correspondent of the *Rural World* says: A disinfectant, which, from the newness of its employment may be called a fresh discovery, is rapidly coming into favor, to the exclusion of the chloride of lime. This new agent is carbolic acid, or impure phenic acid. Chloride of lime has not only an insupportable odor, but rapidly absorbs the humidity of the atmosphere, losing thereby part of its efficacy—nay, more, it provokes coughing, and reacts on the respiratory organs. In well-ventilated out-offices, the matter is not serious, but in buildings, where animals are “cabin’d, cribb’d, confin’d,” the use of chloride of lime becomes grave. Carbolic acid, on the contrary, presents none of these objections, and it is cheaper; it may be combined with lime, and used either in the form of a powder, or as white-wash—the latter is the best, and has the peculiar effect of chasing away insects. A good way to prepare it is, to add to twenty pounds of quick lime about three pounds of the acid—which costs about twelve sous a pound—when a pale, rose-colored powder results. To make the white-wash it is best to add a pint of water, immediately after employing the acid, pouring more water till the necessary consistency is attained. I may remark that this acid forms a “perfect cure” for the bites of venomous animals. Dissolve it in double its own weight of spirits of wine, and add one hundred parts of water.—*Metropolitan Record.*

Hints on Horse Flesh.

BY DR. LEMERCIER.

As five years are required for the completion of the bone structure of the horse, it is important that he be carefully used until that age. If he is early over-worked, the ligaments which unite his one hundred and thirty bones are prevented from becoming sufficiently fixed to the frame, and he is dwarfed, and wears out or dies long before reaching the full twenty-five years which should be the average duration of his life and vigor. The muscles of a fine horse ought to be thick and very long; thickness ensures strength, and length an extended sweep of limb.

Properly constructed harness is as essential to the comfort of a horse as easy clothes are necessary to the comfort of a man. If harness is not well fitted to the form, the veins are compressed, circulation is retarded, and disease ensues. When in motion, the horse regulates his centre of gravity by using his head and neck. The check-rein is therefore inhuman and injurious.

If a horse is compelled to run when his head is held in a vertical position, the gravity is thrown too far back, and he advances with difficulty. The ears may be called indices of a horse's mind. Intelligent animals prick up their ears when spoken to—vicious ones throw their ears back. A blind horse directs one ear forward and one backward, and in a deaf horse the ears are without expression.

The ears of the horse are short and wide apart, the eyes are well open, and the forehead is broad. A broad forehead indicates good brain. The Arab says: "The horse must have the flat forehead, and the courage of a bull." The horse breathes by his nose and not by his mouth; hence the nostrils should be large, so the fresh air may be taken freely. Dealers enlarge the nostrils of their horses by artificial means. The mouth of a young horse is round; in age it becomes narrow and elongated.

The Arab says, in speaking of his horse: "The first seven years are for my young brother, the next seven for myself, and the last for my enemy."

A horse has only one jugular vein, a man has three. The withers can never be too high; the higher they are the easier the animal travels. The loins should be short, the chest square, and the shoulders well developed. The veterinary surgeon who said, "no foot, no horse," was perfectly correct. The hoof is a curious and complicated mechanism; an elastic box, which expands and contracts as the horse raises or puts down the foot. Shoeing should

be done with care and skill, or the natural form of the hoof is destroyed. Above all, so noble an animal should be treated with the greatest kindness, and no pains should be spared to make his bonds as easy to wear as may be.—*Southern Agriculturist*.

LOTION FOR CUTANEOUS IRRITATION.—*Editors Country Gentleman*: I am much indebted to Prof. Liautard, of the New York College of Veterinary Surgeons, for the following:

6 fluid ounces water,
2 fluid ounces glycerine,
40 drops carbolic acid,

as a lotion for cutaneous irritation on horses, scurfiness, &c. If applied with a small sponge to the roots of the hair of mane and tail, dampening the skin thoroughly, it brings away the dandruff in a surprising way, and allays itching, which often causes horses to disfigure their manes and tails by rubbing. The glycerine keeps the skin soft and retains the carbolic acid much longer, by preventing evaporation, than when the acid is used in water only. A half pound bottle can be bought in New York for 80 cents. When wanted the bottle is immersed in warm (not hot) water, for 10 seconds and a sufficient quantity is liquefied for use. It is an excellent remedy for wounds.—T. J. H., in *Cultivator and Country Gentleman*.

Bots in Horses.

BY DR. WM. ABRAM LOVE, ALBANY, GA.

My attention was first called to the subject of bots in the year 1846. A very valuable horse belonging to a friend, was suddenly taken sick, and, as at that "bloody age," everything that sickened must be bled—man or beast—the knife was popped into the mouth—he bled profusely, and the bleeding could not be stopped. Being on the premises, I was requested to arrest the hemorrhage. On examination, I found the palatine artery opened, and the flow was arrested with some difficulty. Soon the horse died, and, to satisfy myself as to the cause of his death, made a post mortem—found over half the mucous membrane of the stomach destroyed, the other portion highly inflamed, with here and there patches of grubs or bots firmly fastened to the membrane, sometimes forty or fifty on a place—other and smaller ones were mixed with the contents of the stomach, and scattered with the same in the cavity (peritoneal) out-

side the bowels. They had passed through a rupture in the walls, evidently caused by the distention, the injured part giving way (possibly after death), from the accumulation of gas fermentation having been very rapid. This accounted for the death of the horse. The bots were then collected in a vessel and series of experiments instituted, to ascertain, if possible, what would destroy them, without destroying the horse; tried innumerable drugs without producing the least effect. They were then subjected to more severe tests, in nitric, sulphuric, muriatic and acetic acids, in turpentine, decoction of tobacco, and in various tinctures they lived astonishingly. These experiments satisfied me that there was no chance to destroy them with such remedies, without the remedies first destroying the horse.

I observed that *they seemed to relish syrup or sweetened water, and that green vegetable juices of any kind seemed to sicken them, making them lie dormant for hours.* Some would eat the vegetable juices sweetened, and then remain dormant, the same as when immersed in them. I used up all my subjects and this was all the information gained. This much, however, suggested an idea, which was afterwards, by experiment and observation, found to be correct. By feeding the horse on *green vegetable matter*, as corn, millet, wheat, rye, oats, or peas, until his bowels become a little affected, and then giving him a purge of Glauber or Epsom salts, he would discharge the grubs if there are any in him. For years, I have every Spring pursued this course, even until the present time, and though living behind horses for over a quarter of a century, under this plan of treatment, have never lost one *from bots*.

The next *post mortem* made, was in a horse that had been more or less, severely, for several days, perhaps for weeks, showing symptoms of bots, of colic, &c. In this case, as in the other, found the grubs, but not in such numbers, there being only thirty-seven in the stomach, (the bowels were not examined.) These seemed to have been at work longer; some had penetrated deeper, some were entirely covered with *their* mouths on a level with a mucous surface, whilst others had burrowed *between the coat of the stomach* for two, three, five, and as far as eleven inches. Two had thus passed entirely through and were attached to the outside (peritoneal), coat of the bowels, the places, through which they had passed, being distinctly traceable by the lines of inflammation, showing that they, too, had burrowed between the coats from inside to outside. The openings thus made by their exit, were closed by plastic lymph, as well as by the valvular ar-

rangements of the coats, when this viscus was distended. Had they passed directly through, the case would have been more rapidly fatal, by the passage of the contents of the stomach into the outside (peritoneal) cavity, which is always fatal; here it was noticed, for the first time, that the grubs traveled, or penetrated *tail foremost*. They were attached to the mucous membrane *by the tail*, their mouths dipping into the contents of the stomach; this brought up another subject of investigation. They were placed under the microscope, and dissected. In the tail, centrally, is placed a lance shaped piercer, which, by an internal arrangement of muscles, can be protruded or retracted at pleasure, as in the sting of an insect. On either side of this lance shaped piercer there is found a curve grapple, (so to speak), having the same muscular attachments, but by muscular contraction the points are thrown outwards, describing the segments of a circle, having for their starting point, the point of the piercers, thence towards the head. When the piercer is retracted, the points of all three are about on a line. With the points of the grapples the coats of the stomach are hooked up—by muscular contraction they are thrust into it, laterally; while the piercer penetrates in the line of the axis of the body of the grub. On the body, in regular order, is arranged a series of grapples of the same shape, very sharp at their points. They extend in consecutive rings nearly around the body, and so arranged that, commencing with the lateral grapples, they can lift what they catch toward the head and hook it on, or place it within reach of the grapples of the next row above, and so on, until the whole body of the grub has marked its way into the tissues. In this position, by the irritating motion of these grapples, (which are very hard and horn like) the grubs generate pus, upon which they may prefer to subsist while entering what may be termed their chrysalis state, or when they have arrived at or near maturity, and are about to change into the perfect fly.

From this examination, I was satisfied *that they will penetrate the stomach—that they will not eat into it*, but penerate by means of the piercer, and successive rows of grapples, as mentioned above. In other *post mortems*, similar condltions have been found to exist, but no remedies could be suggested further than those mentioned before for the destruction of the grubs.

Some time after this, I attempted to quiet an angry swarm of bees by slipping under the gum a sponge containing something over half an ounce of chloroform and succeeded admirably. When they had become quiet, I removed what honey could be spared from

their stores and left them all quiet. They are quiet still, for the chloroform had killed the last bee.

It is useless to say anything about the multitude of experiments instituted on bees, bugs, butterflies and beetles, to ascertain how much chloroform a hive of bees could take with impunity.

These experiments convinced me that a *very little*, however, would kill any specimen of insects found in this country, and such being the case, it was very natural to conclude that, if half an ounce of chloroform would kill a swarm of bees it would as certainly kill a swarm of bo's, and I determined when an opportunity served, to try it. I had given over an ounce to a horse, by the stomach, with a very happy effect, for colic, and felt that here might be found the long sought grub poison. Soon an opportunity presented in the case of a mule; gave one ounce chloroform in one pint of syrup, with half a pint of water. In a short time, he seemed easy and got up. Directed, at the end of two or three hours, a heavy dose of salts. Within twenty-four hours he discharged between three and four hundred bots, every one as dead as my angry bees. Since that time I have invariably used chloroform in such cases, and always with success, *when used in time*. It will not sow up and heal up in a ruptured stomach, nor will it cure one, but it will kill grubs as surely as it will kill bees.

There is sometimes some difficulty in distinguishing bots from colic and other acute suffering; the horse discovers to you that he is in pain in either case. With colic, he is more or less swollen, from the spasms of the bowels not moving forward the accumulated gases, yet there are few cases of grubs in which this condition of things does not follow sooner or later as a necessary sequence of the destruction of digestion, from the condition of the stomach, produced by the irritation of the grubs. Still, in the treatment, there is no very material difference, as chloroform, by its antispasmodic powers, will relieve colic equally well, and is, without exception, the best remedy. Knowing these things, I, many years since advised my neighbors and friends to its use, and many of them have availed themselves of it with entire satisfaction. Through some of them some years since, the recommendation reached the press, but such things are but little attended to, and no confidence is placed in them, inasmuch as no reason is assigned for the treatment, and, in the majority of cases, no one is responsible for the suggestion made; they are the mere *on dits* of the press, and are so received.

To answer all, or most of the indications in the majority of cases of supposed grubs or colic, the following compound will be found

effectual as a general prescription, and farmers and stock owners, who keep a supply of the medicines on hand for emergencies, will have no occasion to regret it, as by its timely use, they may save many valuable horses and mules during a season.

Take of chloroform one ounce, laudanum one ounce, tincture of Assafoetida, one ounce—mix. Give it in a pint and a half, or a quart of thin syrup, well shaken together. When the horse will eat or drink, give him gruel freely, and follow the dose, in a few hours, with a brisk cathartic of salts. Glauber salts (sulph. soda) is, perhaps, the best, from its anti-acid and anti-septic properties, though Epsom salts, or any other convenient cathartic will answer the purpose, the object being to remove the destroyed grubs, preventing lodgment in the valves of the bowels, where they would produce irritation and inflammation. The saline cathartics answer, as a general rule, a better purpose, as they are febrifuge and reduce the irritation and febrile action in the stomach, bowels and general system.

Some writers contend that *grubs* do no harm to horses, within certain periods of their existence; this is true, but, there is a time when they are seriously detrimental, if not certainly fatal. By following them through one generation *that time* may be seen to the satisfaction of the most skeptical. Like most of the insect tribe, they have four distinct stages of existence—the egg, the grub, the chrysalis and the perfect fly.

The grub fly, or (as it is known in the South) *nit fly*, deposits its eggs, by preference, under the chin of the horse, but being defeated in this by the instinctive restlessness of the animal, it glues them to the hair on the fore legs or breast, or on the mane. Sooner or later, by the greater or less heat of the body of the animal, the larvæ are hatched, when they start immediately in search of food—(this larvæ, though very minute, is but a diminutive grub, armed with a piercer in the tail—the two lateral curved and pointed *grapples*, with the successive rings of the same kind as described above, all perfect.) Fastening or hooking these into the hair, *they travel backwards*, (as do some other species of grubs,) until they reach the skin of the animal. Their efforts to penetrate this produces an itching sensation; the horse scratches them off with the upper teeth—they are caught on the lips, to the mucous-membrane of which they fasten themselves and feed on the mucous secretions; otherwise they perish. Becoming mixed with the food, they are conveyed into the stomach. Here they subsist on the gastric juice, (chylipoetic and pancreatic fluids, and mucous secretions, *until they are full grown grubs*, or reach the age of maturity. Up to this

period, they do not materially interfere with the health or comfort of the horse, insomuch as they are well supplied with food from the contents of the stomach and the visceral secretions. But when they have reached this mature age, they cease to feed and cease to grow, and, like grubs or worms of other insects—as the silk worm, the grass worm, and the various other moth beetles and fly tribes—become dormant after fastening themselves, and enter the chrysalid stage—so to speak—preparatory to coming out perfect flies. Just at this stage they become dangerous. It is as natural for them to *fix* or *bury* themselves when they have finished feeding and are going into their dormant state, as it is for the silk worm to spin its cocoon, the cotton worm to wind itself in a leaf, or the grass worm to bury itself in the earth, or beneath some object, where, undisturbed, it can pass the chrysalis state and come out in its perfect state a moth. It is not in feeding, (though the grub is carnivorous,) but in seeking this resting place, this grave, as it were, that they injure the stomach.

By an instinctive common consent, all of mature age, at the same time, go about this work; by collecting into colonies and fastening themselves close together, they mutually aid each other in the work of penetrating the stomach or other tissues. The younger grubs, hatched from a different deposit of eggs, do not join with those of mature age, but bide their time. When this fixing or burrowing commences, the horse gives signs of pain, and, if their work goes on, it will surely prove fatal, sooner or later, as the grubs may be in greater or less numbers. Should there be but few, and the animal be able to withstand them, after a given period they *hatch*—a wingless gad fly is the product. This passes with the defecated foecal matter, when, by exposure to the air and the solar rays, its wings are rapidly produced, as in the horse and other flies. The perfect gad-fly is thus generated, male and female. In this stage they copulate, after which the male dies, and the female goes on her work of depositing her eggs, from two to three hundred or more, instinctively seeking a place where the larvæ can be nourished with proper food.

Thus tracing the history of one generation, which is the history of every generation, we readily see why some have concluded that bots do no harm. They have been found in horses dying from other causes, or killed in good health, where no signs of injury by them could be detected. They had not reached, in such cases, that age when they were about to change to the chrysalis stage, for it is here and here only, that they are injurious to any material extent.

When they are fastening themselves, or burying themselves, to change to the perfect fly, they do their evil work, but failing to fasten, they pass off doing no injury. They live on animal fluid; are fond of the sweet taste of *pus*. When the eggs are deposited on the cow, the larvæ sometimes burrow into the punctures made by the black cow fly. In this position, *still working tail foremost*, they, from the irritation produced by the motion of their sharp *grapples*, generate *pus*, more than enough, at times, for their own consumption, and it terminates apparently in a boil. From this they hatch the perfect fly. In the rabbit the larvæ are able to penetrate the tender skin, where, in the same manner, they generate their own food by irritation. In the nostrils of sheep they are also very troublesome, and their work is sometimes mistaken for distemper, &c. Naturalists claim that these are all different species of *œstrus*. Be that as it may, their habits, their form, their anatomy, and their natural histories, are the same with this difference: that one gains admission into the natural cavity, whilst the other finds or makes an artificial one.

The writer has known one case where the larvæ made its way into the face of a man, (perhaps entering through the excretory orifice, or duct of a sebaceous gland,) producing irritation, which was at first supposed to be a carbuncle. The man contended very strenuously that there was "something alive in it." This partook so much of the character of Voodooism, (as we find it in these latter days,) that it was treated as a joke, until medical aid was called, when an incision revealed a nearly full grown "*wolfe*"—a *regular glad-fly grub*.

Whether, in this case, the fly deposited its eggs on the whiskers, or the man, in working with his horses, accidentally had the larvæ transferred to his face, was a question not to be decided. It was on the right lower jaw, and was very painful.

This much on the subject of bots. These observations, many of them, were made nearly one-fourth of a century since, and the conclusions drawn apace with them. The writer has seen no reason to change his opinions here expressed, after over twenty years' investigation. If they are worth the attention of your readers, and any should chance to profit by them, he will be amply repaid for the little time spent in throwing them thus loosely together for the benefit of the curious or the interested.—*Southern Cultivator*.

He that observeth the wind shall not sow; and he that regardeth the clouds shall not reap.

Pigs—Their Rearing and Fattening.

Every animal likes comfort, and pigs like comfort just as much as any other animal does, and they thrive on it. To secure this comfort a convenient piggery must be erected: long narrow houses suit best, with yards opening on; and those yards must be flagged, having the feeding troughs at the ends with weather roofs to protect the food and the pigs from excess of weather. Again, the troughs must have louvre boards that revolve easily, so as to allow the food to be placed in the troughs from the outside of the yard, and to prevent the pigs from seeing it during the time it remains in them for cooling or mixing, and also to protect the troughs from the inroads of other animals at times when they are empty. When feeding time has arrived, the louvre boards should be shut, to secure quiet to the pigs. When the feeding is over they should be raised to allow the troughs to be cleaned out. The troughs had better stand six inches from the ground, and they should rest on solid masonry, and be of cast iron. Troughs made to stand on legs allowing crevices between, are nothing but a polite invitation to rats and mice to take up their habitation under them. The yards of the pgeries are best open, and care must be taken to grade them so that all water may flow to the centre and thence off to the main drain or overflow of the barn-yard. The houses ought to stand eight feet in the clear on the inside, and about eight feet more from the flooring of the lofts to the pitch of the roofs. The lofts insure warmth in severe weather when they contain the winter's bedding, and coolness in summer, as they keep off the direct rays of the sun. Withered leaves, dried ferns, and coarse hay or straw not excellent enough for feeding purposes, should constitute litter for all animals; pigs particularly enjoy a bed of dry leaves as they nestle in them, and the bed is still more grateful if it have a few inches of fine sand underlaying it, thus keeping the animals drier than otherwise they could be, and also protecting them from the stone floors.

The piggery should be divided into several compartments, separated as to the yards, with strong railings with wicket doors in them to permit any communication for cleaning.

Not only must every breed be kept separate, but all ages get on best when only allowed to associate with those of their own standing. Two boars, even of tender age, cannot remain in one sty; no more can two sows that have bred dwell together in peace, and sucking pigs should have free room to run about in proximity to the mother, unmolested by other ages. Store pigs and fattening

pigs must live apart. The former require more freedom and a wider range, as, if pent up, instead of growing they will fatten, and the latter, if not kept close, will take longer time preparing for the butcher. Twice in the day is sufficient to feed store pigs, and three times will suffice for fattening pigs. Sucking pigs, when first weaned, should have abundance of nourishing drink, and should get small quantities of cooked roots several times in the day for at least ten days after being taken from the mother. Hot food is highly injurious to all pigs. Warm sloppy drinks of bran water are better than those made with cold water, but they cannot constitute daily food except for nursing sows.

When the sow is first pregnant she may feed and range largely, but as she comes near to farrow she had better be kept more quiet, and her food must be nourishing but not fattening. For three to five days after the birth of the young, she should have tepid bran drinks, and cooked roots sparingly added to them four or five times in the twenty-four hours, and it will be necessary to watch her for some time lest she overlie her young, and to provide her with a soft bed, not too deep, as the young pigs love to cover themselves in the litter, and are thus very liable to come to harm.

The black Essex are a thrifty breed, easily kept and easily fattened. They require cleanly food and warmth. Having that they prosper. They are wonderful rooters, and if allowed the run of stubble during the Autumn months, they appear in good order as stores in the first days of November.

The Berkshire are a good breed for those who have high-situated farms. They are more hardy than the Essex, but they do not take equal condition with them. Some white breeds are excellent for size and fineness of meat, but none surpass the true Essex.

Pigs must never really run out of flesh. If they do, sad indeed is it for their owner's pocket; but it is a bad speculation to keep pigs, unless the farm, the dairy and the kitchen garden supply them liberally. Buying mill produce cannot pay. When the farmer has to buy for his pigs the sooner he sells them the better.—*N. Y. Times.*

Book Farming.

Those who are opposed to book farming are requested to read the following and give us their opinion:

There was a farmer once who hesitated not to hurl all manner of invectives against book farming, and those who consulted books for

advice. By long experience and practical information he had become quite successful in the culture of grapes and trees. His fields were clean and fair, and highly productive. His trees were vigorous, well adjusted and profitable.

In conversation with a friend he related his experience in raising grapes and trees, entering into the minutest details, sometimes becoming quite eloquent when describing his victories over the enemies which infest them.

"His knowledge," he said, "was gained by dint of application, by actual experience, and hard labor. It was none of your book knowledge, written by men who knew nothing about farming."

"Well," said his friend, "if all this valuable information, gained by assiduous labor and observation of so many years, and which you have so clearly described, were written out and published, which would you have a young and inexperienced man do, take this as he finds it from your pen, or go through the same tedious process that you have gone through with, including all its vexations and losses?"

The question puzzled him, and he was silent for a moment, but was obliged to confess, after all, there was much that was valuable in books, because combining and relating the results and experience of practical cultivators.

Do not condemn book farming. You may criticise certain books very severely, because written by ignorant, theoretical hands; but there is always good wheat as well as abundant chaff. So there are many good books as well as poor ones. The time may come when a single hint from a book or paper may save your farm or orchard, or add to your wealth, by telling you how to increase your crops.—*Independent*.

INTERNATIONAL INDUSTRIAL EXHIBITION.—A movement is on foot at Washington to inaugurate a plan for an International Industrial Exhibition in that city in the year 1871, and the idea has been regarded with much enthusiasm. At a meeting held a few days ago, a national executive committee was appointed, consisting of the President and Vice President of the United States, Chief Justice Chase, the heads of Departments, the Governors of the several States and Territories, and the Mayors of the principal cities; also a local Special Executive Committee of ten for the District of Columbia, to which are to be added the Secretary of the Interior, the Commissioner of Patents and the Commissioner of Agriculture. Other committees are to be appointed. It is proposed to establish a capital stock of one million dollars in shares of \$50 each.

Manures—How and When to Use Them.

The best method of using stable or barn-yard manure for corn or potatoes, is to haul it fresh from the cellar in the condition in which it rests in the vaults, spread it upon the ploughed field, and harrow it in with a Geddes harrow. This is what is called "long manure," and is a form which, according to the opinions of many farmers, is unsuited to immediate use; also, it is objected, that in spreading fresh manure upon ploughed fields and covering it only superficially with earth, much of it is lost by evaporation; or, more correctly speaking, certain volatile, gaseous constituents rise on the breeze and are wafted away. In our view, both of these notions are incorrect. The excrement of animals must undergo a kind of fermentation, or putrefactive change, before it is assimilated by plants, and it is better that this be carried forward in the field, as there it is in contact with the soil, which is greedy to absorb all the products of the chemical change. Creative power has bestowed upon dry earth prodigious absorptive capabilities. If a lump of fresh manure as large as a peck measure is placed upon a ploughed field uncovered, and allowed to ferment or decay in the open air, the absorptive powers of the earth are such that it will actually attract toward it ammoniacal and other gases, and thus rob the atmosphere of its natural volatile principles. A film of earth no thicker than the rind of an orange, placed over a lump of manure, will effectually prevent loss of manurial products, under all possible circumstances. It will be agreed, then, that a harrow is equally as effective as a plough in protecting manure in the open field. It is better to have the manure near the surface, as the rains can reach it, and dissolve the soluble salts, and by percolation carry them down to the hungry roots of plants. Long manure is not lost when deeply turned under by the plough, but the farmer does not secure the whole value of his dressing under this mode of treatment in any case, and on some soils the loss is a most serious one. In the process of soap-making, it becomes necessary to set up a leach. Now, the farmer will not attempt to exhaust the tub of ashes of its potash by forcing water into the bottom and dipping the liquid off from the top. The natural percolating or exhausting process is downward, in accordance with the laws of gravity. The soluble alkalies and salts are driven downward, and in the case of the leach we must have a vessel ready to receive them at the bottom; and in the case of the same substance leached from manure, we must have the manure so placed that plant roots will be at hand to absorb them before they pass beyond their reach.

Manure is never so valuable as when it is fresh. It then holds in association not only all the fixed soluble substances, natural to the solid excrement, but much that is of great value, found only in the liquid. It is in a condition to quickly undergo chemical change, and the gaseous, ammoniacal products secured are double those resulting from that which has been weathered in a heap out of doors for several months.—*Boston Journal of Chemistry.*

The Norfolk and Great Western Railroad.

The Philadelphia *North American*, of Friday, the 11th instant, has an article headed, "Norfolk, Memphis, El Paso and Guaymas," in which it directs special attention to the Norfolk and Great Western road, as an essential link in the great chain that is destined to extend from ocean to ocean, along the shortest and most favorable route. The *North American* pronounces it a "grand undertaking," and adds, "there can hardly be a doubt that eventually it will succeed." It says:

"The westward construction from Norfolk would seem to be in a fair way of being tried, and to depend as much upon the conduct of politics in Virginia—rendering immigration desirable, and so making a market for the lands subscribed—as upon anything else, or all things. There can be little doubt that, with such a population as the State can subsist and needs, this road is a necessity; nor any more doubtful that the construction of the road would invite a great amount of immigration. The immediate question is whether the lands sold will bring enough to construct the road so far that it can join the Memphis road. If it can, that will be a powerful agent for the construction of the El Paso Pacific road, since there will then be two Atlantic ports and two cis-Mississippi lines interested in the work. There is now a route from Norfolk via Lynchburg, Abingdon, Knoxville, Chattanooga and Corinth, that really accomplishes the proposed union, but a great loss of time and increase of distance. In order to compete with other roads now operating, Norfolk must have the shortest possible line. That would be many miles south of Lynchburg, though cutting the North Carolina line near Abingdon, where the Virginia and Tennessee line passes. It would protract the road due southwestwardly, and much nearer to Nashville than Chattanooga, which is rapidly being converted into a sort of grand junction for all Southern roads. From Memphis this road is partially constructed as far west as Little Rock. We need not recite the course or distances here, as we have already

given them at length. We say of this road that eventually it will be built beyond a doubt. It gives a port to a great and rich interior country between the Mississippi and Atlantic, that needs such accommodation and is rich enough in agricultural and mineral wealth to sustain it. The port of Norfolk is one of the very best on our whole border. Norfolk will unquestionably pursue the policy of Northern ports as fast as she can procure population and money for doing so. The sales of her lands ought to furnish her both at an early day."—*Petersburg Express*.

Self-Culture.

Much has been written to stimulate the youth of our land to constant exertions and unremitting toil in, and self-sacrificing devotion to their great, grand aim of being Congressmen, Governors and Presidents. Much good has resulted from it. But the field is broader, the laborers more numerous, the prospect for a more abundant and richer harvest greater, and the needs for incentives more pressing, when we write directly to the young mechanic, farmer and day-laborer, and advise them to become, through self-culture, well educated, not in the binomial theorem and quadratics, not in Latin and Greek, but to be well educated in their respective vocations, and in consequence be able to become great and successful men. Not to the fastidious, the drone, the coward do we write, but to him who is not ashamed of his trade or calling; to him who is willing to work and lug and tug; to him who fears no obstacles, is intimidated by no seeming dangers or supercilious sneer, do we write, and, begging, ask him to "shake off the soft dreams that encumber his might and burst the fool's fetters that bind him." We have no objection to the blacksmith's being an aspirant for congressional honors, or the farmer's fond desire of filling the gubernatorial chair, or the hod-carrier's delusive dream of occupying the White House, but as so few, so very few out of the many, do realize the consummation of their bright imaginings, we say seek first distinction, young man, in your own trade or calling, through self-culture, by improving the many opportunities within your reach; by pursuing steadily, with an unflinching determination, your one aim of being at the front and head of your vocation. Invent, improve, and invent again. Be unsatisfied, but constantly progressive. Devote your days to physical work, your nights to mental, for headwork must be the pioneer, the foundation, the contriver and the director. Then pursue those studies, although under many diffi-

culties, which assist you in your trade, and throw light on your business. Be an ornament to your profession. Elevate it. And then, if you desire, seek political fame, or better still, let it seek you.

We are satisfied that the political arena is crowded. We are equally satisfied that the same amount of effort and mental culture, bestowed upon the farmer, the mechanic, and the day-laborer, would make more successful men, would dignify labor, and would result in untold blessings to the age and race. Read the lives of successful men—no matter in what field of labor—and be comforted and encouraged by their trials, be moved by their success, follow their example, and be determined to succeed.

We invite your attention to Washington, who was a surveyor and farmer; to Franklin, who was a printer; to Roger Sherman, who was a shoe-maker; to Murat, who was the son of an inn-keeper; to Ney, who was a notary's clerk; to Sir William Hershel, who was a drummer-boy in the English army; to A. T. Stuart, the prince merchant, who was an Irish emigrant, with only a capital of twenty-five cents; to James Gordon Bennett, who was a penniless boy, and who commenced the great New York Herald on a borrowed capital of five hundred dollars; to Horace Greeley, who walked into New York barefooted and almost bareheaded; to George Law, one of the wealthiest sons of New York, and who was a stone-cutter and mason, and who worked on the Dismal Swamp Canal locks; to John Jacob Astor, who accumulated millions from units; to Christopher Columbus; to Elihu Burritt, the learned blacksmith; to Stephens of Georgia; to Sir Humphrey Davy; to Abraham Lincoln and Gilbert C. Walker, and to a host of other successful men through self-culture.

Do you wish to be successful in life? Then follow their example; let the wonderful potency of the human will inscribe, high up on the tablet of fame, your name as an educated, successful worker. Dare to do. What man has done, man can do.—*Portsmouth Gazette*.

MANY value mules more than horses; they live longer, are tougher, require less food and smaller harness, and can jump higher.

WHAT goes against a farmer's grain? His mowing machine.

Agricultural and Mechanical Fairs.

It is gratifying to see both in the North and South the revival of interest which is manifesting itself in agricultural fairs. The great States of New York, Pennsylvania and Indiana have already held this fall their annual exhibitions, though the pleasure of the occasion in the last named State was greatly marred by the boiler explosion which entailed such a fearful loss of human life. The general renewal which we are witnessing of agricultural fairs is of happy augury to the most important department of our national industry, and which, indeed, lies at the foundation of the commercial and manufacturing activity and of the general prosperity. The State fairs and the district and county fairs which, in our own and neighboring States, are affording promise of becoming established institutions, furnish evidence of expanding strength and progress in the direction of agricultural development which may well enlist the sympathies and co-operation of the whole country. The cultivators of the soil, who, a few years ago, were called from their industrial pursuits to engage in the destructive enterprises of war, are, with redoubled energy, repairing the wastes thus produced, and by the aid of agricultural machinery and labor-saving implements and appliances, have been enabled during the past year to gather in an extraordinary harvest. The necessaries, and what were once considered the luxuries of life, can now be obtained with comparative ease and cheapness. Even the change of the system of labor in some of the States, and the demoralization from political agitation, have not prevented the earth, under the influence of a favorable climate and fertile fields, from bringing forth an abundant increase. There is scarcely a country in the world which combines so many advantages as the United States for cultivating and perfecting all the necessary elements of subsistence, comfort, and even luxury, while our extended system of internal improvements affords ready transportation for the products of the soil, so that if there should be a failure of crops in any particular section, it would not be felt in a degree past remedy.

The annual agricultural fairs, which before the war were so popular and useful, have proved themselves of great practical value to agricultural enlightenment and progress, as well as afforded valuable opportunities for the interchange of views and experiences by the agricultural community, and of social enjoyment. It is the ambition of those engaged in getting up these exhibitions to collect together by liberal premiums the best herds of cattle, horses, sheep,

hogs, poultry and fowls, the varied products of the garden and farm, the specimens of housewifely industry, and manufactures of various kinds, machinery, &c., facilities for conveying which are increased by the liberal terms upon which the railroad and steamboat lines generally afford transportation on these occasions. The county and district fairs are valuable tributaries to the State fairs, and facilitate the selecting of the best articles for the great exhibitions, besides awakening and concentrating the public interest upon the subject.—*Baltimore Sun*.

New Process in Wheat Culture.

The result of an experiment made during the past season, by R. A. Gilpin, at his farm in Westown, on the wide planting and cultivation of wheat, appears to be quite remarkable. In giving an account of the experiment, Mr. Gilpin says: The ground measured an acre within a fraction; it was not selected on account of any inferiority, but was much the same as the rest of the field, and was manured and prepared just the same. The seed was the red Mediterranean, and not very good, being taken from the wheat grown on the place the previous season, which was injured by the weevil. It was drilled in at the rate of three-quarters of a bushel to the acre, on the 25th of September, at the same time as the rest of the field. The peculiarity in the treatment was, that every other pipe of the drill was stopped, so that the rows of wheat were twenty inches apart, or double the usual distance. In the spring, when the ground had become sufficiently dry to work, a small garden hoe harrow was run between the rows, working the ground to the depth of about three inches; this was done only once. The effect of this working was very apparent; the wheat took a rapid start and outgrew the rest of the field.

As the season advanced it grew tall and strong, and no amount of wind or rain had any effect to lay it down; when the heads formed, their greater length was very apparent. It was backward in ripening, and the rest of the field was cut and hauled in a week before this was ready. Now for the result: the experimental wheat yielded twenty-three bushels to the acre, and the rest yielded only nine bushels to the acre; the quality of each was about the same. Whether from defect in the seed, or the wet season, or the late planting, the whole of my wheat was injured both by rust and weevil, and the experimental part did not escape—it was affected just as the rest was.

This experiment cannot be regarded as entirely satisfactory; the season was exceptional, the seed used was inferior, and the yield of the experimental part of the field was not absolutely great, but only by comparison with the rest of the crop, which was a poor one, from the effects of the rust and the weevil; but the result is, under any circumstances, sufficiently reasonable to attract the attention of farmers and induce a further trial.—*Farm Journal*.

Cotton Manufacturing South.

The South, as we have seen, has made gratifying progress in the manufacture of cotton, as well as in its culture, during the last few years. And in view of the probability of an early recovery from the wastes of war, a proposition for the Southern States to work up their fine long cotton into yarns for the English and other foreign markets, instead of exporting the bulk of the raw staple, as in times gone by, has been revived, and is meeting with great favor. Such an industrial development, it is seen, would be equivalent to a positive increase of the active labor on the plantations, since it would utilize a class of the population not available for the fields, but which is at present measurably useless, and, to some degree, a positive drag on society.

The South, it is well known, has important advantages in the manufacture of cotton. It has the raw material at hand, an abundance of food within easy access, an unlimited water power, an unsurpassed climate in many sections, plenty of timber and coal, together with extended and extending facilities for communication and transportation. The only present drawback, or impediment, of any importance, is the lack of adequate capital; but as this is already being supplied, there would seem to be no good reason why manufacturing industry should not at once take deep root, since it has been demonstrated that the relative cost of converting cotton into yarn, as between England and the South, is in favor of the latter. The Superintendent of the Salada Cotton Mills, at Columbia, S. C., has furnished some interesting facts and figures on this point. He assumes, by way of comparison, the price of cotton at Columbia to be 20 cents per pound; at New York, 23.5 cents; and in Manchester, England, 24 cents, which he assumes are fair proportions. On this basis the cost of making a pound of cotton into yarn at Columbia would be 9 cents, while in New York it would be 14.31 cents, and in Manchester 11.25 cents. Taking into account the freight and insurance from Columbia to New York, and the cartage, commission,

and other charges here, the cost of manufacturing yarn is found to be fully 5 cents per pound cheaper at Columbia than in New York, assuming that the article is worked up here. A similar calculation having been entered into, as between Columbia and Manchester, shows that the manufacture of cotton yarns can be done cheaper at the South than in England, by about the difference in the value of currency and gold. The figures of a manufacturer of yarns in Manchester, show the cost of a pound of yarn there—taking 24 cents per pound as the cost of the cotton, and 11.25 as the cost of conversion—at 35.25 cents. The cost of the transfer of the pound of Southern yarn—costing in the South 29 cents—from the South to England is, including both freight and insurance, bare 1.5 cents. This, added to the preceding cost, makes the cost to England 30.5 cents, whereas the pound manufactured in England costs 35.25 cents; showing that the Southern manufacturer can put his yarns down in England 4.75 (5.20) cheaper than the English manufacturer can make them there. If these figures, which refer to No. 20 yarns, are substantially correct, they surely afford a very strong argument for pushing the manufacture of cotton at the South, as well as its culture. By working up the surplus cotton into yarns for exportation, it has been roughly estimated that a profit of twenty dollars a bale would be realized over and above the profit of growing the staple. In a crop of three millions of bales, this would afford an extra profit of sixty millions of dollars—enough, surely, to create a strong incentive on the part of the men of means to engage in the business.—*Economist and Dry Goods Reporter.*

Where Woman's Power Lies.

The true power of woman is the resistless power of affection. In asserting this, am I attempting to mask the great questions of the day with "a glittering generality?" Am I disposed to deny any lawful claim which woman may make for a more extensive recognition of her rights, or a larger field for her powers? No; I am not doing any such thing. Let woman do whatever her faculties can achieve—let her go wherever her instincts demand. If she truly follows her instincts, I am sure she will not go wrong. I am sure of this also, that wherever man may lawfully go, woman may lawfully go. Wherever woman ought not to be, it is a shame for man, it is a shame for humanity to be. I merely insist upon this, that whatever woman may accomplish in the world, with brain or hands, will draw its vital efficacy, its talismanic virtue from the heart; and

that her strength in all these various shapes of action and of influence, in its root and essence, will be the strength of the affections. The biding of a woman's power must ever be in the fervor and steadfastness of her love. And her most triumphant characteristic is love, culminating in its highest expression—that of self-sacrifice. A thoughtful writer has observed the contrast between the sexes even in their play. "The boy," he says, "gets together wooden horses and a troop of tin soldiers, and works with them. The girl takes a doll and works for it." This is woman's great peculiarity—the work of self-sacrifice—working for others.—*Rev. Dr. Chapin.*

GREASING WAGONS.—Few people fully appreciate the importance of thoroughly lubricating the axles, etc., of wagons and carriages, and still fewer know what are the best materials and the best methods of applying them. A well made wheel will endure common wear from ten to twenty-five years, if care is taken to use the right kind and proper amount of grease; but if this matter is not attended to, they will be used up in five or six years. Lard should never be used on a wagon, for it will penetrate the hub, and work its way around the tenons of the spokes, and spoil the wheel. Tallow is the best lubricator for wooden axle trees, and castor oil for iron. Just grease enough should be applied to the spindle of a wagon to give it a light coating; this is better than more, for the surplus put on will work out at the ends, and be forced by the shoulder-bands and nut-washers into the hub around the outside of the boxes. To oil an axle-tree, first wipe the spindle clean with a cloth wet with spirits of turpentine, and then apply a few drops of castor oil near the shoulders and end. One teaspoonful is sufficient for the whole.—*Exchange.*

HOW TO KEEP UP YOUR HAY CROP.—A farmer who had been in the habit of selling his hay for many years in succession, being asked how he kept up his hay crop without manuring or cultivating his land, replied: "I never allowed the after math to be cut." If this rule is generally followed there would be less said about the running out of grass fields or short crops of hay. Some farmers feed off every green thing and compel cattle to pull up and gnaw off the roots of the grass. Cutting rowen is certain death to hay crops. A farmer had better buy hay at forty dollars per ton than ruin his hay field by close grazing. The general treatment of grass lands in this respect is wrong and expensive, and should be abandoned as a matter of profit and economy.—*Exchange.*



Horticultural Department.

JOHN M. ALLAN, - - - - - EDITOR.

The Augusta County Fair.

The second annual exhibition of the Augusta County Agricultural Society was held at their grounds, near Staunton, on the 13th, 14th and 15th ultimo. Large numbers of visitors were in attendance each day, and financially the Fair was a grand success. The exhibition was creditable. The number and variety of articles were not as great as might have been expected from such a wealthy and flourishing county, but the quality of those exhibited was very fine. The main cause of the paucity of articles was that too much dependence was placed upon foreign contributions, and not enough effort made to bring out home productions. This is the fault of our county and district Fairs; they look to distant cities for their exhibitors; and while it is well to do all they can to encourage these, still they should not overlook the fact that their main object is to develop home resources. The Central State Societies will of necessity attract the attention of parties at a distance, and it is not possible for these to attend all the county as well as the State exhibition. The Horticultural department was not by any means full, but the show of apples was very fine. Some good specimens of grapes were also upon the tables; while the vegetables exhibited were of first quality. Too much credit cannot be given to the President (Col. Baldwin) and the Executive Committee for the great care taken to make the visitors enjoy themselves, and nothing could have passed off more pleasantly than did the whole exhibition. The grounds of this Society are admirably adapted to its purposes, and we are sure that a long and prosperous career awaits it.

WORK.—The *unit* by which quantities of work are measurable is the labor necessary to raise one pound the height of one foot through space.

Grapes Under Glass.

While so much is being done to foster the cultivation of our native grapes—to determine their relative value for wine-making or table use—to ascertain what varieties are best suited to each section of our vast country, and to produce new kinds, each one of which, as it makes its appearance, is loudly proclaimed to combine all the excellencies of its predecessors—we wish quietly to call attention to another kind of grape culture—that is, the cultivation of foreign sorts under glass. Every one who knows anything of them will readily acknowledge the superiority of most of them over any, even the best, of our native kinds, in size of bunch and berry and in flavor. If they could be grown out doors without protection, away would go Catawba, Norton, Delaware, Iona, Rebecca, Eumelan, and the host of others which require a catalogue of ten pages for their enumeration. But some protection they must have, and this has deterred many who are able to enjoy this luxury, from the attempt to grow them. The cost of a suitable structure is much less than is generally supposed; and though skill and experience will always excel, good results may be attained by following simple directions. First, as to structure. A simple frame house, weatherboarded back and front and at the gable ends, with common hot-bed sash well fitted on for a steep roof, is all that is necessary. A house 20 feet long, 6 feet wide, 7 feet high at the back and 4 feet high in front, will cost as follows:

300 feet plank,	-	-	-	\$7.50
7 pieces scantling (12 feet),	-	-	-	3.50
6 sash 3x6½ feet,	-	-	-	18.00
Door,	-	-	-	3.00
				\$32.00

Any man who can use a saw and hatchet can build it, and any one who cannot will pay about ten dollars for the work. Of course this is not very accurate, as nothing is estimated for nails, digging post holes, &c. Nor is the proper allowance in the length of the house made for the strips between each sash, but it answers the purpose of showing that the plan is feasible to persons of very moderate means. This is the house; now for the grapes. A border must be prepared the whole length and in front of the house by digging a trench three feet wide and two feet deep; this to be filled with well rotted stable manure, woods earth, and good top soil in equal parts. The vines will be planted near the centre of the

trench, about four feet apart, and trained along under the surface of the soil to the apertures made for them in the front wall. It is better, however, that they make their first summer's growth in the open air. The holes through which they pass into the house must be carefully covered with earth. Once inside and fairly under way, the pruning and training is quite similar to that of grapes on a trellis out doors. The supports should not be nearer than six inches to the glass. The sash, or, at least, every other one, must be movable, so that there may be proper ventilation. Common sense, with such information as can be obtained from books, will soon settle all the details of management, and in the third summer there will be ample repayment for all the labor and cost.

We commend the experiment to all who are fond of Black Hamburg, White Muscut, Barbarossa, Lady Downes, and other delicious grapes, which they can only obtain now by paying fruit vendors one dollar per pound for them.

This, of course, is only intended for those who know absolutely nothing about cold graperies. Those who grow for profit are experienced, and have much more elaborate houses than the one suggested above.

Parlor Flowers.

The frost has already nipped many of our more tender flowers, and the more hardy ones will soon succumb to its rigorous demands. It is time, therefore, to arrange for in-door bloom, to enliven the dull and dreary days of Winter. The fortunate possessors of conservatories may have a large variety of beautiful flowers, from which those less fortunate are debarred; but there are many plants which can be grown and will bloom well in the drawing room.

Make a shelf by a southern or eastern window, and fill it with some of the following list; water when dry, and do not keep the room at too high a temperature, (the cooler the better, provided frost is kept out,) and you will have flowers until the Spring suns bring out early bloom in the garden: Hyacinths, in glasses and in pots. Bouvardia—all the varieties of this plant are showy, and though not profuse, are constant bloomers. The *Camelia Japonica* is almost indispensable, even in a small collection, and can be had in endless variety, from pure white to deepest crimson; these should be kept cool. *Cincrania* requires patient waiting until the latter part of Winter, when its ample show of bright eyed bloom will well repay the little attention required. Some varieties of *Fuchsia* will

bloom constantly through the season; to produce the finest effect, they should be kept in pyramidal shape. Of Geraniums and Pelargiums, the varieties are numerous, and nearly all are valuable as window plants. Add to these Heliotrope, Mignonnette, Sweet Allyesum, Primroses, and Stovia, for a constant show of white flowers.

Nut Culture.

THE HICKORY (*Carya*).—Had Columbus discovered nothing in the new world but the hickory tree, it would have been worth all the labor, danger and expense incurred by that inspired navigator. This may seem an extravagant statement, but we make it deliberately. But whatever *Goth*, *Vandal* or *Yankee* bestowed upon it, the harsh and uncouth name of "hickory" deserves not our thanks. Blessings on the gentle botanist who tried to make amends to the stately and precious fruit-bearer, by giving it the musical denomination of *Carya*. We will describe only the two most valuable varieties—Shell-bark (*Carya alba*), and the Pecan (*Carya olivæformis*)—first, however, giving the general characteristics of the tree. The soil it prefers is a deep alluvial loam, yet it grows well upon uplands. The Shell-bark is found in abundance in New York and other Northern States, but the Pecan is peculiar to the South and West. No tree of the forest attains a loftier height, or is clothed with a richer, more beautiful foliage. S. B. Buckley, Esq., states that he measured a Pecan on the Brazos, in Fort Bend county, Texas, which was sixteen feet, five inches in circumference at three feet from the ground, and one hundred feet in height. The County Surveyor of Navarro county, in the same State, says he measured one on the Trinity river which was *twenty-three* feet in circumference at three feet from the ground. There are few things about which Englishmen evince so much national pride as their oaks. They will give you the history, the age, and the dimensions of every famous oak in the three kingdoms. The *Beggar's oak*, in Bagot's Park, they will tell you is *twenty* feet in girth five feet from the ground. *Wallace's oak*, at Edenslee, near where Wallace was born, is *twenty-one* feet in circumference, and sixty-seven feet high—thirty-three feet lower than Buckley's Pecan in Fort Bend. A tradition states that Wallace and three hundred men hid themselves from the English in the branches of this great oak.

The Shell-bark has a broader leaf than the Pecan, and both are of a rich, dark and luxuriant green.

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The Pecan (pronounced *pecon*, accent on the last syllable.) grows as far north as Missouri, and as far south as the Gulf of Mexico. Michaux states that he saw a swamp of 800 acres on the right bank of the Ohio, opposite the Cumberland river, entirely covered with it. The nut is about an inch, or an inch and a half long, smooth, cylindrical, and thin shelled. It is a delicious nut, but not quite equal to the Southern Shell-bark, which is much superior to the Northern variety. The latter, however, are rarely seen in the market, while the former are abundant, but higher priced, even here, than any imported nut. It is delightful to see the ease with which they grow from the seed. You may rely on them with as much certainty as any other crop whatever. I have about fifty young trees, all obtained from the seed. A fine Pecan stands in the Capitol grounds in Washington, and it is said, bears abundant crops of excellent nuts. The nuts can be obtained almost anywhere for planting; every fruiterer keeps them.

The wood of the hickory is very valuable, being employed in almost every branch of mechanics where tough timber is required, and for fuel it has no equal. Hickory hoop-poles are always in demand. The hickory is worth cultivating for hoop-poles alone. It is worth cultivating for mechanical purposes alone. It is worth cultivating for fuel alone. It is worth cultivating for its beauty as a park tree alone. Its value as a fruit-bearer is beyond estimation. Plant ten acres for your son, in Pecans and Shell-barks, and our word for it, he will find his ten acres quite enough.

The Government ought to encourage the planting of beautiful nut-bearing trees, by exempting all land planted in valuable fruit-bearers from taxation. I see no use in planting trees that are not valuable, when it is just as easy to plant those that are.

Care of Newly-Planted Trees.

Many tree-planters think that when the roots of a tree are once in the ground, the work is done; when, in fact, it is only begun. After the tree is carefully planted, it should be mulched with leaves, straw, tan, or whatever similar material is most accessible; not so thick as to exclude the air, but sufficiently so to retain the moisture in the soil; for, although there may be plenty of rain early in the season, the probability is that there will be a drought, more or less severe, before the end. The top should be shortened to correspond with the quantity of roots lost in digging up; and, in doing this, cut to a good bud, and one so placed that the shoot

which grows from it shall improve the shape of the tree. This will generally be on the outside of the shoot. As the prevailing winds in this country are from the west, it may be well to leave the limbs on this side a little longer, to assist in balancing the top. Make a neat cut, close, but not too close, to the bud, and, if you are very particular, cover the cut with grafting-wax to prevent evaporation. The cutting-back should be done as early as possible. If in an exposed situation, it must be staked, or otherwise prevented from shaking by the wind. It is sometimes difficult to drive a stake firmly in the soil just loosened by planting the tree, and, the larger the tree, the greater the leverage on the stake; so we prefer to steady the tree by placing large stones on the ground around it, which also assist to keep the ground moist. But for very large trees, we have found the best way to be to fasten four guys near the top, first wrapping a cloth around to prevent chafing, and making the lower ends fast to a short stake driven in at some distance from the tree. The lines need not be large; one of two or three ropeyarns twisted together will fasten a tree twenty-five feet high so firmly, that nothing but a hurricane can shake it. The further care will be mainly in destroying insects, and pinching out any useless shoots as soon as they start, and the ends of those which grow so much stronger than others as to impair the balance of the tree.—*Journal of Horticulture.*

AUTUMN TRANSPLANTING has many advantages over Spring transplanting; the first, and not the least important of which is, the comparative leisure of the season, especially to nurserymen. We know of no greater satisfaction than the reflection, at the approach of Winter, that all the work which could possibly be done to save time in the hurry and drive of Spring work has been thoroughly done; that all the gaps in the young orchard rows have been carefully filled, and the roots protected by sufficient litter against the cold of Winter, and the tops staked, or otherwise guarded against being shaken by the wind.

Another and perhaps a still greater advantage of Autumn planting is the superior condition of the soil—dry, warm and friable; while in Spring, especially on heavy soils, and even on light soils, in the early part of the season, the ground will often be so wet and cold that it is impossible to plant a tree properly. A man cannot set a tree in the best manner without putting his hands into the

dirt ; and the discomfort of handling cold, wet earth, is not unworthy of consideration. Every owner of a fruit garden of any size should have a few large trees in reserve, so as to replace any that may die without injuring the uniform appearance of the rows ; and, as these will require special care in transplanting, it should by all means be done in the genial days of Autumn, when both air and earth are favorable for the work. In such days, how can any man who intends to plant trees possibly defer it to the hurry of Spring, and very likely to the end of the season, when the buds are starting, and the danger of injury is tenfold ? Besides the greater loss from evaporation, the greater injury of rubbing off the bud in handling is a serious consideration.—*Journal of Horticulture.*

ROOT-PRUNING OF FRUIT TREES.—The *Western Rural*, in a careful article on root-pruning, prescribes this method for doing it best :

“In root-pruning, a trench is opened around the tree to be operated on, at a suitable distance from the trunk, that distance depending upon the size of the tree and the consequent extent of the roots. About one-fourth of the roots may be cut away, and as they extend nearly as far as the branches, the diameter of the circle formed by the trench may be regulated by the spread of the branches. In root-pruning small trees, the soil need not be dug out of the trench, as the roots may be cut by driving down a very sharp spade to the required depth. When a large tree is to be operated on, the lowest roots can scarcely be reached without removing the soil from the trench to the depth of a foot and a half, and then cutting a circle with the spade in the bottom of the trench, at least one foot in depth.

“When a tree has been deprived of the greater number of its fibrous or feeding roots by this method of pruning, manure should be applied to encourage the growth of others. A root-pruned tree, without the application of suitable manure, generally produces a large number of very small fruit ; but when the trench is filled with suitable manure, and a heavy top-pressing of it applied to the area within the circle, very favorable results may be expected. On the whole, root-pruning has been found to be injurious to the longevity of trees, and should not be resorted to until all other expedients have failed. The best time for performing this operation is in the Fall, immediately after the growth of the tree has ceased.”

Trenching for Roses.

So far as I have noticed, the very dry weather of this summer is producing an unusual amount of Mildew among the roses. As I happened to have one bed of hybrid perpetuals, all of which are in the most perfect health imaginable; free from even a suspicion of mildew during all the dry heat, it will interest many of your readers to know how this result has been obtained. It is simply by *trenching*.

The soil in this bed would, by most persons be considered extremely unfavorable for growing good Roses, being really nothing but light sand, such as is looked upon as just the thing for sweet potatoes. Two years ago last Spring it was trenched 20 to 24 inches deep, and very liberally manured with ordinary stable manure, the Roses being then planted a little more than three feet apart. They made a rapid growth, and towards the end of November were deeply mulched with strawy manure, all of the mulching being removed about the first of April. Last year the bloom and growth were both admirable. They were again mulched during the winter, and as soon as the mulching was removed in the Spring, the Roses were pruned and the shoots pegged down in such a manner as to completely cover the bed.

Such masses of rich foliage and superb blossoms as they produced last June can hardly be imagined, and were worth almost any amount of trouble to procure. And as I said before the foliage is still in perfect health, in spite of the extreme heat and dryness; for the roots run far down into the cool and moisture of the deep soil.

GEO. SUCH, in *Gardener's Monthly*.

PEAR GROWING IN DELAWARE.—Against my own judgment, I left a few pear-trees in variety without cultivation. They have not done half as well as when I cultivate, and the fruit will only average about one third the size. I have an orchard of sixteen thousand pear-trees on my farm in Denmark, Delaware, one half standards and one half dwarfs, four, five, and six years in orchard this spring. My Bartletts and Belle Lucratives are producing from half-peck up to a bushel to a tree. Fire-blight is the great drawback to the planting of pear-orchards in this and other sections. I have not lost, I believe, one tree by fire-blight in my orchard of ten thousand trees. The seventeen year locust destroyed some for me last summer. I should have been pleased for some of your Boston pear-men to have seen my orchard in fruit.

Yours truly,

RANDOLPH PETERS, in *Journal of Horticulture*.

Wilmington, Del., Aug. 23, 1869.

SUCCESSFUL PLUM CULTURE.—William Day of Morristown, N. J., an inveterate curculator-hater, lays down his rules for successful plum culture :

“First, let the planter be sure to secure thrifty trees; for no after-culture will compensate for the loss and consequent mortification and vexation of any attempt to recureerate *stuned plum-trees*; like a stunted mule, they may *grow*, but seldom *thrive*. Next plant as compact as admissible—say sixteen feet apart—in rows, in the form of a peach orchard, to the extent of one quarter or half acre at least, as a less quantity of ground occupied than we propose would hardly be a remunerative experiment. At this distance each way, 170 trees would plant an acre. Give the trees good nursing, care and attention, by constant cultivation, *until they are ready to bear*. I should have said the plat should be adjoining the hog-pen; then run around the patch a suitable inclosure, and turn in the hogs, and give them the ‘freedom of the city,’ from the time the first blossom is seen until the fruit is ripening, then turn out the hogs; spread clean straw around the trees for the fruit to be gathered upon; handle it with the greatest care; send immediately to market; pocket the profits, and lie down at night upon your pillow with a clear conscience, thanking the Almighty for so great a blessing as the delicious plum.”—*Horticulturist*.

A BRILLIANT FLOWER-BED.—Select or make a small isolated bed in some spot fully exposed to the sun, and let it contain fine sandy peat, or fine sandy soil of any other kind; and let it be well drained, of course, and place a few rustic stones round the margin and through the bed, half or more buried in the soil, so that the whole will be elevated a little above the grass level. Over the bed, beside the stones, &c., plant a few, a select few of the best dwarf sedums and saxifrages of the incrustated section; and perhaps, if you are fond of them, a few of the very choicest spring bulbs,—such, for instance, as that little Siberian exquisite *Puschkinia scillo-dites*—just to vary the bed a little at all points, and give it unsurpassed charms in spring. But for the brilliancy and chief beauty, you must have a number of plants of a very beautiful hard perennial, *Calandrinia umbellata*. Make the groundwork of your bed of these, and put a few good specimens on the little elevations about the highest points and tiny rocks in your little bed. Plant in spring, give a good soaking of water in dry weather and wait for the result. The *Calandrinia* is a continuously-blooming plant; and it begins to flower, if well grown, you may expect a display of the purest magenta-colored flowers for many weeks.—O’SHANE, in *Floral World*.

Mining Department.

Mineral Wealth of Nations.

IRON AND COAL.

[From an interesting and instructive essay, by Albert D. Richardson, on Mining, in the *American Year Book* for 1869,* we extract the following articles on Iron and Coal, two very important constituent elements of the mineral wealth of nations:]

IRON.

Iron, like gold, was known to the ancients. We read that "iron is taken out of the earth," and again that Tubal Cain was an "instructor of every artificer in brass and iron." One of the attractions of the Promised Land lay in its being a country "whose stones are iron, and out of whose hills thou mayest dig brass." And when Cræsus showed Solon his stores of gold, Solon answered, "If another king cometh who hath more iron than thou, he will be master of all this gold."

Iron is the most useful, most abundant, and most valuable of all the metals. It can be beaten into any shape, cast into the most intricate patterns, rolled into thin plates, and drawn into fine wire of the greatest tenacity. It is alike adapted to the most massive and the most delicate works. As an illustration of the enhancement of its value by labor, it is asserted that the worth of a piece of iron in different stages of manufacture may be as follows:—In the bar, \$5; in horse-shoes, \$10.50; in needles, \$55; in pen-knife blades, \$3,285; in shirt buttons, \$29,480; in hair-springs of watches, \$250,000.

Iron was used long before the Trojan war. Solomon's saying, "as iron sharpeneth iron," relates to a practice ancient even in his day. Monuments of Thebes and Memphis, forty centuries old, represent butchers sharpening their knives upon steel. Scythia was termed the "mother of iron." As early as A. D. 120, the Romans erected forges in Britain, and remains of their furnaces are still found upon the tops of hills. The ancients, however, had only wrought iron. The earliest notice of cast iron is found in the records of the 15th century. American Indians were altogether ignorant of the metal.

In Virginia in 1620, a ton of iron cost £10, the price of a man's labor for a year. Among the early American colonists, an iron pot

*Edited by David N. Camp, and published by O. D. Chase & Co., Hartford, 1869, pp. 824.

was often bequeathed to some heir as a special mark of esteem, and all pots and kettles used were of wrought iron. Virginia in 1662 forbade sending iron out of the colony, under a penalty of 10 pounds of tobacco for every pound of iron exported. The first iron works in the United States were built "on Falling Creek in Jamestown river," in 1619; but, three years later, the Indians destroyed the furnaces and massacred the workmen and neighboring settlers to the number of 347 persons. Iron works were established at Lynn and Braintree, Mass., in 1644. The first iron vessel cast in America was an iron quart pot, about 1650. In 1673, New England had five furnaces. In 1790, the first furnace was erected west of the Alleghanies.

The ancients melted the ores in open furnaces, into which air was forced by hand bellows. The metal collected in a "loop," and was then beaten on an anvil, the impurities separating in a semi-fluid cinder. The ores are now reduced by suitable fluxes in huge blast furnaces raised to an intense heat, sometimes estimated at nearly 3,000° Fahr., by currents of hot air driven in by powerful machinery. The resulting pig iron is then passed through puddling and rolling mills, and converted into wrought iron of commerce, which again, by the addition of a slight proportion of carbon becomes steel. The high blast furnace was invented in 1558. Up to 1700, the ores were reduced by charcoal; then bituminous coal was substituted. The puddling process was invented in 1784, and the hot blast introduced in 1827. Anthracite coal was first successfully used for smelting in Pennsylvania in 1835. The following statement of the iron product of the United States for 1867, shows the amount of pig iron produced by the different qualities of coal:

Anthracite pig iron, 784,783 tons; raw bituminous coal and coke, 318,647 tons; charcoal, 344,341 tons; total, 1,447,771 tons.

The early uses of iron were few and comparatively rude. Modern civilization has greatly stimulated its product, and introduced it into nearly all the industries of life. The first great increase in demand was due to railroads. Wooden rails were used until about 1700; then strap iron came in, but was not generally adopted. In 1767, the Colebrook-Dale iron works in Shropshire, England, had a very large quantity of iron on hand, as the prices were extremely low. The wooden railway belonging to the works requiring frequent and expensive repairs, the proprietors laid down their pigs of iron for rails, observing that when the prices of metal rose, they could easily take them up. Their greatly superior value soon became obvious, and it was found that ten horses could do the work which

formerly required four hundred. Still it took many years to bring them into general use. Now the total length of railways in the world is upwards of 170,000 miles, an iron belt that would encircle the globe six times, and is almost long enough to connect earth with the moon. In 1828, the annual product of pig iron was: Great Britain, 700,000 tons; United States, 140,000 tons; total product of the world, 1,000,000 tons.

The yield for 1866 (the latest full annual returns received), was:

England.....	4,530,051 tons.	Russia.....	468,000 tons.
France.....	1,300,320 "	Spain.....	75,000 "
Belgium.....	500,000 "	Italy.....	30,000 "
Prussia.....	800,000 "	Switzerland.....	15,000 "
Austria.....	12,000 "	Zollverein.....	250,000 "
Sweden.....	226,676 "	United States.....	1,175,000 "
Total.....			9,322,947 tons.

No gold and silver mines have ever been the sources of such uniform and long-continued prosperity as some of the rich deposits of iron in Great Britain and Pennsylvania. The iron product and manufacture of the United States has increased enormously within the last few years, and the vast beds of iron convenient to coal in various parts of the Union, are destined to make America the chief source of supply for the world. Pennsylvania takes the lead of all our States and Michigan follows. The Lake Superior region which made its first shipment in 1855, already produces nearly one-fifth of the iron ores of the United States. The product of this region is increasing with great rapidity. So is the yield of Missouri, whose three mountains of solid iron known as Iron Mountain, Pilot Knob, and Shepherd's Mountain, are among the most remarkable natural curiosities on our continent. Oregon is beginning to supply the markets of the Pacific coast with domestic iron. The product is very pure in quality and exceedingly abundant. The only furnace yet in operation is at Oswego, on the west bank of the Wallamet river, six miles south of Portland. Another company is formed, and works are building on the Columbia river, below the mouth of the Wallamet; and within the next few years the iron product of the State is likely to be very large. Colorado is already producing iron; and the ore is found in greater or less quantities in nearly or quite all the new States and Territories, as well as in all the older ones. Where coal is not convenient to the iron beds, the ore is often shipped to other States for reducing. The following table shows the estimated product, not of ore, but of pig iron, in our several States, for 1868:

Pennsylvania.....	850,000 tons.	New Jersey.....	47,000 tons.
Ohio.....	230,000 "	Michigan.....	60,000 "
New York.....	180,000 "	Missouri.....	20,000 "
New England States.....	35,000 "	Other States.....	65,000 "

Total.....1,477,000 tons.
 Add the amount of iron made in forges and bloomeries direct from the
 ore, without being first reduced to pig iron..... 33,800 "

Total production of domestic iron in United States for 1868.....1,512,800 tons.

Imports of iron into the United States for the first nine months of
 1868:

Iron, pig and puddled.....	68,069 tons.	Castings.....	963 tons*
Bar, Angle, Bolt, and Rod.....	29,040 "	Hoops, Sheets & Boiler plates,	11,933 "
Railroad, of all sorts.....	209,363 "	Wrought, of all sorts.....	3,128 "

Total iron.....322,501 tons.
 Steel, unwrought..... 11,322 "

Grand total.....333,823 tons.

COAL.

The English use this word generally in the plural, as "coals are high;" but with them it refers only to bituminous coal, the variety commonly used in Great Britain. In this country, the singular noun is applied to all the varieties. The two great divisions are bituminous and anthracite. Anthracite contains fewer gaseous products than bituminous, and is richer in carbon.

Coal was an article of export from Newcastle, England, in 1281. During the reign of Edward I. its use in London was prohibited by several acts of parliament, the smoke being regarded as injurious to health. But as wood grew scarce, coal was substituted, and for 200 years it has been the chief fuel of Great Britain. During the last half century, the growing use of the steam engine has enormously increased its consumption everywhere. The annual coal product of the world is now estimated as follows:

Great Britain.....	104,000,000 tons.	Belgium.....	12,000,000 tons.
North America.....	22,000,000 "	France.....	1,000,000 "
Germany.....	17,000,000 "	Other countries.....	7,000,000 "

Total (value \$375,000,000).....172,000,000 tons.

The area of workable coal-beds in all the world, outside of the United States, is estimated at 26,000 square miles, of which 1,500 are in Australia, 6,000 in Great Britain, 1,000 in France, 800 in Austria, 500 in Belgium, and 100 in Russia. That of the United States, not including Alaska, is estimated at over 200,000 square miles, or *eight times as large as the available coal area of all the rest of the globe*. It has been calculated that at the present rate of consumption, the world's supply of coal would run out within

a few generations, but doubtless some new fuel will be introduced, or some new discoveries of coal made, before such a period comes.

Coal veins are usually reached by vertical shafts, but when found in hills are worked by horizontal galleries. On the slope of the hills opposite Pittsburg, 300 feet above the beds of the Monongahela and Ohio, may be seen the openings of many of these galleries. This mode of taking out the fuel is far cheaper than hoisting it. Coal shafts in England sometimes reach a depth of 2,000 feet. Upon the largest of them, ten years' labor has been expended, costing half a million of dollars.

The ventilation of the mines is an important point, and is best accomplished by up and down shafts, the foul air ascending in the former, and atmospheric air passing in to the workmen by the latter. Bituminous coal gives off large quantities of explosive gas, often causing terrible accidents. The Davy and Stephenson safety lamps prove of great service in preventing the ignition of this fatal fire-damp. Carbonic acid gas resulting from the explosion is known as choke-damp, and suffocates all who breathe it. Despite every precaution, such accidents are not unfrequent. One near Wigan, Lancashire, England, occurred in the latter part of November, 1868, causing the death of sixty miners.

The coal deposits on the James river, fifteen or twenty miles from Richmond, were the first worked in this country. The great anthracite region of Pennsylvania, with its thriving cities and large population, was a dense wilderness half a century ago. Thirty years ago few mines in America were sunk below water level. Anthracite was first used for ordinary fuel in 1804, and for generating steam in 1825. The first railway for its transmission was built in 1827. It now gives employment to upwards of forty railroads and canals.

Pennsylvania takes the lead of all our States in coal production, and, indeed, her yield is more than 77 per cent. of all the coal product of the Union. That from the central portions of the State usually goes east to tide water. That from the rich bituminous region about Pittsburg and the head waters of the Alleghany is used for local consumption, or passes down the Ohio and Mississippi rivers. Nearly all the States along the Alleghany mountains have rich coal-fields, as have also Ohio, Illinois, Indiana, Iowa, Michigan and Missouri. Coal is found in workable form in more than three-fourths of all our States and Territories. The following table from the Census Report, gives the statistics of coal mined in the United States during the year ending June 1, 1860:

ANTHRACITE.

Pennsylvania.....	8,114,842 tons.
Rhode Island.....	1,000 "
Total.....	8,115,842 tons

BITUMINOUS.

Pennsylvania.....	2,660,786 tons.	Iowa.....	41,920 tons.
Ohio.....	1,265,600 "	Alabama.....	10,200 "
Illinois.....	728,400 "	Washington Territory.....	5,374 "
Virginia.....	473,360 "	Missouri.....	3,880 "
Maryland.....	438,000 "	Rhode Island.....	3,800 "
Kentucky.....	285,760 "	Michigan.....	2,320 "
Tennessee.....	165,300 "	Georgia.....	1,900 "
Indiana.....	101,280 "	Arkansas.....	200 "
Total Bituminous.....	6,218,080 "		
" Anthracite.....	8,115,842 "		

Grand total (value \$20,243,637).....14,333,922 tons.
 Increase in value since 1851, 182 per cent.

No full official statistics have been collected since, but the returns of the Internal Revenue for 1864 show the product of that year to have been 16,398,186 tons, and the total product for 1868 did not vary far from 19,000,000 tons, valued at \$26,000,000. The ratio of the several States has not changed greatly since 1860, except that the product of California, has sprung up. Her Mt. Diabolo mines are yielding about 200,000 tons annually. A land carriage of six miles and a water carriage of fifty, takes their product to San Francisco. The Bellingham Bay mines, in Washington Territory, already yield largely, and are capable of much greater development. They produce an admirable quality of coal, used extensively on the Pacific coast for manufacturing purposes. In our Atlantic cities, English cannel coal is used for making gas. The duty on imported coal is \$1.10 per ton of 28 bushels. Our imports and exports for 1867 are given as follows by the United States Bureau of Statistics: Coal imports, 521,305 tons, value, \$1,455,044; exports, 285,101 tons, value, \$1,846,199. The export is chiefly anthracite, and more valuable than the imported qualities.

MEXICO is extremely rich in gold and silver. The total product of her mines, since the conquest by Cortez, has been estimated as high as \$3,000,000,000. The ancients worked veins of silver, tin, and copper, but were ignorant of iron.

Erratum.

There is an error in the article on "Coal" in our October number, eighth line from the top of page 625: instead of "1752" read 1792.

Household Department.

Rural Architecture.

No. 2.

Not only is the hexagonal form the best for the interior of dwelling houses, but for the exterior, it is, in my opinion, infinitely more elegant than any other form. The English artist, architect and poet, John Ruskin, thus discourses on the external features of architecture. "Until our street architecture is bettered, until we give it some size and boldness, until we give our window recesses and our walls thickness, I know not how we can blame our architects for their feebleness in their more important works. Their eyes are injured to narrowness and slightness; can we expect them at a word to deal with breath and solidity? An architect should live as little in cities as a painter. Send him to our hills, and let him study there what nature understands by a buttress, and what by a dome. Positive shade is a more necessary and more sublime thing in an architect's hand than in a painter's. As the great poem and the great fiction generally affects us most by the majesty of their masses of shade; so there must be, in this magnificently human art of architecture, some equivalent expression for the trouble and wrath of life; and this it can only give by depth or diffusion of gloom, by the frown upon its front and the shadow of its recess. And among the first habits that a young architect should learn, is that of thinking shadow, not looking at a design in its miserable liny skeleton, but conceiving it as it will be, *when the dawn lights it and the dusk leaves it*, when its stones will be hot and the crannies cool; when the lizards will bask on the one and the birds build in the other. Let him design with the sense of cold and heat upon him; *let them cut out the shadows as men dig wells in unwatered plains*; and lead along his lights as a founder does his hot metal; let him keep the full command of both, and see that he knows how they fall and where they fade. We thank thee, Ruskin, for this matchless word-painting; and humbly answer, that our hexagonal exteriors answer all these requirements; now projecting with bold strength of outline, into the warm sunlight, and now nestling all this variety of sunshine and shadow is not wrought out for the mere purpose of making a building beautiful, but is primarily ob-

tained for the *strength and economy of the structure*. Architects have hitherto tried in vain, to secure the greatest amount of beauty, with the greatest economy and strength of structure. We think the hexagon house secures both beyond any thing that has yet been built. It has been known for ages that bees construct their cells of the largest size and strength possible, in proportion to building material employed, and *each cell is a hexagon*. So, even in architecture, instinct may instruct reason. Instinct makes no mistakes, and may convey many valuable lessons to the proud reason of man, if he will but stoop to learn. In a magazine article, we cannot enter into details; but we hope our readers will follow out these hints for themselves, and we will close this part of our subject with a few more quotations from our favorite Ruskin. "Architecture is an art for all men to learn because all are concerned in it, and it is so simple, that there is no excuse for not being acquainted with primary rules, any more than for ignorance of grammar or spelling, which are both of them far more difficult sciences." "When men do not love their hearths, nor reverence their thresholds, it is a sign that they have dishonored both." Our God is a household God, as well as a heavenly one.

CLOTH FROM HOP VINES.—Mr. Van der Schelden, of Ghent, in Belgium, has discovered that the hop contains a first-class textile material, and has invented a process by which the fibers of the vine can be used for cloth without, in the least, interfering with the crop of hops. The following is said to be Mr. Van der Schelden's process of separating the fibres:

When the hop blossoms have been gathered, the stems are cut, put up in packets, and steeped like hemp. This maceration is the most delicate process, since if it be not made with all due precision, it is very difficult to separate the threads of the bark from the woody substance. When the stalks have been well steeped, they are dried in the sunshine, beaten like hemp with a beetle, and then the threads come off easily. These are carded and worked by the ordinary process, and a very strong cloth is obtained. The thickest stalks, also, yield the material for several kinds of rope.

SOAPING CLOTH FOR SEWING.—We often wish to make garments of new, bleached muslin before washing the fabric, and the starch contained in it makes it difficult to do so. To obviate the difficulty, take a bit of hard soap and shave it down to an edge, and run it along the edge of the cloth you wish to sew, and you will find it will have a magical effect. It is equally efficacious if you are to use a machine.

THE SOUTHERN PLANTER AND FARMER.

RICHMOND, VIRGINIA, NOVEMBER, 1869.

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Editorial Department.

Augusta County Fair.

It gives us pleasure to report that, the late exhibition of this association is generally represented to have been attended with decided success. A detail of many particulars of the proceedings on the Fair grounds, in addition to what are given elsewhere in this issue, would have proved highly interesting to our readers, but we are withheld from presenting them by the appropriation of all of our dispeasable space to the reproduction, in part, of the admirable address of Prof. Mallet. We say in part, because we are compelled, for want of room in this number, to reserve a portion for our next issue. This address is fraught with the rich and matured fruits of his profound knowledge of chemistry, and its cognates as applied to agriculture, and is expressed in language so simple and upretending, and yet so clear and perspicuous, as to adapt its teachings to the commonest standard of popular intelligence:

ADDRESS OF PROF. J. W. MALLET,

DELIVERED AT THE AUGUSTA COUNTY FAIR, WEDNESDAY,

OCTOBER 13, 1869.

Gentlemen of the Agricultural Society of Augusta County:

In accepting the invitation with which I was honored a few weeks ago to address you upon this occasion, I was conscious of my inability to bring before you much of interest or value, but I felt that the invitation was one which, on several grounds, it would have ill become me to decline.

The conditions which surround us in Virginia at present are such as to render it in a very high degree desirable that all the useful arts of life, and especially agriculture, from which all the others spring, shall be fostered and advanced by every legitimate means.

The work set before the men of our day is so plainly the re-building of the ruins in the midst of which we find ourselves placed, that no difference of opinion upon this head exists, and no discussion of so simple a proposition is necessary. We all see that the results of

the toil of generations that have preceded us are swept away, and that we are called upon, by more than the usual incentives that stimulate the exertions of men, to labor for the speedy restoration of material comfort and prosperity amongst us. It may safely be said of Southern men that they are *willing* to go to work, and that they manifest an increasingly strong disposition to do so, not singly and selfishly, but with such mutual aid and encouragement as come of united public efforts. Those are none the less willing to work *together* helpfully and hopefully now who remember that they have stood shoulder to shoulder in other and yet more severe trials in the past.

Amongst such united efforts at advancement in material prosperity there seem to be few better calculated to do good than the annual meetings of societies like yours, bringing together the people of large districts of the State in pleasant social gathering, affording opportunity for full discussion of questions of industrial interest, and displaying the actual results of improved agricultural practice and the novelties of mechanical ingenuity.

It is the duty of every member of the community to aid on such an occasion in any way he can—best, by far, in the exhibition of some visible success achieved with the plough or the hammer; but if not so, then even in the inferior capacity of the speaker of a few feeble words, which, so far as they go, may at least be not inappropriate.

It is not only as a member of society, however, that I feel a most lively interest in the operations of such societies as yours and a hearty readiness to assist in them by any humble means in my power. The duties of the Chair which I have the honor to hold in the noble University of the State make me particularly desirous of profiting, as a student of agricultural science, by the valuable opportunities for gaining information, both by eye and ear, which occasions like the present afford.

He whose duty it is to teach, if he would be more than a mere charlatan and pretender, must be especially solicitous to learn himself—and one can seldom, during the year, find himself so well situated for collecting information bearing upon agriculture, for getting at new and interesting facts, and for comparing the various opinions and experience of many intelligent men, as in the midst of an assemblage like the present.

But, yet further, I have felt that a peculiar obligation rests upon me to appear before you to-day, as affording a fitting occasion for the acknowledgement of a debt of thanks which the State University and the State itself owes to the liberality and public spirit of a former citizen of your county.

The professorship of Chemistry, in its special applications to agriculture and the other useful arts, is one the probable utility of which had long been recognized, but which could only be established in a really efficient form by the expenditure of large sums for buildings, apparatus, and material, so as not merely to provide for the performance of chemical operations by the teacher, but also for the

practical instruction of students working with their own hands. It is upon the bequest of the late Mr. Thomas Johnson, of Augusta county, that the University of Virginia has been able some two years ago to introduce the study of the scientific relations of agriculture amongst the subjects of instruction within her walls, and since then to erect a new Laboratory building of such ample size and thorough equipment as to challenge comparison with any institution of learning in America, in which the student may verify upon his own work-table the facts of nature of which he reads, and may learn to determine such facts for himself, to ascertain the constituents of a soil, analyze a specimen of manure, find out the real value of a marl, or prove the nature of a supposed metallic ore. A still larger gift to the University, intended for the promotion of agricultural science, has of late added to its means of usefulness in the same general direction; but, as I have said, the present is a peculiarly suitable occasion for acknowledging the original obligation of the State at large to your county for a service, the value of which you can correctly appreciate.

When called to the professorship in question, and in attempting to enter upon its duties, I have felt most strongly that, in order to any really rapid and steady progress in scientific agriculture, it is of the highest importance that there should be a more thorough mutual understanding and more concert of effort between scientific workers in the Laboratory and practical farmers in the field than have generally existed heretofore—that the chemist shall by all means help the farmer if he can, but that the farmer shall also be willing to help the chemist, and shall see the importance even to himself of his so doing—that both shall work together in a spirit of mutual good-will toward the attainment of such knowledge of the laws of nature as may help us in the great task of bringing forth from the earth food for the use of man.

It is to a few remarks upon this head that I venture to ask your attention to-day:

To almost any one who has noticed the general progress of scientific agriculture for the last thirty years it will be evident that there has been a want of such concert of thought and effort as I refer to.

Scientific writers, at least those really deserving of the name, have addressed themselves almost exclusively to scientific men—their works have been based mainly upon experiments made on a small scale, in the laboratory, or under more or less artificial conditions—their reasonings and conclusions have been expressed in language so far technical as to repel the greater number of general readers. On the other hand, the efforts made by practical farmers have been made, in far too many instances, without an adequate knowledge of such well-ascertained laws of nature as bear upon the questions at issue, without acquaintance with the facts already ascertained by workers in the same direction, and without such a degree of accuracy and precision in the determination and statement of the means employed, and the results obtained, as can alone render useful to others the experience of those devoting themselves to such research.

Such one-sided investigations, whether by the men of science or the tillers of the soil, are greatly to be deplored.

Amongst the noblest pursuits that can engage the thought and energies of man is the discovery of the unchangeable laws of eternal nature and the manner in which we must make our work accord with their dictates if we are to draw from the stores of wealth with which a kind Providence has surrounded us, all that we may enjoy of comfort and prosperity.

There are four principal steps in the process by which man learns to subdue the resources of the world about him to his service and enjoyment:

First—*Observation* of facts in nature.

Second—*Experiment*, for the discovery of further facts.

Third—*Logical deduction* of principles from the facts ascertained.

Fourth—*Application* of facts and principles when determined, to the practical wants of our daily life.

The husbandman notices the regular return of seed-time and harvest, the usual succession of the seasons, the facts that certain plants require certain climates and thrive best in certain soils, that in a new country a dense natural growth of hard-wood trees is an indication of fertile land, while thin scrubby pines furnish as distinct evidence of poverty of soil.

As regards such observations, the main requirement is that they be *accurate*—that they be recorded in such a way as to really represent the truth, not a part of the truth, but the whole truth, fully, fairly, and impartially stated. Thus, for instance, it is matter of the most common remark that the accounts given by travelers, in distant, and little known countries, of what they have seen and learned vary enormously in reliability. Two men will visit a foreign land, and, although both men of intelligence, both having had fair opportunities for observation, and both free from any disposition wilfully to deceive, they will make reports differing from each other almost as light from darkness. The one may be careful to examine into the sources of his information and to verify his supposed facts as he accumulated them—the other may set down as facts what he has but imperfectly seen or uncertainly heard. Or, even though both reports contain nothing but well-ascertained facts, nothing but what could be proved to be true, yet the one may contain a large and fair collection of *all* the principal facts bearing upon the questions discussed, while the other contains only such unusual and exceptional facts as totally misrepresent the general condition of things. I know not what your experience here may have been, but further South there are few people who have not, within the last three or four years, heard just such conflicting accounts of the observations made in Brazil and some other countries by those who went thither at the close of the recent war; some of those who returned represented the region visited as a paradise, in which it scarcely required more than the exertion of dropping the seed to ensure the most luxuriant harvests, while others brought away the impression that the hardest toil and greatest privations could scarcely be

expected to result otherwise than in half starvation, ruined health, and shattered fortunes.

It is not so simple or so easy a matter as it at first appears, to see truly, fully, and without distinction what is before our eyes, and then faithfully report what we have seen, neither more nor less, to others. A farmer who has always lived in certain portions of Virginia might state as the result of his observation that red land yields good crops. Another, living in parts of Georgia or Alabama, might assert that the poorest soil is that of the red lands—both statements might be locally quite correct; but if either be put in the form of a general observation that all red land is good or all bad the error of fact is manifest, and the two observers might dispute forever over their so-called facts without deriving any benefit from the arguments.

But the thoughtful man is unwilling to rest satisfied with simply thus observing what passes before his eyes in the undisturbed course of nature. He often desires to change the conditions which go to produce a certain result—to see what will happen if such and such arrangements be made by himself beforehand—to take the plant which he has always noticed growing by the water side and see whether it can be made to grow in upland soil; and, if so, whether its habit and character will be altered—to determine by experiment in the laboratory what are the substances drawn from the earth by a particular crop; and by experiment in the field whether the application of these substances artificially to poor land may not increase its fertility—to find out the several circumstances which separately seem to favor the production of any form of vegetable growth, and then, by attempting the culture of the same, under all these favorable conditions united, to try what is best, and the largest product which can in practice be obtained.

In making such intentional changes of natural conditions *in trying experiments*—the same accuracy, the same careful attention to what really takes place before our eyes must be observed as when we simply notice the operations of nature unassisted by the efforts of man.

And, in addition, much thought must be bestowed, much judgment must be exercised in deciding upon the precise manner in which, and the extent to which, special arrangements are to be made to bring out the precise result of which we are in search.

Every experiment is a question asked of nature, and nature never returns a false answer; but we must take care, first, that we ourselves know exactly what question we want to ask; secondly, that we ask that question and no other, no more and no less, and thirdly, that we understand what the answer returned actually is.

Three farmers might undertake to experiment upon the effect of common salt upon the soil—one might report that the result was excellent, and the improvement of the crop manifest—another exactly the reverse, that positive injury was done—and the third that no effect of any kind was produced. On sifting the matter it might be found that one had used a certain moderate quantity of the

material in question, another an enormous and excessive amount, and the third so little as not perceptibly to influence the crop at all. Or it might appear on examination that the same quantity had been used by all, but upon different soils—by the first, upon land some of whose dormant constituents were rendered soluble and useful by the salt; by the second upon a soil poor in most of the necessary mineral ingredients, but already containing largely of salt, and susceptible of injury by further addition of it; by the third upon a soil sufficiently supplied with soluble mineral matter of all needful kinds to do perfectly well without the solvent action of the salt, yet not liable to special injury by such surplus of this material as had been brought in by the manure. Or, yet again, the experiment might have been tried upon similar land, but upon altogether different crops or in altogether different seasons.

While, therefore, we must be very careful in sifting the details of the information, we suppose ourselves to have gained from observation of what is going on in nature about us, and must be equally careful in arranging the conditions of our experiments and in stating the precise character and extent of the evidence accumulated by such experiments, we must still further exercise caution as to the logical conclusions we draw from our facts when we have got them—as to the manner in which we reason from these facts, assuming that they have been well determined.

There are many ways in which we may deceive ourselves as to what is really proved by admitted facts before us.

Thus, we may arrive at a conclusion from considering a number of separate statements taken as true, but of which some are in fact only probably or approximately true, and uncertainty of the conclusion increases astonishingly fast with the number of such doubtful assumptions, though there may be very little doubt about each of them by itself. For example, one may assert that his experience fully proves that a particular farming practice will be found profitable, making out, perhaps, a very clear statement of expenditure and return under the proper head, but assuming a little with regard to each—that the cost will be about so much—that the difference of cost to him, and to other farmers, cannot be more than about so much, and that about such returns may be looked for on an average of different years. A very little error under each head will often be found to lead to woful error in the general result.

Again, it is extremely common to find facts—themselves thoroughly well established—coupled together in the relation of cause and effect without any proper warrant, but simply in consequence of some, perhaps accidental coincidence of time or place. A sick man is visited by the Doctor, who prescribes a dose of a particular medicine—the patient takes this, and soon after gets well or gets worse, as the case may be—how often do we hear the assertion that this *proves* that the patient has been cured or injured by the medicine, though, perhaps, the result would have been exactly the same if he had refused to take the prescription at all. In like manner it is amusing to notice the different styles in which the supposed effects of different

manures are spoken of in seasons of particularly favorable or unfavorable weather. In a very favorable season pretty nearly all crops do well, farmers are in too good spirits to make very precise comparisons, and every one who has used any fertilizing material is disposed to say that, because he has made such or such an application to his land, and has obtained a fine return from his fields, therefore he has "made the good crop by the manure," and that the particular fertilizer he has used is that he is going to stick to in the future, and to recommend it to his neighbors. On the other hand, in a very unfavorable year, one of excessive heat or continuous rain for instance, *no one's* crop succeeds; every one is disappointed, and there is a strong tendency on the part of all those who have employed fertilizers to declare the materials they have severally used worthless—each farmer, whether he impute fraud to the manufacturer of whom he purchased or not, at any rate vowing that he will never again use the special material to which he attributes his ill success.

It is highly important to remember that, while a particular result following after a particular procedure *on one occasion* of itself proves but little as to there being any true connection between them, if a like coincidence happen a second time the probability that the one is caused by the other is much strengthened, and if such experience often repeated shows that the supposed cause is always or almost always followed by the same result, while in the absence of the former the latter is also absent, the mind can arrive at but one conclusion.

If a single farmer had on a single occasion strewn super-phosphate of lime upon his field, and in that season made a good crop of rutabaga, it would be far from proved that the proper manure with which to prepare land for this plant had been found—but, when we find that the application of super-phosphate of lime after having been tried for many years and by thousands of farmers, almost always is succeeded by fine crops of field turnips, we are justified in concluding that the manure used has really been the cause of the general success, and that the exceptional cases of failure have been due to other causes—peculiar to the place or season—interfering.

But even if our experience has been extensive enough to fully satisfy us of the dependence of a certain effect upon a certain cause, we may be wrong in assuming that that cause acts *in a particular way*.

Correspondence of Southern Planter and Farmer.

To the Editor of the Southern Planter and Farmer:

DEAR SIR—Judging from newspaper accounts, one would suppose that the negroes had taken possession of Washington, and were ruling it with a high hand, politically and socially; on the contrary, very few negroes are seen on the streets or at public places. I was at the President's grounds this evening,

where the Marine band, uniformed in red like true Britishers, discoursed delightful music, and among at least one thousand persons which literally filled the grounds, there were not more than fifteen or twenty negroes of both sexes to be seen, and they behaved as well as in time of yore.

I have seen the much talked of Capitol. The external view is very fine indeed; the architecture is simple and chaste, but the dome is too large for the height of the building, and looks like a nightcap on a burly, well-dressed alderman, if such a homely comparison is admissible—but, be that as it may, the *tout ensemble* looks well enough and the effect is rather pleasing. I was rather disappointed, though, on viewing the interior; it is true that the rotunda, like the cupola, is on a grand scale, but all the corridors and passages are narrow, contracted, and not at all in proportion with the central figure of the architectural pile. The Halls of the House and the Senate are not what I expected them to be; they present nothing that strikes the eye, and the adornment and gilding are all gingerbread work. The paintings in the rotunda, so much admired by some people, are hardly second rate works of art; the execution is coarse; the conceptions are neither ideal nor poetical; they are matter-of-fact pencil sketches without originality or even spirituality. The men and women painted are not those they are intended to represent, neither in person nor appearance; they are really men and women of the present day, and not of the best type; but the fresco painting in the dome caps the climax; it is simply absurd in its conception, too glaring in its coloring, and too spiritless in its execution. Washington, beatified in Heaven, looks like an ash-colored ghost, with a piece of pale, purple-colored cloth thrown over his knees. The Goddess of Fame and the Goddess of Liberty are certainly two Massachusetts women of stalwart frame, but not too fine looking. War is represented by some grotesque human figures carrying the incendiary torch, and belching forth bullets from a cannon. But Commerce excels all the others in absurdity; it is represented by Mercury, who does by no means look like a god, holding out a purse of money to Robert Morris, the revolutionary financier—what an idea! Finance and Commerce are not exactly the same, and require different symbolical figures; but it is hardly worth while to spend more ink on this worthless production of the fine arts.

I ascended and descended the three hundred and thirteen steps that lead to and from the uppermost gallery of the dome, and I enjoyed the view, which is not grand but beautiful, of the city and Potomac; mountains are wanting to make the prospect a grand panorama of nature; the Potomac, be it said in parenthesis, is certainly a grand old river, and presents the most beautiful sheet of water I have seen in these States—far superior in every respect to the beautiful James, beautiful only to the eye of Virginians, probably on account of its pleasant associations and old reminiscences.

In all the public buildings I have not seen a single specimen of sculpture, with the exception of that of some public man.

The grounds around the Capitol are handsome, but too small, considering that this is "*la grande republique*"—the country that has the longest rivers, the highest mountains, the largest lakes, and everything else the best. I went from the Capitol to the White House—this looks very neat and somewhat stylish, but does not recommend itself particularly as a work of art; it has the same fault as the Capitol; all the rooms, the blue, green, red, are narrow and contracted. The furniture would be elegant for the parlors of a private person, but it is not such as might be expected from a people who spend annually four

hundred and fifty millions of dollars to pay their officials, and provide for the frauds and stealings of their public men; it would be in perfect harmony with republican simplicity, provided the expenditures of the Government were not exceeding those of any other country, and the public money were not spent with monarchical, if not imperial liberality.

From the Presidential Mansion I went to the Patent Office; this building is indeed very fine, but the interior has again disappointed me. The halls of exhibition, at least one portion of them, display too much color, like some parlors or sitting rooms. They have columns, massive and strong, but painted blue, with black and white striped pedestals—what perversity of taste! Half an hour's rambling through the model rooms satisfied my curiosity completely. After I left the Patent Office, I took a ride on the cars to Georgetown—the street cars are a great institution here, especially as you can make a railroad promenade of five or six miles for the paltry sum of six cents. Georgetown is an old, ugly town, and presents nothing that is remarkable. On Saturday I paid a visit to the Smithsonian Institute—the materials used in building are very appropriate, as well as the style, only it is too small for a world institution, such as it is designed to be. There, for once, the interior corresponds with the outside appearance, and everything is in harmony and proportion. The Indian and Asiatic cabinets, indicative of the civilization of these races, are somewhat original. The zoological, mineralogical, and geological collections are extremely limited, and the specimens are not always of the best kind. The only collection that presented great interest to me was that of corals, which is, perhaps, the best in the world, and includes some of the most beautiful specimens I ever saw. The officials of the Patent Office and Smithsonian did not have great advantages of education, for in the first, on a label, nutritive was spelt *nutrative*, and in the latter, chief justice was spelt *cheif* justice—these are certainly good specimens of Washington employees. I next went over to the Agricultural Bureau, and here I found everything gotten up in fine style, and beautifully arranged; the gentleman at the head of this department is systematic, and performs his duty well. The museum is small, but very neatly gotten up. The frames presented by Vilmorin, of Paris, containing specimens of at least fifty or sixty different kinds of wheat, are in very good taste, and beautifully arranged, as it seems only a Parisian is capable of doing. I also had the pleasure of taking a close view of the famous Washington monument—it is designed to reach a height of five hundred feet, but has only attained to the diminutive stature of one hundred and seventy-five feet; if it ever rises to its full altitude, it will be the highest structure in the world, with the exception of the Tower of Babel, whose fate it may share of remaining unfinished. I saw the stones so far contributed; they are mostly from Masonic lodges, Odd Fellows, Temperance societies and Sunday Schools—Bremen, Switzerland, Greece, and a few others, are the only European contributions. On some of these stones there are engraved the name of the officers of the society, to immortalize themselves instead of Washington, but they will be defeated, because they will be placed so high that no one will be able to discern even the letters. Speaking of monuments, I cannot refrain from remarking that the Washington monuments are perfect abortions. Lafayette and Jackson, both represented on horseback, are placed on such low pedestals that the effect is entirely lost, they look as if they were about leaping on horseback over a small hillock that obstructs their path. Lincoln in marble, placed on a marble column, in citizens dress, looks more like a horse jockey than a

man who deserved a memorial in brass or marble. Let me, however, add that the Richmond Washington monument is, perhaps, the finest on the continent; the design is beautiful, the execution is spirited and elegant, if not classical.

The Plough from a Philological Standpoint—The Root AR.

Any philological discussion may seem foreign to that practical character which an article for an agricultural paper should have; but perhaps it may interest your readers to trace the word for plough from its Argan origin into our modern English, and thereby to deduce the importance and dignity of agriculture from the very words we utter, and at the same time to show how an original root ramifies as it comes down the ages, after branching off into a numerous family of words, connected by the tie of a common origin and a family likeness, but differing in meaning as much as the children or grand children of the same parents often differ in occupation, location, and habits of life. In order to make the tracing of this root *ar* or plough perfectly intelligible, it is necessary to state that comparative philology develops the fact that the Saxon, German, Latin, Greek Sanscrit, ancient Persian, &c., are all sister languages, having the same relation to each other and to a parent language, which the French, Italian, and Spanish have to each other and to the ancient Latin as a parent language. Philologists tell us that there was a time when the progenitors of those races which use or used the Indo Germanic or Argan family of languages dwelt together on the plains of central Asia, where they reached a considerable degree of cultivation at a very early period, probably contemporaneous with Noah himself, and where they impressed that character upon their offspring which has made them, from time to time, the ruling races of the world. It is not to our present purpose to inquire when, or how, or why this people left their original: but they did leave them and migrated. Some went southward and eastward to India, where the Sanscrit cultivation was soon developed, with its wonderfully perfect language and its magnificent literature; and this, too, at an early period—long before Solomon built his temple, while as yet the mythic gods and mythic heroes that contended around the walls of high Troy were far back in the womb of the future. But while some of the original clan wandered southward, most of them went toward the west—some by the southern route to Greece—developing the Greek language, mythology, and literature; some farther north to Etruria and Latium, founding the Latin civilization; some went still farther northward to Germany; some farther still to Scandinavia, and these last are our Saxon ancestors. This original, central clan called themselves Argans or plough-men, and this original root, *ar* or plough, appears in the whole Indo-Germanic or Argan family of languages. Muller recognizes it in the Sanscrit, Old High German, Gothic, Gaelic, Old Norse, Welsh, &c. The Greek has it in *aro-o* I plough, *arotron* a plough, *aroura* a ploughed field. It appears strongly in the Latin. *aro* being I plough—*arator*, a ploughman—*aratrum*, a plough—*aroum* and *ager* a ploughed field—*armentum*, work cattle. And it appears specially in the Saxon. We have in English *arable*, *agriculture*, &c., through the Latin; but independently of the Latin we have many purely Saxon words exhibiting the same root. The Saxon word *earth* itself is simply what is ploughed—*ear* (of grain) is simply the result of the labor of the plough; while by a slight change of initial breathing

we get *year*, meaning thus, plough or work time. *Hearth* exhibits the same *ar* aspirated, and points to a time when our ancestors lived in cabins, or on the naked ground, having their fires on the *earth* or *hearth*. Max Muller, who mentions most of these examples, refers *aroma* also to the same root—and also *art*, *artist*, *artistic*. In this sense *aroma* is primitively the smell of a ploughed field—Isaac comparing the smell of Jacob to the “smell of a field which the Lord had blessed;” while the first and most important *art* is in this sense the art of handling the plough; the first *artist* a ploughman, and *artistic* work good ploughing—an interpretation, by the way, from which some of our modern artists might beg leave to demur. An original root would soon beget a numerous family of words having the family likeness, but different meanings. Labor of the plough would, when the Argans reached the sea, naturally pass into labor at the *oar*, the *oar ploughing* through the water as the plough did through the land—which by a very common transposition was called *rowing*. This derivation of *oar* and *row* is defended by the fact that the English plough is the Greek *ploion*, a *ship of burden*—and the classic poets often speak of a *plough sailing* through the field, and of a *ship ploughing* the sea, and we preserve the latter figure in modern English. And as the ship *oared* through the water, so the bird *soared* through the air, that is, ploughed the air with his wings, a derivation defended not only by the family likeness of the words, but by the classic expression “*remigio alarum*,” “by the oarage of his wings,” so often applied to Mercury, Persens, &c. As the *ear* protrudes from the stalk, so the *ears* of animals protrude—and to use the *ear* is to *hear*; the Argan word for plough thus naturally but strangely naming one of the most important senses. The English *arm*, *arms*, *armour*, through the Latin *arma*, *armare*, and the obsolete Greek *aro* I fit, I join, probably have the same origin, the first fitting or joining done by the old Argans being in the manufacture of their rude ploughs, their first *arms* being the peaceful implements of agriculture, which, however, so soon degenerated into the deadly armour of bloody war.

Examples might be multiplied; but enough has been said to illustrate the root *ar*, and to show that our very language gives dignity to agriculture, and makes the plough the foundation of all prosperity, and that our ancestors, so far from being ashamed of manual labor, called themselves *Argans* or *ploughmen*. Enough has been said, too, to interest those who fancy such speculation in the exceedingly rich and varied science of comparative Philology.

Book Notices, &c.

ANNUAL REPORT OF THE BOARD OF REGENTS OF THE SMITHSONIAN INSTITUTION, showing the operations, expenditures, and condition of the institution for the year 1868. The report is presented by the venerable Secretary, Joseph Henry, and addressed to the President of the Senate and Speaker of the House of Representatives. The programme of the institution as adopted by the Board of Regents, December 15th, 1847, is republished, and there is a general appendix to the report containing interesting and instructive memoirs of Cuvier, Oersted, Christian Frederic Schoenban, Encke, and Eaton Hodgkinson—also, Recent Progress in relation to the Theory of Heat; Principles of the Mechanical Theory of Heat; continuous movement of all matter, Ponderable and imponderable, &c., &c., with a large amount of practical matter on which we may often find occasion to draw for the instruction and entertainment of our readers.

FARMERS' AND MECHANICS' MANUAL. With many valuable Tables for Machinists, Manufacturers, Merchants, Builders, Engineers, Masons, Painters, Plumbers, Gardeners, Accountants, &c., 506 pp. octavo, by W. S. Courtney, revised and enlarged by Geo. E. Waring, Jr.—E. B. Treat & Co., publishers, 654 Broadway N. Y. Sold only by subscription. Nearly fifty pages of this valuable book are devoted to soil, the composition of different kinds: Exhaustion of Soils; Manures, liquid and artificial; Draining, and the reasons for it; Rotation of Crops; Properties and composition of milk, butter, &c.; Butter and Cheese making; Soiling cattle; Steaming food for stock; Gardening for market; Steam cultivation, &c., &c.

THE AMERICAN YEAR BOOK AND NATIONAL REGISTER FOR 1869—Astronomical, Historical, Political, Financial, Commercial, Agricultural, Educational, and Religious. A general view of the United States, including every department of the National and State Governments, together with a brief account of foreign States, embracing Educational, Religious, and Industrial statistics; facts relating to Public Institutions and Societies, miscellaneous Essays, Important Events, Obituaries, &c. Edited by David N. Camp, published by O. D. Chase & Co., Hartford, Connecticut. In a word, containing more useful and practical information on many subjects than can be found in a reasonable time by a widely extended research through many volumes, each written on one or another of these specialties.

ABORTION IN COWS.—We are indebted to the courteous kindness of the accomplished Secretary of the New York State Agricultural Society for the report of Wm. H. Carmalt, M. D., Commissioner of that Society, for the investigation of "Abortion in Cows," an exhaustive treatise on the subject, founded on the most careful inquiries and observations, with explanatory illustrations. Address the Secretary of the New York State Agricultural Society at Albany, New York.

BLACKWOOD'S MAGAZINE for October has been received. *Contents:* A Year and a Day, The Old Monk on the Belfry, Inventus Mundi, The War in Paraguay, Cornelius O'Dowd—(Forfeiting Paradise, Persano, Light business requiring no capital, Studying the Land Question.) Great Whig Journalist, Charles Reade's Novel. Leonard Scott Company, 140 Fulton street, East of Broadway, New York.

Educational Journal of Virginia. ORGAN OF THE EDUCATIONAL ASSOCIATION. Editors: Charles H. Winston, D. Lee Powell, R. M. Smith, Thomas R. Price, and John M. Strother. Business Agent, M. W. Hazlewood, P. O. box 490 Richmond, Va.

The initial number of this valuable monthly appears on our table just as we are going to press with our November number. We defer a more particular reference to it to a future occasion, but meanwhile would recommend it to the patronage of all who are seeking light and instruction on this subject.

Subscription \$1 a year.

THE NEW ECLECTIC MAGAZINE, which has now been in existence three years, and with which has recently been incorporated *The Land We Love*, stands at the head of the list of Southern publications. At this period of the year, when persons are in the habit of choosing their periodicals for the winter, it is especially requested of the public that they bestow at least a part of their patronage upon a periodical published in their interest, and which, the Southern and the Northern press both being the judges, is the peer of any magazine published

in America; both in its literary standards and the quality and attractiveness of its typography.

THE GALAXY for November. New York: Sheldon & Co., 498 and 500 Broadway. A highly interesting number. Among its contents its readers will find the continuation of Susan Fielding, the Prince Suwarf, the English Universities, the Fire Fiend, Imperialism in America, the Play of the Period, And Editor's Tale, Literature and Art, Nebulæ, by the Editor.

THE CAROLINA FARMER has completed its first volume, and will, on the 4th instant, appear as a weekly, in a new form, and will occupy an enlarged sphere. It will contain eight pages of five columns each; and in addition to a largely increased amount of agricultural matter, will give miscellaneous family reading, market reports, and general news. Subscription \$2 a year. Address Wm. H. Bernard, Editor and proprietor, Wilmington, N. C.

THE PHRENOLOGICAL JOURNAL for November contains many interesting sketches, &c. Price only 30 cents, or \$3 a year. A New volume begins with the January number. Address, S. R. Wells, Publisher, 389 Broadway, New York.

Bones.

Folks tell us, Dear Planter, the best way to grow,
Fine crops upon poor land, (as doubtless you know,)
Is to *fertilize well*; while clearly tis shown,
That "the best, and the cheapest," is *real raw bone*.

For one I believe it, since I understand,
The plan has succeeded, on all sorts of land;
And from what I have seen, the conclusion's foregone,
That the surplus of life *consists of a bone*.

For once, at my dinner, while carving some meat,
With "company" waiting, and eager to eat;
With something between a deep sigh and a groan,
I suddenly cut, through my meat, *on a bone*.

I moralized thusly—"Ah such is our life,"
(Even though we may be as keen as a knife,)
We may "go it" in crowds, or "go it alone,"
But we oft get stuck, unawares, *on a bone*.

Quite early in life, I loved a young girl,
With beaming blue eyes, and gold-tinted curl—
She said she loved me, and would be my own,
But her father said *No! I was stuck on a bone*.

In "market," however, quite soon did appear,
A suitor, to whom, she lent a kind ear;
"A fortune," he had, all in right of his own—
So he became *meet—I was cut to the bone*.

Long, long after this I got me a wife,
 To cheer and enliven my "pathway of life"—
 And tis patent to all, wherever she's known,
 That the most of her "Heft" is *real raw bone*.

In matters of Church and of State tis the rule
 The "official's" a wise man—the layman a fool;
 And for all our follies they make us atone,
 By eating *our* meat, and *leaving us* bone.

Your "merchant" who sells you Guano, down town,
 At "Ninety some Dollars" for every short ton,
 Will get all your wheat, when the threshing is done,
 And you find out too late, *you're stuck to the bone*.

This "vain, foolish world" is prone to admire,
 The party who keeps most fat on the fire;
 Whose kettle will never grow cold like a stone,
 While *dogs and poor Laz'rus* may gnaw on a bone.

Would you know what I am? When my last step is trod,
 And my "mortal remains" repose neath the sod—
 You'll find out on peering beneath a cold stone,
 That death has left of me but **SIX FEET OF BONE**.

The Charlottesville Woolen Mills.

We would again call attention to the manufactures of this enterprising Company. From samples which may be seen at our office, we are sure that any one might make a tasteful selection, and we doubt not that our friend, Mr. H. Clay Marchant, the obliging superintendent of the establishment will make such an exhibition at our State Fair as shall fully justify our recommendation.

The Norfolk Oil Fish Guano Company

Is the style of a new Company recently inaugurated in Norfolk for the manufacture from Fish, of Oil and Phosphatic Fish Guano. This enterprise comes in most opportunely to supply a great need in the South, and we have no doubt it will be most lib rally sustained. All information about this Fertilizer will be most cheerfully furnished by John M. Donn, Esq., the General Agent of the Company, Norfolk, Va.

Drain Tiles.

The numerous inquiries after this article are at length answered in our advertising pages by Maurice Evans, Family Grocer, of high character, 326 Broad street, Richmond, Va.

THE SOUTHERN PLANTER & FARMER,

DEVOTED TO

Agriculture, Horticulture and the Mining, Mechanic and Household Arts.

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

CH: B. WILLIAMS, EDITOR AND PROPRIETOR.
FRANK G. RUFFIN, Co-EDITOR.

New Series.

RICHMOND, VA., DECEMBER 1869.

Vol. III---No. 12.

Virginia State Agricultural Society.

The Ninth Annual cattle show and fair of this Society, after a suspension of nine years, was duly and solemnly inaugurated with prayer, by the Rev. J. L. M. Curry, D. D., on Tuesday morning the 2d of November, 1869.

The President then offered in touching tones of good feeling and kindness the following

ADDRESS OF WELCOME.

“*Fellow-citizens*,—Allow me to congratulate you on the evidences of the vitality and spirit of our people as witnessed on this most highly interesting occasion.

“The extent and variety of improved breeds of stock, the large collection of useful machinery and agricultural implements, together with the attractive exhibition of household and domestic manufactures, and the immense number of specimens of valuable minerals and agricultural productions, cannot fail to command the admiration of visitors from other sections, and to impress them most favorably with the vast resources of our State, and also to inspire all the sons of Virginia, whether native or adopted, with fresh hopes for the future growth and prosperity of this glorious old Commonwealth.

"I commend to your careful examination every article here on exhibition in, the hope that you may be able to find much that will lessen your labor and increase your profits.

"It is now nine years since the Virginia State Agricultural Society held a Fair and Cattle Show, and may we not reasonably hope that the revival of this time-honored Society, with its beneficial means may be the instrument of giving a new impulse to the agricultural interest of our State and develop the way by which many a rich storehouse of minerals will be open to increase our wealth and population? This is to me a most interesting subject, but it is not my purpose now to do more than to express my gratification at the successful efforts of the Executive Committee as presented in the exhibition before you, and to give you a cordial greeting.

"It gives me pleasure to extend to each and all of this immense multitude a most hearty welcome; and to those of our fellow-citizens, who come from other States, I would extend a thrice hearty welcome. We need more population and more capital to convert into profit and usefulness the vast resources of our State, and I hope that one of the results of this exhibition will be to attract here large accessions of both.

"To you, ladies, I would not only extend a most cordial welcome, but I would most heartily thank you for gracing this occasion with your presence, as nothing can prosper that does not command the approving smiles of woman.

At the close of the President's address the fair was open to the examination of the multitude found in attendance, whose surprise and admiration were raised to the highest pitch at the number and variety of useful and elegant articles on exhibition, and whose social enjoyments were heightened by the constantly recurring re-unions of old and long separated friends, some of them accompanied with ebullitions of feeling so touching and tender, as to cause many a manly heart "to turn aside, to hide the flood that in his 'een was swelling."

GENERAL NOTICES.

SECRETARY'S OFFICE.

The Secretary's office in this city will be opened from 9 o'clock this morning for the sale of annual and life memberships, and the office at the Fair Grounds will be open during the day for exhibitors.

Mr. James Chamberlayne will also be at the office at the Fair Grounds during the day for the purpose of issuing certificates to the members of the State Central Agricultural Society.

PROGRAMME FOR THE DAY.

The members of the Executive Committee were requested to report themselves at 9 A. M. at the Secretary's office, on the Fair Grounds to review the books for the judges, to fill vacancies in the judges from the by-standers or others, as required by the resolutions of the 21st September, 1869. The following members were assigned to these duties—viz :

Class I. Essays—F. G. Ruffin.

Class II. Cattle—S. W. Ficklin.

Class III. Horses, &c.—R. B. Haxall.

Class IV. Sheep, &c—J. Cloyd.

Class V. Swine—J. Cloyd.

Class VI. Poultry—J. M. McCue.

Class VII. Farm Products—R. E. Haskins.

Class VIII. Domestic Departments—W. T Walker.

Class IX. Household Manufactures—F. N. Watkins.

Class X. Ladies' Fancy and Ornamental Work—F. N. Watkins.

Class XI. Agricultural Department—W. C. Knight.

Class XII. Farm Dwellings—E. Ruffin.

Class XIII. Minerals—R. W. N. Noland.

Class XIV. Fine Arts—J. Lyons.

Class XV. Miscellaneous—L. E. Harvie.

Judges are urged to attend to the their duties promptly at 9 A. M. of each day.

EXHIBITION OF HORSES.

The public exhibition of horses takes place at 1 o'clock in front of the public stand on the mile track.

PLOUGHING MATCH.

The ploughing match for the best ploughman, &c., has been arranged to come off on the farm of William Shepperson, on the Broad-Street road above the Baptist College, on the left hand, this side of the Fair Grounds, from 12 to 3 o'clock, and competitors under section 12 were notified to be promptly on the ground, or they would be ruled out.

GENERAL MEETING.

The general meeting of the Society took place at the Hall of the House of Delegates at 8 o'clock in the evening.

The following annual report of the Society was submitted and received :

At this, the largest meeting of the Virginia State Agricultural Soci-

ety since the war, it is proper briefly to inform the members what has been done since the last show and fair, which was held in 1860.

During the war, of course, there could be no show or exhibition. All that could be done was to protect the interests of the Society. This was done by the (then) President, Mr. John R. Edmunds, of Halifax, who, elected in 1859, held over during the war, and, by special request of the Executive Committee, until Mr. Willoughby Newton, his successor under the Constitution, could take his place; and by Mr. Charles B. Williams, then and until recently Secretary of the Society. And it is gratifying to repeat, what has been already stated, that the joint efforts of the President, Secretary, and Executive Committee, succeeded in preserving intact the property which the Society had entrusted to their keeping.

In January, 1869, an attempt was made to have a general meeting of the Society for several important purposes; and among them to take into consideration the propriety of purchasing a lot of ground on which to hold the future exhibitions of the Society.

The property at present held by the Society, and which has been viewed by the members to-day, was offered for sale, and the Executive Committee wished to be instructed by the Society as to the purchase. A quorum did not attend; but the sense of the informal meeting confirmed the Executive Committee in the action to which they were predisposed, and they took the responsibility of making the purchase on the terms and with the means already announced. The bargain was completed in the spring of 1868.

In the month of January, 1869, a meeting of the Society was held, and the action of the committee was then fully sanctioned. At that meeting it was determined to hold a Fair and Exhibition this fall, and the following officers were elected:

President: William T. Sutherlin, Danville.

Vice-Presidents: 1st, James Lyons, Richmond; 2d, W. T. Scott, Charlotte; 3d, Frank G. Ruffin, Chesterfield; 4th, R. Barton Haxall, Richmond; 5th, S. W. Ficklin, Albemarle; 6th, Edmund Ruffin, Jr., Hanover; 7th, Lewis E. Harvie, Amelia 8th, J. Marshall McCue, Augusta.

Secretary and Treasurer: Charles B. Williams.

[The President and Vice-Presidents are *ex officio* members of the Executive Committee.]

Executive Committee: Richard Irby, Richmond; William C. Knight, Richmond. R. H. Dulany, Loudon; R. W. N. Noland, Albemarle; F. N. Watkins, Prince Edward; A. H. Drewry, Charles

City; William Martin, Henry; Richard E. Haskins, Brunswick; Franklin Stearns, Richmond; Dr. W. T. Walker, Goochland.

Subsequently, upon the resignation of Mr. Ruffin, Mr. Joseph Cloyd, of Pulaski, was elected in his place as one of the Vice-Presidents of the Society; and afterwards, upon the resignation of Mr. Scott, of Charlotte, Mr. F. G. Ruffin was re-elected to a place in the Executive Committee on the 18th of February. Mr. Charles B. Williams, under the pressure of declining health, resigned the office of secretary and treasurer, which he had filled acceptably to the Society for many years; and the Executive Committee, reluctantly accepting his resignation, appointed in his place Mr. Egbert G. Leigh.

The general action of the Executive Committee appears before you in the results of this exhibition; and the details of their labors have been published, as they occurred, in the papers of the city of Richmond.

Beyond that, it is only necessary to state that a trial of reapers and mowers (single and combined), and other cognate implements, was held at Westover, the plantation of Major A. H. Drewry, in Charles City county, on the 9th and 10th of June last, under the auspices of the Society, with results which will be announced in the publication of the awards at the present meeting.

The scarcity of money and the late very severe drought have operated a very serious impediment to the efforts of the committee. But the loss therefrom has been generously supplied by the Common Council of the city of Richmond and by the citizens generally, who have proved themselves, as heretofore, equal to the demand upon their enlightened public spirit and their hospitality.

The life-members of the late Central Agricultural Society were admitted by a vote of the Virginia Agricultural Society, at their meeting in February, 1869, to an honorary participation in their affairs.

It affords the committee great pleasure to be able to congratulate the societies of various parts of the State on the successful agricultural fairs and exhibitions that have been held; and the hope is cherished more confidently than ever that the county and district societies can be so arranged as to affiliate with this Society as the parts of one whole. The details of such a union would be out of place in this report; but it is thought that its establishment will be productive of signal benefit to all the interests of the State.

The accounts of the treasurer are fully made out and balanced to the 30th ultimo; but the usual transcript is not presented herewith because of the recent illness of the treasurer and the pressure

of official business on him since his recovery. But the books are ready for inspection, if it is deemed desirable by the Society to have a statement from them.

After this, Governor Smith addressed the meeting upon the subject of agriculture. He was followed by Mr. Lyons, Major Noland, and others:

The meeting then adjourned until 8 o'clock to-morrow evening.

GENERAL MEETING IN THE HALL OF HOUSE OF DELEGATES, NOV. 3D,
1869.

The use of the Hall was, during the earlier portion of this evening, devoted to the transaction of the business of the third annual meeting of the Virginia Horticultural and Pomological Society. The proceedings of this meeting will be found published in their place in this number of the *Southern Planter and Farmer*.

The meeting then resolved itself into a joint meeting of the two Societies, Major Sutherlin in the Chair. Hon. Horace Capron, Commissioner of Agriculture, Washington, D. C., expressed his thanks for the honor conferred upon him, but declined to speak.

Mr. Hill Carter, of Charles City, being called for, came to the stand, and said that his first advice to young men was to select good lands, and then to cultivate them well; but the main point was to know how to get good lands. In his experience the good lands had to support the poor. The James River lands are the best in the whole country. Success in agriculture depends on industry and economy. Chocolate lands with a sufficient ferruginous element in them are the best.

Mr. Saunders, experimental gardener at Washington, being called on, stated that his business here at present was to make a collection of Virginia fruits, and to make inquiries as to the capacity of the State as a fruit growing country. Many inquiries had been made in regard to it. He had recently remarked at a pomological society, that Virginia was a better apple-growing State than New York.

He had been trying for a long time to convince the people of this country that the grape required just such a climate as is found on the eastern slope of the Blue Ridge, in Virginia—a long, warm, genial summer. The wine grapes are in greater perfection here than anywhere else in the country.

Fungoid growth had been a great drawback in the raising of these vines, and the lands on which the leaves do not mildew will be found near the first belt in your mountains.

General J. D. Imboden stated that there was a club in New

York—the “New York Fruit-Growers’ Club”—one of whom (Col. Williams) was in the room; and being called for, gave a very interesting sketch of the Society.

His remarks were interesting and well received.

Major Noland introduced Dr. Oliver, of England, who also made a very interesting address.

Dr. Antisell, of the Agricultural Bureau, was called on, and replied in a practical and interesting address.

Other gentlemen spoke, and—the Society adjourned.

GENERAL MEETING AT THE BROAD STREET METHODIST CHURCH,
NOV. 4TH, 1869.

The primary object of this meeting was to hear the Annual Address by Colonel John S. Preston, of Columbia, S. C., and accordingly the members of the Society, together with a very large and select audience, assembled to hear him. The orator, who is a gentleman of very commanding appearance, was listened to with great attention, and delivered an address full of classic eloquence, and which was made doubly interesting by the earnest and beautiful delivery of the speaker.

He reviewed in the liveliest manner the noble efforts of our ancestors in the establishment of the right of self-government and the suppression of tyranny, and pointed to the duty of the present generation in the accomplishment of the glorious future promised to Virginia. He spoke for about an hour and a half, and kept his audience very much interested.

At the conclusion of the address, on motion of Hon. James Lyons, *Resolved*, That the thanks of the meeting be tendered General John S. Preston, of S. C., the selected orator on the occasion, for the able and eloquent address delivered by him before the Annual meeting of the Society to-night, and that he be requested to furnish a copy for publication—which resolution was unanimously adopted.

PRESENTATION OF PLATE.

Next in order came the very interesting ceremony of the presentation of a testimonial to Major A. H. Drewry by the guests at the field trial of reapers and mowers at Westover. The presentation speech was made by Major James Bruster, of Baltimore, who expressed the thanks of the company to Major Drewry for the generous hospitality he had extended to them during their stay at Westover, and the commendable interest he had shown in the agricultural welfare of Virginia. After other appropriate remarks, the speaker handed him a handsome silver salver, which was one of

the most tastefully executed things of the kind we have ever seen. Upon it was inscribed—

“Testimonial to Major A. H. Drewry by the exhibitors and guests at the great field trial of mowers and reapers at Westover, June 9th, 10th, and 11th, 1869.

JAMES BRUSTER,
JOHN R. CHAPIN, } Committee.
M. B. RIGGS, }

Tendered in compliment to the cordial welcome and generous hospitality received at his hands.”

Major Drewry responded in a most appropriate manner, and with sentiments worthy of a son of Virginia so active in the endeavor to secure her practical restoration and prosperity.

At the conclusion of the presentation speeches the Society proceeded with the remaining business.

The report of the committee on the propriety of amending the Constitution was called for. Mr. Lyons, from the committee, stated that the report had been mislaid, yet he could recite the amendments they proposed, and proceeded to do so, as follows: Section 2. Strike out “at such time and place as may be designated,” &c., and insert “at their Fair Grounds, near Richmond.”

Section 3, article 3, “amended by declaring members of the State Central Society life members of this Society.”

Objection was made to considering the matter without the report; and furthermore, to considering amendments that might conflict with the charter, a copy of which was not in the archives of the Society, and the subject was postponed till the next annual meeting.

The *election of officers* being next in order, a committee was appointed, on motion of Mr. Ravenscroft Jones, to make nominations, which soon brought in a report that was unanimously adopted. This report nominated for re-election all the old officers save Wm. Martin, of Henry, as members of the Executive Committee, instead of whom they nominated Dr. W. C. Staples, of Patrick. Mr. Richard Irby, of Richmond, at his own request, was excused from serving, and General Joseph R. Anderson was put in his place. So the officers thus elected are as follows:

President,—William T. Sutherlin.

Vice Presidents,—James Lyons, Joseph Cloyd, F. G. Ruffin, R. B. Haxall, S. W. Ficklin, Edmund Ruffin, Jr., Lewis E. Harvie, and J. Marshall McCue.

Executive Committee,—Joseph R. Anderson, W. C. Knight, R. H. Dulany, R. W. N. Noland, F. N. Watkins, A. H. Drewry,

Dr. W. C. T. Staples, R. E. Haskins, Franklin Stearns, and Dr. William T. Walker.

Secretary and Treasurer,—E. G. Leigh.

The election was by acclamation and unanimous.

Major Sutherlin thanked the Society for re-electing him. The honor was one he had until lately intended to have declined. It would be accepted at great inconvenience and a serious sacrifice to himself; but his objections had yielded to the solicitations and arguments of friends, and he determined that if the Society desired his services to acquiesce, and labor with it another year. Major S. went on to say that the programme for the next Fair must be vigorously carried out, and he urged farmers generally to give every aid in their power to the cause.

He meant to call upon them, and he expected that all who consented to serve in any capacity, especially on a committee, would do so with energy and good faith. They should decline to serve if they did not mean to do this. The Society wanted no "yea nay" men. He meant to hold all responsible, and he hoped in turn that they would hold him responsible.

On motion of Mr. F. G. Ruffin, the thanks of the Society were voted to the citizens of Richmond for the liberality with which they had contributed out of their scant means to defray the expenses of the Fair; also, for the hospitable manner in which they had entertained so many visitors to the Fair; to the manufacturers inside and out of the city for the contributions they had made to the exhibition; to those citizens who had contributed mineral specimens, which showed the various resources of the State; and to the railroads and steamboats for the liberal regulations they had carried out with reference to passengers to the Fair, and to articles intended for exhibition.

The Society, by unanimous vote, thanked the President for the able, sagacious, and energetic manner in which he presided over its affairs.

By unanimous vote the Society thanked the Chief Marshal, Col. C. Q. Tompkins, and his aids, for the efficient and considerate manner in which they had enforced the regulations of the Society and preserved the order and decorum of the exhibition and proceedings on the grounds.

Resolved, That the thanks of the Society are hereby tendered to Messrs. John H. Tyler & Son for the beautiful flag they presented to the Society.

Mr. Thomas Branch, of Richmond, was accorded a few minutes to express his objection to the trials of speed of quick draught horses on the Fair Grounds. This he did in very good temper; after which, the Society adjourned *sine die*.

OFFICIAL REPORT

OF THE

Schedule Premiums Awarded at the Ninth Annual Exhibition of the

VIRGINIA STATE AGRICULTURAL SOCIETY,

HELD AT THE FAIR GROUNDS,

NEAR RICHMOND VIRGINIA,

November 2, 3, 4, and 5, 1869.

CLASS II—Section 1.

CATTLE DEPARTMENT.

Short Horns of Native Stock.

13. Best bull 3 years old or upwards, S. W. Ficklin, "Melodion,"	\$30
16. Best bull 2 years old and under three, John Trimble, "Sweepstakes,"	25
19. Best bull 1 year old and under, A. Lovel, "R. E. Lee,"	10
20. Second best do., J. B. Newman, "Burlington,"	5
21. Third best do., Frank Robertson, "J. E. Stewart," certificate, (worthy of premium.)	
22. Best cow 3 years old or upwards, A. Lovel, "Pearl,"	30
23. Second best do., S. W. Ficklin, "Red Rose,"	15
24. Third best do., " " " " " "	Certificate.
25. Best cow or heifer 2 years old and under 3, S. W. Ficklin, "Aubit" 2d	20
26. Second best do., do. "Red Rose" 3d	10
27. Third best do., (certificate) do. "White Rose" 3d	

CLASS II—Section 2.

Devons of Native Stock.

56. Best bull 2 years old and under three, Dr. Geo. B. Dillard, "Herod,"	\$25
57. Second best do., do. "Hero,"	10
59. Best bull 1 year old and under, do. "Braros,"	10
60. Second best do., do. "Medox,"	5
62. Best cow 3 years old or upwards, do. "Norma,"	30
63. Second best do., do. "Fancy,"	15

SECTION 3.

Ayrshires of Native Stock.

73. Best bull 3 years old or upwards, J. S. Hardaway, Amelia county,	\$30
82. Best cow 3 years old or upwards, F. T. Isbell, Richmond,	30

Alderneys of Native Stock.

93. Best bull 3 years old or upwards, R. Hill Carter, Albemarle county,	\$30
94. Second best do., E. D. Eacho, Henrico county,	15

96. Best bull 2 years old and under three, Albert Aiken, Henrico county,	25
97. Second best, James Lyons, Henrico county,	10
102. Best cow three years old or upwards, E. D. Eacho, Henrico county,	25
108. Best heifer under 2 years old, " " " "	10

SECTION 4.

Diary.

113. For best cow of any breed, Dr. George B. Dillard, "Norma,"	\$30
114. Second best do., H. Vernon, (Durham and Alderney,)	20
115. Third best do., H. Massie, (red cow, 6 years,)	10

GRADE CATTLE.

MISCELLANEOUS DEPARTMENT.

For best Milch cow, H. Massie, Charlottesville,	\$15
For second best do., H. Vernon, Wytheville,	10
For best bull, J. R. Woods, Albemarle,	15
For second best do., Frank S. Robertson,	10

The committee recommend Discretionary Premium to Mr. H. Massie, of Charlottesville, for his Grade Durham cow; and Discretionary Premium to S. S. Bradford for his Grade cow. Also, Discretionary Premium to J. G. Jefferson, for Short Horn.

SECTION 6.

Fat Stock.

118. Best fat bullock over 5 years old, Joseph Cloyd,	\$30
119. Second best fat bullock over 5 years old, M. White,	Certificate.
120. Best fat bullock under 5 years old, W. A. Ruff,	30
121. Second best fat bullock under 5 years old, W. A. Ruff,	Certificate.
122. Best fat cow or heifer, " "	30
123. Second best fat cow or heifer, " "	Certificate.
124. Best pen of fat sheep, 3 or more, Dr. John R. Woods,	10
125. Second best, do., C. R. Boulware,	Certificate.
126. Best slaughtered mutton, J. B. Townley,	5
127. Best pen fat hogs, 3 or more, L. S. Macon, (4 hogs.)	10
128. Second best, do., " " "	5

HORSE DEPARTMENT.

CLASS III—Section 1.

HORSES, ASSES, AND MULES.

Thorough Breds.

129. Best stallion 4 years old or upwards, Thos. W. Doswell, Richmond, "Orion,"	\$50
130. Second best, Col. James Cockran, Culpeper, "Engineer,"	20
131. Best entire colt, 3 years old and under four, Thos. W. Doswell, Richmond, "Edenton,"	25
133. Best entire colt, 2 years old and under three, A. Seddon Jones, Orange county, "Oma,"	15
134. Second best, S. W. Ficklin, Albemarle, "Florist,"	5
135. Best entire colt, 1 year old and under two, Chastain White, Hanover Co., "Planet,"	10
137. Best brood mare 4 years old or upwards, Thomas W. Doswell, "Nina,"	20
138. Second best, Chastain White, "Deucalia,"	10
139. Best filly 3 years old and under 4, J. L. Carrington, "Ada Washington,"	15

141. Best filly 2 years old and under three, J. L. Carrington, "Chestnut Filly," 15
 143. Best filly 1 year old and under two, Thos. W. Doswell, "Wine Sap," 10
 144. Second best, " " "Virginia Dare," 5

Special certificate of merit awarded to "Red Eye, Jr.," entered by W. T. Johnson; "Granite," by S. W. Ficklin; "Sultan," by W. T. Sutherland; "Gipsy Chief," by T. A. Brander; "John Letcher," by J. L. Carrington, and "Daisey," by S. W. Ficklin. In addition, the chairman most respectfully submits that "Sweet Briar" and "Rose," two mares, the first aged 13 years, and the other 4 years, were on the ground, but were not regularly entered by their owner, Maj. W. T. Sutherland, and in consequence were not exhibited to our committee; but they have since been examined by the undersigned, and he takes the liberty of making honorable mention of them for their high forms, blood, and beauty, and he recommends that medals be awarded to each of them.

(Signed,) E. A. RAWLINGS, Chairman.

SECTION 2.

Roadsters—Adapted to Quick Light Draught.

145. Best stallion 4 years old or upwards, Thomas Brown, "Mohawk," \$50
 146. Second best, S. W. Ficklin, "Abdalla," 20
 147. Best entire colt, 3 years old and under four, S. W. Ficklin, "Albanian," 25
 149. Best entire colt, 2 years old and under three, C. W. Beale, "Exchequer," 20
 153. Best brood mare 4 years old or over, Alexander Kerr, "Lady Harvey," 20
 154. Second best, R. B. Haxhall, "Olympia," 10
 155. Best filly 3 years old and under four, B. H. Warthen, "Florance Bell," 15
 157. Best filly 2 years old and under three, R. B. Haxall, "Treasure," 10
 159. Best filly 1 year old and under two, Alex. Kerr, "Bell of the South," 10

Roadsters—Adapted to Quick Coach Draught.

162. Second best stallion 4 years old or upwards, Dr. W. C. Archer, "Randolph," \$20
 171. Best Filly 3 years old and under four, R. H. Warthen, "Florance Bell," 15

SECTION 3.

Saddle—Adapted to the Breeding of Improved Riding Horses.

177. Best stallion 4 years old or over, S. W. Ficklin, "Granite," \$50
 178. Second best, W. B. Buck, "Tom Telegraph." (superb,) 20
 185. Best brood mare 4 years old or over, W. T. Johnson, "Lady Lightfoot," 20
 186. Second best, Dr. C. Hancock, "Fashion," 10
 187. Best filly 3 years old and under four, J. J. Parkins, "Rosa Alba," 15
 188. Second best, G. H. Dillard, "Albine," 5
 190. Second best filly 2 years old and under three, R. B. Haxall, "Treasure," 5

SECTION 4.

Heavy Draught.

193. Best stallion 4 years old or over, Clinebell & Carson, "Jim Cobham," \$50
 194. Second best, S. W. Ficklin, "The Colonel," 20
 204. Best filly 2 years old and under three, R. B. Haxhall, "Giantess," 10
 206. Best filly 1 year old and under two, A. J. Byne, "Fanny," 10

SECTION 5.

Matched Horses in Harness, accustomed to be used together as such in pairs, for Quick Light Draught.

207. Best pair mares or geldings, 20

[The committee was equally divided in opinion between the comparative merits

of E. M. Cardozo's chesnut pair and J. B. Davis' bay pair, and do therefore recommend a division of the premium between these two gentlemen, as provided for by the rules of the Society.

Matched Horses in Harness, accustomed to be used as such in pairs, for Quick Coach Draught.

208. Best pair mares or geldings, J. L. Carrington, "Gray and Brown," \$20

Saddle Horses under the Saddle.

209. Best mares or geldings, Taylor & Foster, Charlottesville, "Gray Gelding," \$20

210. Second best, Isaac J. Parkins, Augusta, "Humbug," (form and action to be considered,) 10

Ponies and Horsemanship.

211. Best pony ridden by a lad of 15 years of age, the horsemanship also to be considered, Wm. M. Ledley, "Brown Pony," Fancy Riding Bridle.

212. Second best, C. S. Smith, "Indian Pony," (ridden by Willie Glenn,) Fancy Whip.

SECTION 6.

Mules and Jacks.

213. Best jack, C. T. Smith, "Brigham Young," (8 years,) \$40

215. Best jennet, W. B. Williams, "Jenny Brown," (3 years,) 20

219. Best mule colt 1 year old, (foaled in Virginia,) M. J. Gale, "Kit," 10

SECTION 7.

Trials of Speed.

221. First day—Premium \$200—mile heats to harness. Open to horses, mares, and geldings. Time not to exceed 2:55.

First premium awarded to D. T. Harvey's "Flyaway," \$110

Second " " J. E. Paxon's "Twist," 60

No entry for third premium.

222. Same day—For pacers—Premium \$100—mile heats to harness.

First premium awarded to J. T. Carrier's mare "Fanny Baker," \$60

Second " " Wm. Wall's horse "Red Bird," 25

No third entry.

223. Second day—Premium \$600—mile heats, best three in five to harness. Open to all trotters. Time not to exceed 2:40. If three or more start, the second horse to receive \$100 of the premium.

Awarded to Mr. Doble's horse "Hotspur," \$600

Only two horses starting.

224. Same day—Second premium, \$75—mile heats. For colts and fillies 3 years old and under five years.

Awarded to Mr. Bradshaw's "Stonewall," \$ 75

225. Third day—First premium \$100—mile heats for double teams.

Awarded to J. E. Paxon's "Twist" and mate, 100

226. Same day—Second premium \$150—mile heats, best three in five to harness for horses mares, or geldings over four and under nine years old. Time not to exceed 3:05.

Awarded to Mr. Bradshaw's "Virginia Girl," \$150

227. Fourth day—First premium \$200—mile heats, for trotters with running mates,

First premium to D. T. Harvey's "Flyaway" and mate, \$120

Second premium to J. E. Paxon's "Twist" and mate, 80

228. Same day—Second premium \$75—mile heats to harness, for colts or fillies 3 years old and under five years. Time not to exceed 3:35.

Awarded to Edmund Bossieux's "Lizzie Lee," \$75

CLASS IV—Section I.

SHEEP.

Fine Wools of native stock, including pure bred Spanish, Saxon, French and Silesian Merinos.

229. Best ram,	S. S. Bradford, Culpepper.	\$15
230. Second best	“ “	8
231. Best pen of ewes, 3 in number,	“ “	20
232. Second best do.,	“ “	10
233. Best pen of lambs (ram) 3 in number,	“ “	10
235. Best pen of ewe lambs, 3 in number,	“ “	10
236. Second best do.,	“ “	5
239. Best fleece of fine wool grown in Va.,	“ “	10

Fine wool grades, including crosses of above.

240. Best pen of ewes, 3 in number,	S. S. Bradford, Culpepper	\$15
241. Second best do.,	“ “	10
242. Best pen of ewe lambs, 3 in number,	“ “	10

SECTION 3.

Middle Wool of Pure Native stock including South Downs, Oxford Downs, and other pure breeds of Middle Wool.

243. Best ram,	J. R. Woods, Albemarle.	\$15
245. Best pen of ewes, 3 in number,	“ “	20
246. Second best, do.,	“ “	10
247. Best pen of lambs (ram), 3 in number,	“ “	10
249. Best pen of ewe lambs, three in number,	“ “	10
250. Second best do.,	“ “	5
251. Best imported ram,	“ “	20

SECTION 3

Long Wools of Native Stock, including Bakewell or Leicester, Cotswold, or New Oxfordshire and Lincoln.

254. Best ram, Edward Hicks, West Chester Pa., “Cotswold.”	\$15
255. Second best, J. M. Pratt, West Chester, Pa., “Cotswold.”	8
256. Best pen of ewes, 3 in number, W. F. & M. Painter, West Chester, Pennsylvania, “Cotswold,”	20
257. Second best do., W. F. & M. Painter, West Chester Pa., “Cotswold.”	10
258. Best pen of lambs, (ram), 3 in number, J. Newman, Orange, “Cotswold.”	10
260. Best pen of ewe lambs, 3 in number, “ “ “	10
262. Best imported ram, Edward Hicks, West Chester, Pa.	20
263. Best imported ewe, J. M. Pratt, “ “	20

CLASS V—Section 1.

SWINE.

Large breeds, including Chester, Russia, Bedford, Waburn, Grazier, Byfield, and all crosses thereof.

265. Best boar 2 years old and over, James C. Sprigg	\$15
267. Best boar under 2 years old, E. R. Ashbride, Pa., “Jim Burns.”	01
268. Second best do, L. S. Irvine, “Goggin,”	5
269. Best breeding sow over 2 years old, L. S. Irvine, “Royall”	15
270. Second best do, A. P. Rowe, “Queen.”	10
271. Best breeding sow under two years old, W. S. & M. Painter, Pa.	10
273. Best sow and pigs, A. P. Rowe, “Beauty.”	15

Small breeds, including Neapolitan, Suffolk, Sussex, Essex, Berkshire, chinese, improved Hampshire and their crosses.

275. Best boar 2 years old and over, A. P. Rowe, "Suffolk."	\$15
277. Best boar under 2 years old, Dr. F. J. Woodridge, "Essex."	10
278. Second best do, A. P. Rowe, "Rad,"	5
281. Best breeding sow under 2 years old, L. S. Irvine, "Lady Bly."	15

CLASS VI—Section 1.

POULTRY.

Chickens.

285. Best Bramah Pootras, cock and two hens, G. T. Rowe Fredericksburg	\$5
290. Best White-faced Black Spanish, cock and two hens, Dr. Cullen, Hanover	5
297. Best Bantam, white, cock and two hens, W. S. Chandler,	5
297. Best Bantam, black, cock and two hens, S. C. Sheppard.	5
299. Best Bantam, game, cock and two hens, W. S. Chandler.	5
300. Best Dominique, cock and two hens, J. S. Baird.	5
304. Best Leghorns (white) cock and two hens, G. T. Rowe,	5
305. Game, cock and two hens, W. S. Chandler.	5
306. Best variety exhibited by one party, W. S. Chandler.	5

Ducks, Geese; Turkeys, Pea Fowls, Guinea Fowls, and Pigeons.

308. Best pair Rouen Ducks (male and female), D. S. Irvine.	5
310. Best pair Muscovy Ducks (male and female), J. F. Antony.	5
311. Best pair Bremen Geese (male and female), L. S. Irvine.	5
312. Best pair Hong Kong or African Geese (male and female), W. S. Chandler.	5
314. Best pair White or Colored Swan Geese (male and female), John Woodworth	5
315. Best pair Turkeys, common or crossed, L. S. Irvine.	5
316. Best pair Turkeys, wild, crested, or any improved breed, S. W. Ficklin.	5
317. Best pair Pea Fowls (male and female). L. S. Irvine.	5
318. Best pair Guinea Fowls (male and female),	5
320. Best display of Poultry of all sorts,	10

CLASS VIII—Section 2.

FARM PRODUCTS.

323. Best fancy wrapper leaf, growth of '68, J. R. Vernon, Pittsylvania Co.	20
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SECTION 3.

324. Best specimen of manufactured tobacco for general home consumption, CERTIFICATE OF MERIT, T. C. WILLIAMS & Co., Richmond, Va.	
325. Best specimen smoking tobacco, CERTIFICATE OF MERIT, John W. Carroll, Lynchburg. For "Lone Jack."	
Best Va. made Cigars, Complimentary Certificate, C. C. Wertenbaker, Charlottesville.	

SECTION 4.

326. Best barrel flour, H. L. Dabney, King William.	\$10
329. Best bushel white corn, in ear or on stalk, P. T. Atkinson	10
332. Best bushel oats, H. L. Opie, Augusta.	5
333. Best bushel Barley, W. S. Edmund, Henrico.	5
334. Bale cut Hay, T. A. Brander, Richmond	Certificate,

SECTION 5.

341. Best bale of cured sumac. Premiums divided between M. Myers & Co., W. H. McCormick, Rd., and J. G. Hercamp, Fredericksburg.	10
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346. Best bale of broom corn, T. W. Hoeningcr, Henrico.	5
342. Best bushel of Ground Pear, P. T. Atkinson.	10

CLASS VIII—Section 1.

DOMESTIC DEPARTMENT.

347. Best specimen fresh butter not less than 10 lbs., Mrs. W. T. Walker, Goochland, Va.	\$ 5
348. Second best do. do., Certificate, Mrs. T. J. Anderson, Montgomery, Va.	
351. Best cheese not less than 20 lbs., Virginia make, J. J. Parkins, Augusta.	15
352. Second best do., Certificate, D. P. Snapp, Glade Spring.	
353. Best peck dried apples, Mrs. Stringfellow, Hanover.	5
354. Best peck dried Peaches, " "	5
355. Best peck dried small fruits, Mrs. R. M. Courtney, Henrico	5
357. Best bacon ham cured by exhibitor, with written statement of process of curing and cooking, Mrs. A. M. Morriss, Hanover.	10
358. Best specimen of honey, taken without killing the bees, and hive described, A. S. Madlox, Chesterfield.	5
359. Best specimen of apple cider, Mrs. S. W. Ficklin, Charlottesville	5

CLASS IX.—Section 1.

HOUSEHOLD MANUFACTURES.

361. Best bed quilt, Mrs. C. D. Taylor.	\$5
362. Second best do., Mrs. J. T. Phillips.	3
363. Best counterpane, Mrs. J. R. Keer.	5
364. Second best do., Mrs. J. R. Alexandria.	3
365. Best pair home-made blankets, Mrs. J. M. Vest.	5
367. Best home-made rug, Miss L. Nelson.	3
368. Best fine long yarn hose (pair), Mrs. A. M. Williamson.	5
369. Best fine long cotton hose, Mrs. J. R. Harding.	5
370. Best half hose, cotton, Miss Betsy Hill.	5
371. Best knitted worsted or yarn shawl, from yarn prepared at home, Miss A. N. Moore.	3
372. Best knitted worsted or yarn hood, from yarn prepared at home, Mrs. J. T. Rodgers.	2
373. Best home-made shirt, Miss M. Vannerson,	3
379. Best home-made family bread, Mrs. L. C. McDowell.	5
380. Best home-made pound or sponge cake, Miss Carrie Binford.	4
383. Best and largest variety home-made preserves, Mrs. R. A. Mayo.	5
384. Best and largest variety home-made fruit jelly, Mrs. R. B. Snead.	3
385. Best and largest variety home-made pickles, Mrs. J. R. Branch,	3
386. Best catsup, either tomato, walnut or mushroom, Mrs. A. E. Kirtfoot.	5
387. Best five pounds homemade family soap, the process to be described in writing by exhibitor.	5
388. Best specimen of white or scarlet flannel, from wool grown and made at home, L. A. Cunningham.	3

CLASS X—Section 1.

LADIES' FANCY AND ORNAMENTAL WORK.

389. Best specimen of embroidery, Mrs. E. Sparkawk,	\$8
390. Second best, Mrs. S. E. Crump,	6
391. Best specimen of worsted work, Miss Alexina Pecor,	8
392. Second best, Mrs. Ballard,	6
393. Best specimen of crochet work, Mrs. Tunstall,	8

394. Second best, P. A. Welford,	6
395. Best specimen of shell work, Mrs. Walter Coles,	8
396. Second best, Miss Ella F. Smith,	6
397. Best specimen of leather work, Mrs. M. Rosenbaum,	8
398. Best specimen of needle work, Mrs. James M. Vest,	8
399. Most extensive variety of useful, ornamental and fancy work, not excluding articles which may have had premiums awarded them under the above specifications, Mrs. Chas. Harrison, a premium of	10

CLASS XI—Section 1.

AGRICULTURAL IMPLEMENTS

Trial of Reapers, Mowers, &c.

400. For the best combined reaper and mower, "Wood's Combined Reaper and Mower,"	\$50
401. For the best reaping machine, "New Yorker,"	50
402. For the best mowing machine, "Climax,"	30
403. For the best hay tedder, Bullard Hay Tedder,	25
404. For the best hay rake, " " Rake,	10
405. For the best wheat gleaner " " Gleaner,	10
406. For the best grain cradle, Palmer & Turpiu,	3

In addition to the above premiums, diplomas or medals may be awarded, at the discretion of the committee.

Medal to "Wood's Buckeye & Cayuga Chief" Rake.

" " Kirby Buckeye Reaper & Mower.

" " Johnson & Excelsior.

SECTION 3.

Drills, Broad Casters &c.

422. For the best drilling machine for grain and grass seed, "Bickford & Huffman's Drill," by R. F. Harriss,	\$25
423. For the best machine for broadcasting grain and grass seed, Bean, Kolp & Co.,	20
424. For the best corn planter, (no name),	10
425. For the best attachment to drill for distributing guano and other fertilizers, Watt & Knight,	10
427. For the best machine for sowing and covering corn at or immediately following the last tillage, either with or without guano, Bean, Kolp & Co.,	10

SECTION 4.

Threshing Machine, &c.

428. For the best horse power, J. W. Cardwell & Co., Richmond,	\$25
430. For the best machine combined for threshing, separating and cleaning, divided between Westenhams, N. Y., and Cardwell & Co.,	50
431. For the best thresher and straw carrier, H. M. Smith & Co., Richmond,	20
432. For the best fan mill, divided between Montgomery & Co., and the "Tripple Screen, Dixie,"	10
436. For the best machine for drilling and cleaning clover seed, James Bruster, Baltimore,	30
438. For best plantation platform scales, H. M. Smith & Co., Richmond,	10

SECTION 5.

Hay Press, &c.

440. For the best hay press, exhibited on the ground, with specimen of work,
H. M. Smith & Co., Richmond, \$20
441. For the best hay hoisting apparatus, with specimen of work exhibited on
the ground, A. I. Nellis, Petersburg, 20
442. For the best sorghum mill, H. M. Smith & Co., Richmond, 20
448. For the best clod crusher machine, H. M. Smith & Co., Richmond, Certifi-
cate.

SECTION 6.

Straw Cutter, &c.

450. For the best hay or straw cutter for horse power, E. Whitman, Baltimore,
Md., \$15
451. For the best hay or straw cutter for hand power, " " 10
452. For the best corn stalk or fodder cutters, Sinclair & Co., " 10
453. For the best corn sheller for power, N. W. Slade, " 10
454. For the best corn sheller for hand, C. Harris, Charlottesville, 5
457. For the best hominy mill, J. D. West, New York, 5
458. For the best cider mill and wine press, H. M. Smith & Co., Richmond, 5

SECTION 7.

Wagons, Carts, &c.

459. For the best harvest and hay cart for one or more horses, F. G. Ruffio, \$10
460. For the best wagon for farm use, J. S. Van Pelt, 10
462. For the best tumbril cart (iron axle), J. Fanear, 8
464. For the best wagon body for hauling grain in sheaf, hay or straw, J.
Woodworth. 5
465. For the best set of wagon harness, S. S. Cottrell, 5
466. For the best cart harness, Dickinson & Bro., 3
468. For the best horse collar, Wright & Hubbard, 4
469. For the best wheelbarrow for general use, H. M. Smith & Co., 2
470. For the best wheelbarrow for dirt, " " " 2
472. For the best riding saddle and bridle, S. S. Cottrell & Co., 5

SECTION 8.

Agricultural Steam Engine.

☞ No awards should be made in this class except for machines of practical utility in the agriculture of Virginia.

473. For the best steam engine, applicable to agricultural purposes generally,
Talbot & Bro., Richmond, \$100
474. For the best saw mill suitable for farm purposes, John Haw, New Kent, 25

SECTION 9.

Miscellaneous Articles.

476. For the best pump adapted to deep wells, J. D. West & Co., \$10

SECTION 10.

Domestic Machines.

483. For the best sowing machine, award equally divided between Wheeler &
Wilson, and Wilcox & Gibbs, 5

Also certificate to John E. Boissieux for mechanical skill displayed in Combination Sewing machine, and certificate to Button Hole attachment.

484. For the best washing machine, Bain & Patterson, "Economy," 5
 487. For the best sausage cutter H. M. Smith & Co., 1
 489. For the best churn, Division to H. M. Smith & Co., and S. P. Lucas' "Dasher," 1

SECTION 11.

Domestic Implements.

493. For the best cooking stove, Snyder & Irby, "Hot Blast," \$10
 497. For the best fire-place stove for heating two or more rooms, J. R. Mountcastle, "Sunnyside," 10
 501. For the best set wooden ware, Virginia growth and manufacture, Allen & Co., 5
 504. For the best set brooms, Virginia growth and manufacture, Cook Bros., 2

SECTION 12.

Ploughing Match.

505. For the best ploughman, white, Virginia born, not over 25 years old, with four horses, W. Roane Ruffin, \$50
 506. For the best do. with three horses, F. J. Simpson and Ruffin Adams, 50
 507. For the best do. with two horses, Morris Carter, 25
 508. For the best white ploughman of any age, wherever born, Wm. Shepperson, 25

Special.

510. A special premium for the best ploughman, a native white Virginian, offered by Watt & Knight, Wm. Shepperson, to be paid in their ploughs to the value of 50
 511. For the best team of horses or mules, not less than four, combining condition and training and equipments, W. Roane Ruffin, paid in their ploughs, 30
 512. For the best team of two horses, same conditions, Wm. Shepperson, to be paid in same, 15

CLASS XII—Section 1.

FARM DWELLING, &C.

513. Best design of farm dwelling, out-houses, gate ways and grounds, C. H. Demmock, Jr., \$80

CLASS XIII—MINERAL DEPARTMENT.

SECTION 3.

516. Best collection of specimens illustrating the Mineralogy of Virginia, Albert Ordway & Co., \$75

SECTION 4.

517. Best collection of specimens of Marl, Green Sand, Gypsum, Hydraulic Limestone, Marble, Calcareous Tufa, found in Virginia, Gen. J. D. Imboden, 50

SECTION 5.

518. Best collection of specimens of Gold, Copper, and other associated Minerals, found in Virginia, Division to Gen. Imboden and Albert Ordway & Co., 50

SECTION 6.

519. Best specimens of such Minerals as are useful in pigments, Albert Ordway & Co., 25

SECTION 7.

520. Best specimens of Pig Iron, converted from Virginia ore, Gen. J. D. Imboden, 10

SECTION 8.

521. Best specimen of Pig Iron converted from Virginia ore, with coke from Virginia coal as fuel, Dover Co., Westham Furnace, 10

SECTION 9.

522. Best specimen of Bituminous Coal found in Virginia, 100 lbs. or more, Dover Co., Gocchland County, 10

SECTION 10.

523. Best specimen of natural Coke, Job Atkins, Burfort mines, 10

SECTION 11.

524. Best specimen of Anthracite Coal found in Virginia, 100 lbs. or more, none,

SECTION 12.

525. Best specimen of Granite found in Virginia, Col. F. G. Ruffin, 10

SECTION 13.

526. Best specimen of Slate, divided, Buckingham Slate Co., Welsh Slate Mining Co., 10

SECTION 14.

527. Best specimen of Sandstone found in Virginia, Dover Company, 10

SECTION 15.

528. Best specimen of Magnetite found in Virginia, Albert Ordway & Co., 5

529. Best specimen of Barytes found in Virginia, divided, Albert Ordway & Co., and Gen. J. D. Imboden, 5

530. Best specimen of Kaolin found in Virginia, Gen. J. D. Imboden, 5

531. Best specimen of Pumbago found in Virginia, " " 5

532. Best specimen of Soapstone found in Virginia, Hon. Mention, John B. Jenkins,

533. Best specimen of Mica found in Virginia, divided, Gen. J. D. Imboden, and Dr. Dejarnette, 5

515. Best specimen of marl, Gen. J. D. Imboden, 5

CLASS XIV.

FINE ARTS DEPARTMENT.

Section 1.

Statuary, &c.

535. Best original Alto Relief in marble, bronze or plaster, or other material, designed in Virginia, E. V. Valentine, of Richmond, for "Penitent Thief," \$15

537. Best Statuette (original), designed in Virginia, E. V. Valentine, of Richmond, for "Judas Iscariot," 10

538. Best original Bust, designed in Virginia, for Busts of "Mosby," "Maury," and "Humboldt," E. V. Valentine, 10

SECTION 2.

Oil Paintings.

540. Best original Picture, designed in Virginia, for "Bushwhackers," W. L. Sheppard, 50

542. Best Head, life size, designed in Virginia, for "G. W. Manford," John A. Elder, 10

543. Best Head, cabinet size, designed in Virginia, W. B. Myers, "Chas. Dickens," 5

544. Best Landscape, including marine and waterscape, original, designed in Virginia, Mr. Coleman, of Staunton, Va., "Views on James and North Rivers," 15

SECTION 4.

Drawings, Engravings, &c.

552. Best original Drawing in sepia, india ink, pen or pencil, designed in Virginia, Mrs. M. M. Hubard, for pencil drawing, by the late W. J. Hubard, for "Night and Morning," 20
554. Best Engraving designed in Virginia, J. M. Nicol, Richmond, Certificate.
555. Best Lithograph, L. Ludwig, Certificate.
556. Best Photograph by a resident of Virginia, Anderson, Certificate,

SECTION 5.

Picture Frames, Artists' Materials &c.

557. Best Picture Frames made in Virginia, Franck & Lundin, Certificate.

SECTION 6.

561. Organs, T. H. Pollock, for Burdet's Combined Organ, Certificate.
562. Pianos, G. L. Bidgood, Knabe's Grand Piano. Certificate.

This contains all the Schedule premiums awarded, except Class II, Section 2, Ploughs &c., upon which an appeal has been taken, and referred to the Executive Committee for action. The discretionary premiums have yet to be acted upon by the Executive Committee, and will be reported in due time.

ADDRESS OF PROF. J. W. MALLET,

DELIVERED AT THE AUGUSTA COUNTY FAIR, WEDNESDAY,

OCTOBER 13, 1869.

(Continued from page 697.)

[It will be remembered by our readers that Professor Mallet, in discussing the "four principal steps in the process by which man learns to subdue the resources of the world about him to his service and enjoyment," namely: 1st, *Observation* of the facts in nature; 2d, *Experiment* for the discovery of other facts; 3d, *Logical deduction* of principles from the facts determined; and 4th, *The application* of facts and principles, when determined, to the practical wants of our daily life. We concluded the section of the address which we published in our November number with the paragraph which we quote below, in order that our readers may be the more readily put in possession of the progress of the discussion, and also more easily comprehend the connection of what remains to be published with that which has been published. We call the particular attention of our readers to the discussion of the economical element so fully illustrated in the following pages. In truth, economy is often the controlling test of value with reference to experiments of many kinds, but especially the various kinds of manures, machinery, &c. But to the quotation:

"But even if our experience has been extensive enough to fully satisfy us of the dependence of a certain effect upon a certain cause, we may be wrong in assuming that that cause acts in a particular way.]"

It is far from uncommon to find cause and effect connected in nature in an indirect and secondary manner, whereas most people are inclined to take for granted some very simple and direct form of relation between the two.

It appears easy to understand how many of the most important constituents of our mineral manures produce their beneficial effects upon crops when we find that these same substances, such as phosphoric acid, potash, &c., uniformly form a large part of the mineral matter of the growing plant itself, and are to be met with in the ash which the plant yields on burning off the vegetable portion. Now it is well ascertained that common salt used in moderate quantity exerts a very generally beneficial effect upon the fields to which it is applied, and improves the crops raised thereon.

Common salt itself consists solely of the two chemical substances chlorine and sodium.

With these facts alone before us, most people would be ready to say that chlorine and sodium are certainly, like the other materials just referred to, forms of mineral food for plants, and must be found as constituents of their ashes. Yet there is much reason for believing that this is not so—the quantity of chlorine and of sodium found in the ashes of most cultivated plants is so variable, and generally so small, that these can hardly be reckoned amongst the essential elements entering into the composition of the plants. While we are inclined, therefore, to reject this explanation of the benefit derived from manuring with common salt, careful experiments, to which attention has been drawn by Professor Liebig, seem to point out another and a true solution of the question. This eminent chemist has strongly insisted upon the fact that phosphate of lime—bone-earth—the direct utility of which you are all aware of, and which is practically insoluble in pure water, is dissolved in very perceptible amount by water containing a little common salt. I do not mean to assert this is the only way in which common salt may exert a useful action in the soil—it is enough for my present purpose to show that it is at least *one* way, and that an indirect one, by which it becomes the cause of increased fertility, but some persons may perhaps say—why trouble ourselves about the manner in which a particular effect is brought about? Why not content ourselves with establishing the fact of such an effect being produced, and reaping the benefit derived from such knowledge?—is it not enough to know that common salt may be usefully employed as a manure, without any necessity for cudgeling our brains as to the precise way in which it acts? If, however, we contrast the two conceivable modes of action, to which reference has just been made, it will at once be seen that it is by no means unimportant for us to be aware which of these really occurs in nature. If common salt were capable of acting as direct food for plant, then its value, when applied as manure, would depend upon the previous presence or

absence of the same substance in the soil on which such application is to be made—but, if its action consists in rendering soluble the earth phosphates, then the questions arise as to any soil upon which its use is proposed, not only whether such soil already contains common salt, or enough of it, but further, whether there be also present the phosphates themselves upon which the solvent action is to be exerted—if these be not present, or not in adequate quantity, then they too should be made to enter into the composition of the manure to be employed.

Assuming that our observations and experiments are carefully and judiciously made, that the facts which they have established are clearly and accurately recorded, and the conclusions which they fairly lead to are fully and soundly thought out in the shape of general principles, there still remains the application of these facts and principles to useful practical purposes.

Here the element of economy is at once introduced, economy of time, economy of labor, economy of money. It is not sufficient to show that a particular result can be accomplished in a particular way, but it must be further examined whether this be the *only* way in which it can be achieved, and, if not, which of the several methods it is possible to adopt is the cheapest, the easiest, the quickest, and in general the most profitable. Thus, for example, it is not enough to have found out that by applying a certain quantity of certain substances to a poor piece of land it can be made to yield fine crops, and then to say contentedly, "I have tried this manure, and know it will succeed. I am going to stick to it." It should be tried whether by using other materials, other proportions, or other quantities, still better products might not be obtained, whether at least as good results might not be secured by the use of cheaper materials, whether the land itself, and therefore its value is permanently improved or injured after the first crops have been removed, and in general whether not only a good, but the best possible money return has been secured from the means at our command.

When such questions as these come to be discussed, as labor, time, and all the other elements which, beside money itself, affect the cost or profit of an operation and admit of being expressed in the form of money, we have constantly to make our calculations on the basis of dollars and cents. And in these calculations, as in the more general reasoning of which we have been speaking, it is quite possible, and indeed not uncommon, for intelligent men in various ways to deceive themselves. Thus, much confusion as to the money results of farming operations is very often introduced by a failure to

keep clearly distinct the expenditure which is properly involved in the working of the land itself which goes to make the crop, or to keep the farm up to its original standard of condition, from that which properly falls under the head of personal or family support and the improvement of the plantation.

Again, the extent of absolute original outlay upon any proposed operation is often dwelt upon, and such outlay declared to be extravagant and ruinous, without the comparison between this outlay and the profit which it is capable of yielding having ever been fairly examined. To say that a horse and plough cost more than a spade is true, but does not prove that it is cheaper to break up a large piece of land with the latter rather than the former. Yet men who admit the absurdity of such a statement as this will be found to argue in a very similar manner against the use of more modern and highly improved implements for agricultural operations, simply objecting to them that they are costly, when the real question to be considered is whether, notwithstanding their cost, the work done by them is on the whole done so much more cheaply than by older tools as to leave a balance of profit. The period of such outcry against the great cost of deep tillage and subterranean tile drainage will, no doubt, in time pass by in this country, as it has already done in several of the older countries of Europe, and the real economic importance of such practice be recognized here as there. All these financial calculations to be reliable must be preceded by a correct knowledge of the natural facts and principles involved. If we go on to our reckoning of money results without this knowledge we are very apt to find ourselves involved in blunders and failure, but, on the other hand, if we neglect to duly weigh the money relations of the questions before us, we are equally likely to end with heavy loss and disappointment.

If a field were copiously manured with phosphate of ammonia, nitrate of potash, sulphate of magnesia and sulphate of lime, all purchased in a chemically pure state from a drug store, fine crops could undoubtedly be made upon it, but the prices at which such pure materials are necessarily sold would utterly preclude the chance of any money profit or of even repaying the outlay. On the other hand, one may buy a fertilizer strongly recommended by its apparent cheapness, its low price, and find out that it is extravagantly dear, that the money spent upon it has been thrown away—if its composition be not such as to really benefit the land to which it is supplied, at any rate to an extent bearing a sensible proportion to the outlay.

This is just the point at which to recur to what was remarked at

the outset, that in the efforts heretofore made for the advancement of agriculture there has been an unfortunate want of concert between men of science working in the laboratory and farmers working in the field. There has been a tendency on the part of the scientific investigator to look upon the farmer as a man obstinately resolved to carry out blindly the mere routine he has always been accustomed to, refusing to adopt any improvement suggested to him on the ground of general principle, and careless about knowing the reason of anything that he does or neglects to do. The farmer, in turn, is very generally disposed to regard the man of scientific research as an unpractical visionary, who in his enthusiasm for his experiments cares nothing as to whether he himself, or any of his friends, foolish enough to be guided by him, are ruined or not, and who, though one may harmlessly indulge him by listening to his fanciful notions, is the very last man in the world to take counsel with on any question of sober business life, upon the decision of which the support of one's family may depend.

There is doubtless *some* foundation of truth for both these views, but there is no natural necessity that either of them should be correct.

There are none of the results of scientific research bearing upon agriculture which cannot be perfectly understood, and practical use made of them, by any man of average intelligence, if only he be willing to devote a very moderate amount of time and attention to their study and begin that study at the right end.

Men of ordinary intelligence *do* master these subjects as matters of general interest.

There is nothing in a farmer's occupation to render him less capable than other people of being so, and certainly he has stronger motives than others to lead his attention in this direction. And there is also no reason that a man shall be totally incapable of considering questions involving money prudence because he devotes his attention mainly to science for its own sake, that he shall be so wrapped up in abstract research over crucibles and test-tubes as to have no ears for the experience of others working upon the large scale with the plough and the sickle. It is extremely unfortunate for the progress of any branch of industry that scientific research in connection with it and the actual practice of the art itself should be altogether in different hands. What would be the success in the business of a dyer, what would be his chance of keeping up with the progress of his art, and especially what prospect would he have of himself making any improvement, if he were totally ignorant of the real nature of the material employed by him, or of the changes they

undergo in passing through his hands? And of what value to such a manufacturer would be the scientific knowledge or advice of a man well acquainted with these materials and processes, but ignorant of their cost and of the kind of results demanded by the trade?

But there is scarcely any pursuit so injuriously affected as agriculture by such a separation of the knowledge acquired by scientific research and by routine practice of the art.

The greatest difficulty in the way of determining questions relating to agriculture consists in the very great number of conditions which are involved in every experiment. The mere fact that a field has been treated in a particular way and that a good or a bad harvest follows, are by no means proof that the treatment adopted has been the cause of the result observed. The latter might have turned out exactly the same if there had been no peculiarity of practice, or at any rate the effect produced may have been greatly modified by the nature of the soil, the choice of a high or low-lying piece of ground, the character of the season, the kind of seed used, the time and weather for harvesting, the treatment of the land in former years, and a hundred other causes. In a word, we see only the general result of all the concurring influences that have borne upon the cultivated plant in all its stages, and cannot at once separate from all the rest, the *one* condition whose effect we wish to examine.

As observed before, it is only by multiplying and re-multiplying experiments of this kind, and by extending the scale upon which they are made that it becomes possible gradually to arrive at positive conclusions, upon what future practice may be safely based. Such experiments, well devised and carefully carried out upon the large scale by hundreds of sound practical farmers scattered all over the country, working in successive and different seasons, and all imaginable variety of conditions as regards soil and weather, yet with a general understanding and agreement as to what the precise points are to be examined, and *how* they are to be examined, will serve to throw more light upon agricultural theory and practice than any amount of mere verbal discussion, or even than similar experiments made upon the small scale within the means of men of merely scientific research. There are some questions which can be fully answered in the laboratory, such as the composition of a manure and its purity or impurity.

There are others which can be answered by experiments with growing plants in a flower-pot, or upon quite a small patch of ground.

There are others of great importance which are beyond the means of any but the practical farmers of the country.

There are still others, most important of all, which demand the united labors of the chemist and the farmer, or rather of many chemists and many farmers, working together with a clear mutual understanding of what they want to find out, how they mean to go about examining the question, and how the results are to be discussed and compared.

It is true that every year sees an immense number of experiments made by farmers, and many of them made with a good deal of pains and labor—the agricultural journals are full of reports of the results—but unfortunately a great deal of the trouble thus taken is wasted as far as any positive increase of our knowledge is concerned.

Too many experiments are undertaken without a clear understanding of what is to be determined, without proper information as to what others have already done in the same direction, and what remains to be found out; without proper judgment as to the course to be pursued to get at the facts in the simplest and most certain manner; without such accuracy as to weights, measures, &c., as alone makes results reliable, and, above all, without the adoption of such a form of experiment as admits of comparison of the results with those which others have obtained. In proof that this is true I appeal to your own experience; what an amazing difference and variety of opinion do you find in any gathering of ten or twenty intelligent farmers, who meet to talk over the results of their respective experience of any new agricultural material or method; how difficult it is to sum up all that they have learned by their experience in the form of a distinct general statement. Yet this ought not to be so; the laws of nature are in themselves fixed and invariable; the truth exists, if we can only find it out; and every experiment, and still more the united experience of many persons, devoting themselves to the same pursuit, ought to teach us something, to make some addition to the stores of knowledge of those who have gone before us.

Having trespassed upon your kind attention at such length by thus urging in general terms the importance of united effort for the progress of scientific agriculture, I will but sum up the two or three practical suggestions which seem most readily to grow out of the subject as it has been discussed.

In the first place, it appears clearly desirable that farmers and those who are to become such, should recognize as a part of the training which is to render them fit not only for successfully practising the art they have chosen as their pursuit for life, but also contributing to the improvement of that art, the study, up to a

certain point at least, of the facts and laws of nature, which alone are capable of throwing intelligent light upon their pursuit.

It is hard to understand why the young man who is to devote himself to agriculture shall form the exception to the general rule that some training in the broad principles upon any profession or avocation depends should precede the actual practice of such avocation itself. If a man proposes to make his son a lawyer, he does not turn him loose in the court-room to attempt at once the pleading of cases, there must first be much hard study of treatises upon the general theory of law.

If a lad is to become a physician he must go to work upon his anatomy and physiology, and aim at acquiring a general knowledge of the structure and laws of the human frame, it would be almost as unfortunate for himself as for his patients, if, without any preparation, he were to be brought to the bedside of the sick and allowed to treat disease by mere blind experience. Even if he should see the practice of others better educated than himself, he would be incapable of really understanding it, or of imitating it when any novel complication of symptoms presented themselves.

In like manner, if a man is to be an engineer, an architect, a miner, or a successful manufacturer, he must study the work before him ere he begins practically to engage in it.

But it is too commonly the case that a young man "goes upon the farm" with no special education whatever tending to fit him for the intelligent practice of agriculture—he knows nothing clearly of the composition of the air, the water, the soil and the manure which are the materials out of which he is to make his crops; he knows scarcely anything of the manner in which those crops grow, or of the wonderful and beautiful laws of vegetable development—he is equally ignorant of the principles that govern the life of the animals he is to raise and to use. All that he can do is to notice the practice of others, and to imitate it as closely as possible not knowing the true reasons for what he thus learns as a matter of routine, nor knowing any good reason for trying one thing rather than another, if he wish to make any effort at improvement. Such a man is not only incapable of originating of any improved methods himself or of meeting any novel difficulties that come in his way, but he is even incapable of usefully receiving from others the assistance which is yielded by the progress of scientific research.

It is useless to try to explain any particular question to one who is ignorant of the whole subject in its scientific aspect—to whom carbonic acid, ammonia, phosphoric acid, &c., are simply hard

words with no distinct idea attached to them instead of standing for real things that he has seen and smelled and tasted and examined, and which he knows exists all around him, silently building up before his eyes the wheat and corn and cotton and tobacco, the production of which is his business in life.

Please observe carefully that I am not at all advocating the idea that scientific study alone will ever make a successful farmer, or that such study should even form a very large part of his training. Farming is an art, and, as is in the case of every other art, there is no way to acquire it but by a regular practical apprenticeship in the field. If the homely old saying be true,

“ He that by the plough would thrive,
Himself must either hold or drive,”

It is especially true in the beginning. The young farmer must undoubtedly learn how with his own hands both to hold and drive the plough, and how all other practical details of the art are to be carried on. But the acquirement of this practical knowledge will not in the least be interfered with by his having previously learned something of the principles upon which he is to work.

Sir Humphrey Davy put this point very clearly in the following passage from the first of his lectures in England on agricultural chemistry, now more than fifty years ago: “It has been said, and undoubtedly with great truth, that a philosophical chemist would probably make a very unprofitable business of farming; and this would certainly be the case if he were a mere philosophical chemist, and unless he had served his apprenticeship to the practice of the art as well as to the theory. But there is reason to believe that he would be a more successful agriculturist than a person equally uninitiated in farming, but ignorant of chemistry altogether; his science, as far as it went, would be useful to him.” In other words, the question is not whether a man who has studied solely in a laboratory or one who has derived all his knowledge from simple work in fields is likely to be the better farmer, but whether he will not far excel them both who has added to a careful study of the broad and simple principles of natural science an equally thorough mastery in detail of the methods by which these are applied to farming practice.

Surely the man who is to spend his life in the cultivation of the soil may well bestow a few months in learning what when he has become a farmer, will often prove to him a steady light, helping him to surmount present difficulties, and pointing out to him the

direction for future improvements. But, as on the one hand it would be well if farmers should more generally aim at acquiring for themselves some insight into scientific truths, so on the other it is greatly to be desired that the number of chemists and other scientific laborers, devoting their attention to agriculture should be increased.

For reasons to which I have alluded, the solution of agricultural questions demands the combined efforts of a very large number of persons both in the field and in the laboratory—the amount of work required is beyond the powers of any one or any few of those devoting themselves to such research.

In Europe, especially in Germany and France, government means are liberally applied to the maintenance of laboratories for agricultural research, and a large number of thoroughly trained chemists are constantly at work.

As an evidence that here at home we are not altogether without movement in the same direction, it gives me much pleasure to be permitted to mention one step lately resolved upon by the Board of Visitors of the University of Virginia.

In arranging for the extension of instruction rendered possible by the gift of the late Mr. Samuel Miller, of Lynchburg, for the support of a department of agricultural science, it has been decided to establish two scholarships, each of five hundred dollars a year, and tenable for two years, one to be competed for annually at a special examination of candidates voluntarily presenting themselves as such candidates to have previously completed the regular course of instruction in the school of agricultural and industrial chemistry—those who are successful to engage in further study and in the prosecution of useful scientific research under the direction of the Professor of this school for the period of the scholarship. These are the main features of the plan, though the details may be modified. By this plan it is hoped that the University may become the means of supplying to the State a number of thoroughly-trained practical chemists, who during the proposed period of advanced study, will have had an adequate and assured support, as well as great advantages for the prosecution of their labors, and will have accomplished much useful public work in the shape of analyses and investigations of matters connected with agriculture. Lastly, I would suggest that just such societies as that I have the honor of addressing, and just such occasions as the present might be made additionally useful by the proposal of district agricultural questions for thorough examination by the combined efforts of farmers and

scientific men—not too many questions being taken up at one time, but these to be, if possible, worked out to definite conclusions.

Thus at each annual meeting a joint committee might be raised, consisting partly of practical farmers and partly of agricultural chemists, such committee to carefully prepare for the meeting of the following year a report in which should be set forth one or two questions, clearly stated, and of practical interest and importance, as for example, what proportion ought the ammoniacal components (Peruvian guano, &c.) in a mixed fertilizer to bear to the phosphatic for the culture of wheat on the more important soils of the Valley of Virginia? Is there any advantage in using potash in the form of sulphate rather than muriate upon tobacco, or the reverse? Up to what limit as to quantity may plaster be used upon clover land with profit? And so forth.

Each question proposed should be accompanied with a statement of the method proposed for examining it—a programme to be carried out by all those willing to assist in the experiment giving the exact mode of experimenting in detail and the heads under which returns of the facts obtained are wanted. Here are some printed programmes of this kind, referring to experiments on tobacco manures which some gentlemen have been kind enough to undertake for me during the present year—unfortunately a most unfavorable one for the purpose, owing to the drought—these may serve to illustrate such forms as might be used.

Then there should be an understanding as to the names and addresses of those farmers who are willing to promise their active co-operation in carrying out the field-work of such experiments as might be determined on, and in like manner of those chemists who agree to make any analysis necessary to fully work out the question or questions. Such services ought to be, and doubtless would be rendered freely and without cost, but in cases involving expense for materials, fertilizers, seeds, &c., some assistance in meeting such expenses would seem to be no unsuitable or useless mode of employing the funds of the society.

Finally, a report to the society at a subsequent meeting upon any question thus carefully examined, giving the conclusion arrived at and the experimental facts upon which these conclusions had been based would reflect credit upon the intelligent activity of the Society, and would constitute a real addition to our stores of knowledge in relation to scientific agriculture.

Whether in this way or in the many other directions of effort which present themselves, let us trust that the substantial usefulness

of Societies like that to-day assembled may constantly increase—that their growing energy may ever tend to throw fresh light upon the interesting scientific questions which connect themselves with farming; may serve more and more to improve the practice of the oldest and noblest of the arts; may exert a marked influence for good upon the material prosperity of the country, and may continue year after year to bring together on these genial anniversaries large and larger gatherings of men from this side and from the other side of the mountains united by the ties of a common occupation, common interests, and hearts bound up together in common regard for the future destiny of this grand old State.

EXCHANGE, October 20, 1869.

Col. F. G. RUFFIN:

DEAR SIR,—As you have done more to arouse our people to the importance of sheep husbandry in our State, both by your writings on the subject and efforts personally to raise and distribute improved breeds at moderate prices, than any one with whom I am acquainted, I have thought proper to address to you this short communication. Your extensive acquaintance with this branch of industry will enable you to correct any errors and omissions which my ignorance of statistics, as to the number of sheep now in the State, the losses sustained during the past year, and inefficiency of existing statutes to subserve the purpose designed, which have not here been introduced. Should the views here expressed meet your approval, or any better method occur to you than here suggested, so that many of us can engage in sheep raising with some assurance of a safe investment of capital, not at the mercy of hungry curs, we shall be grateful indeed. No one, perhaps, more than myself appreciates the value of our house dogs as vigilant guards of our property during the dark hours of the night; and it is exceedingly rare that our well-fed favorites engage in sheep stealing. The plan proposed aims at abating a nuisance and encouraging a profitable source of industry, and although it may bear the appearance of partial legislation in favor of the few, yet, viewed from every standpoint, the result is in the end beneficial to all—more mutton, more wool, improved lands producing grains, food for animals, the counties and State grow wealthier, and the poor laborer, black or white, reaps the benefit.

That dog power can be utalized, as in the cheese and butter factories at the North, as guards for sheep and aids to the shepherd,

both in our own and other countries is constantly seen. In several of the German cities, Prague and Dresden, I have seen them drawing small milk wagons from door to door, apparently as well acquainted with the doors of their customers as the milk women who accompanied them. Such might receive special exemption by the purchase of collars of honor; but taxation to the death, which would assuredly be the result, to all useless, half-starved, ugly canines who, finding no subsistence at home, roam our fields and woods for rabbits and other game, startling our cowardly flocks of sheep quietly grazing in our pastures—off go the sheep, and after them the dogs—in a few hours property valued at several hundred dollars the day preceding, is mostly destroyed.

Your position near the city, and your well known interest in the subject, have caused me to direct this communication to you.

Very respectfully, yours,

G. W. BRIGGS.

P. S.—Received a letter from J. T. Henly, one of your subscribers, asking more information about peanuts, to which I would have replied through your columns, but the reply would not reach him in time to be of any value for this season. Observe the last number contains a rejoinder of W. H. S., New York. *He knows he is right*, possibly, for New York labor one to two dollars per day. The question mooted was one of expediency as to cost of labor—*facts and figures* 'tis said, rarely tell false tales, and I have been ever careful never to write what I am not prepared to prove *true*. He can write on trucking. We shall see. Norfolk truckers say that many Northern plans will not do for them. Peter Henderson has given us the best work extant on the subject.

To the Members of the Virginia Legislature.

Allow me, gentlemen, to call your attention, when devising methods for increasing the revenues of our noble old State, by taxation, to revise the existing statutes in regard to "*Depredations of Dogs*." By reference to the Reports of Agriculture for 1866 you will find some "astounding facts." Returns have been received in this department from 539 counties, in every State in the Union, except those upon the Pacific coast, showing an aggregate estimate of 130,000 sheep killed by dogs in about *one-fourth* of the whole number of counties. On this basis, the total number killed would be more than half a million yearly. Then the proportion injured, assuming as a basis the proportion reported from actual count in a series of years

in Ohio, would be more than three hundred thousand; more than eight hundred thousand killed or mutilated yearly, and a two per cent. tax levied on the total investment in sheep—a loss equal to one-third of the *gross income from six per cent. stocks*.

The writer then gives a table, "K," showing the number of sheep killed during the year 1866, in a number of States, and in *seventeen counties from our own State of Virginia*. The reports show 47,272, which, at the low average price of \$3 each—and many of them were, perhaps, improved breeds of a higher commercial value—making the snug sum of \$1,272,600, a total loss. I am satisfied this report does not embrace more than one-fourth the actual damage sustained.

So great has become the uncertainty of sheep raising in many parts of the State, and particularly in sections where the freedmen are permitted to keep as many curs as they or their neighbors can provide for, that many farmers, after sundry trials and losses since the war, have abandoned sheep raising entirely. It is, I believe, a well known fact, at least it is the current impression with most old farmers in this section, that the destruction of a fourth or fifth of a flock of fifty sheep by dogs, destroys in a great part the value of the whole. Instinct, which teaches these feeble creatures, innocent and devoid of means of self-defense, to herd and flock together on the principle of unity—strength. The dogs appear to destroy their *morale*, as it were; they are scattered and lost; and on three several occasions flocks from thirty to seventy head on this farm, after an onslaught of the dogs, killing in one instance five, another seven—and in the larger flock before the war ten outright, and several others badly injured—the residue were either totally lost or a few collected and sent to market. The experience of a number of other farmers in this section is the same; and by reference to the report from which extracts have been made, we have from other States, "Sheep raising in Beaufort, N. C., would be profitable were it not for the dogs," and I may truly add the same for Southeastern and tide-water Virginia, where the price obtained in the market for the early lambs alone, would pay for the cost of keeping, since in our mild climate sheep provided with shelters do well in the fields all winter, with proper attention to salting and a daily supply of forage and grain during snow.

It has occurred to me as a question for consideration with your honorable body, *to whom alone the farmers of Virginia must look* for the passage of laws to protect their interest, whether it would not be a move in the right direction, to relieve the sheep from any

tax, and place on his "*dogship*" an assessment of half a dollar, and double the amount on the lady dogs; for the writer has a lively remembrance of a hunt he had a year since after an insignificant lady fice with her train of lovers; this gay party destroyed seven sheep and six fat hogs, in a pasture, in one night and morning. The dogs were all killed, and only a single one belonged to a white man.

The strongest argument which occurs to the writer in favor of this, is the promotion and protection of one of the most profitable branches of industry in our State, "sheep husbandry," both directly from the sales of wool and mutton, and indirectly in improving our worn out soils; recent experiment having proved them, with the aid of man, better manufacturers of manures of a cheaper, more reliable and permanent kind, than any of the high-priced, uncertain mixtures offered in the market.

The tax on dogs has it precedent in every city, designed there to keep the breed within bounds, and was, I believe, originated by the fear of the mania, hydrophobia, attacking the canine family in the dog days of August.

With us it has become a question of importance, and unless some action is taken in this direction by those in authority to protect our sheep, our money, care, and attention must be turned elsewhere. The report above states—"The South is acknowledged to be especially adapted to profitable wool production, and business would rapidly increase there but for the *interference of the dogs.*"

In a single county of Mississippi (Pontotoc) the annual loss from dogs is placed at 900 sheep.

In 1867 Virginia contained 700,666 sheep, valued then at \$2 56 each, making \$1,798,705; and although there were thousands destroyed by the late war, yet, from the rapid increase of this stock, and the interest and impulse which has been given to sheep husbandry since the war, the number has increased within the past two years more rapidly than from 1865 to February, 1867, the year when the report was made. Hence, if the report be correct, admitting the consumption annually of a large number for mutton, deducting *also the dogs' share* there must be over one million sheep in our State bleating at many a farmer's barn this winter for care, food, and protection from the cold, and dependent on the action of your honorable body for protection of their lives from attacks of merciless, worthless curs.

Respectfully, yours,

B.

Exchange, Nansemond, October 16, 1869.

The Culture of Tobacco in Western North Carolina.

The steady demand for fine manufacturing tobacco and high prices which it always bears, first induced me to make the experiment of introducing its culture in this section.

The forests of my native state, in that part of it adapted to the culture of fine tobacco, have nearly disappeared and many difficulties present themselves, in her maintaining the leadership in this article which she has always had. It is the work of a philanthropist to bring forth in a new country any source of wealth which has hitherto remained unknown, when he sees that every natural advantage is present to its development.

It is known by all who have paid any attention to the climate of this beautiful region that it presents more variety than any other part of the United States.

Situated about two degrees south of the parallel of Lynchburg which if taken due south would throw us nearly into the sand hills and would present very little attraction to the amateur tobacco grower, but when we consider that the altitude of this section, when put to account, gives just the climate of Albemarle as a general thing, and when we look at the great variety of degree that may be attained by ascending or descending the mountain side the idea presents itself why may not fine tobacco be grown here?

As to the soil, it is as much varied as the climate. From the rich alluvian on the banks of the beautiful French Broad to the barren peaks of Black mountain and Pisgah, with every intermediate grade of soil we find in this section.

Here is presented the rich mountain cove with its Beach and Walnut gradually losing itself in the yellow leaf hickory and giant white oak, sprinkled here and there with dog wood and chinquepin which in its turn loses itself as it ascends in the shrubby mountain pine which fringes the bleak rocks on the mountain peaks. (Don't be alarmed for myself dear reader.)

I now come down flatly to facts, I reached the cove in which I now live on February last, and the first thing I did was to burn an old Virginia plant bed, a thing just as new in this country as a forty-pound cake of Elk Mountain cheese would be in Amelia, the production of its own industry.

Nevertheless, in due time the plants appeared and did not seem to realize that that they were in a strange land, but grew off rapidly as if they had been at home. About the first of June I had planted about fifteen thousand plants in a little cove near the foot of the

mountain that rears its crest above my home; and strange to say, they went to growing and looked as finely as could be imagined. The same care was bestowed on them as I would have given in Virginia and no more. By the 10th of September I commenced cutting as pretty a piece of tobacco as I ever saw, taking the drought into consideration.

I never saw tobacco yellow more handsomely and cure prettier in my life, and I now can show as fine a lot of flue cured tobacco as I ever saw in Virginia everything considered now for the advantages of this section.

1st. It presents no competition and the intelligent and experienced planter may reap a rich harvest.

2d. There are thousands of acres of original forest that can be bought low.

3d. There never was a healthier country.

4th. The people for the most part are refined, intelligent and enterprising.

Nor is this all: The market is right at our door and as soon as a surplus is produced, we have the whole south and southwest before us.

Now, dear Planter, don't think I have lost a particle of my affection for "my own my native land," nor any of my enthusiasm in risking my first crop among these mountains. No: but by the blessing of Providence I intend to raise the standard right here. Nor shall my reputation suffer from the experiment, but at the next fair at Richmond, I hope to present a sample of fine yellow wrappers that will do good work for the premium.

Most respectfully, dear Planter,

Your devoted friend,

SAMUEL C. SHELTON.

Ashville, N. C., Nov. 22, 1869.

HORSE TREATMENT.—There are a very few common sense rules which, if followed, will commend themselves to the horse, as well as to the trainer, viz:

1st. Always feel kindly toward a horse no matter what he does to you, and consequently never show "temper." Remember the horse knows instinctively how you feel.

2d. Never go near a horse if you are afraid of him; the horse will know it and take advantage of it before you acknowledge it yourself.



Horticultural Department.

JOHN M. ALLAN, - - - - - EDITOR.

The Fair of the Virginia Horticultural and Pomological Society.

The third annual exhibition of the Virginia Horticultural and Pomological Society was held in conjunction with that of the State Agricultural Society, at their grounds on the 2d, 3d, 4th and 5th of November, and was, notwithstanding the lateness of the date, an unprecedented success. It was of course too late for a good display of flowers and indeed of any fruit save apples, but of these there was no lack. Over four hundred specimens of magnificent apples were displayed, while the pears though not numerous were very good. Some specimens of Duchess D'Angouleme exhibited by Col. J. D. Williamson of New York, attracted universal attention, while our friend, Mr. W. G. Taylor, carried off the palm for size, with a couplet from his garden in Manchester. Handsome designs of cut Flowers from the Garden of Mr. Jno. Morton, and Messrs. Allan & Johnston, together with a fine collection of flowering plants from the latter firm, added greatly to the beauty of the room.

The vegetable department though not so full as it might have been, was well represented and the collections of vegetables exhibited by Messrs J. R. Rennie and Garland Hanes, together with specimens of potatoes, cabbages, &c., by various amateur and professional growers, was remarkably fine, considering the severe drought of the past season.

The apples, however, were the leading attraction. Messrs. Franklin Davis & Co., of this city exhibited over seventy varieties. Capt. H. B. Jones of Rockbridge over eighty. Mr. Jno. Dollins of Albemarle nearly as many. Mr. Hurt, of Bedford, over thirty. Mr. Thomas Allan, of Winchester, as many, besides numerous other smaller lots. We noticed that the Fallwater seemed the favorite with our valley friends, the Albemarle Pippin for the Piedmont section, and the Wine Sap, was the stand by of our tide water growers. Several new native varieties were exhibited, the most

prominent being the Mason and the Pilot, both of which are truly first class apples.

It was too late for an exhibition of Grapes, but we noticed some fine specimens of Muscat and other foreign varieties exhibited by Mr. Coles of Albemarle. The specimens of wine were very numerous, but the quality was not so good as we had hoped it would be. Our people have much to learn concerning the manufacture of Wine. We can produce the grapes without trouble, but if we would make them profitable, more care must be given to the manipulation of the Wine.

We publish elsewhere the list of premiums awarded, as also a condensed report of the annual meeting of the Society. The officers and members have cause for congratulation upon the success which attended this exhibition and ought to be greatly encouraged by it.

ANNUAL REPORT.

Gentlemen of the Virginia Horticultural and Pomological Society.

In submitting the third annual report of your Executive Committee, it is gratifying to have so much cause for congratulation.

Commencing as you did, a little over three years ago, with a membership of fifteen, you to day count them by hundreds, while the general interest in the object of your Society has deepened and diffused itself to an extent truly encouraging. Letting the past, however, speak for itself, permit me after a hasty sketch of the years operations to call your attention to some of the work lying before us. At the opening of the exhibition the President submitted the following :

Appreciating the unsettled and impoverished condition of our people which would have rendered it difficult to have secured a general attendance upon two State Fairs, your Executive Committee, after mature deliberation, decided to accept the offer made by the State Agricultural Society for a union of the annual exhibitions of the two Societies. This of course, while offering many advantages, was not free from serious objections, for while on the one hand the number of exhibitors and visitors from distant parts of the State, has doubtless been largely increased by the combination of the Fairs, on the other, the variety and quality of Fruits, Vegetables and Flowers has been necessarily very much reduced by the lateness of the season at which the exhibition occurs, and while it may always be desirable and pleasant to exhibit jointly with the Agricultural Society, still it is to be hoped that in the future, circumstances will permit the holding of our Annual Fair earlier in the season, at a time when a fuller Horticultural and Pomological exhibition can be made.

The same reasons which influenced the Executive Committee in postponing the Annual Fair to this date, viz., the scarcity of money and unsettled condition of the State, coupled with the extreme drought of the past summer preventing them from having more than one intermediate exhibition. This was held during the Strawberry season on the 27th of June, at St. Alban's Hall in this city, and was eminently successful, the display of Strawberries and Flowers being very fine and the attendance unexpectedly large. A gratifying feature of this exhibition was that it was self sustaining; indeed, as you will see from the Treasurer's report, left a small balance in his hands.

The twelfth session of the American Pomological Society was held in the city of Philadelphia on September 15th, at which your Society was fully represented, and upon the invitation of your delegates, that Society determined to hold its next session in this city.

It is encouraging, as I have said, to note the greatly increased interest manifested in the Society and its operations by members and the community at large, and while the success that has attended us in the past is gratifying, it should only stimulate us to renewed exertions for the future.

Never perhaps had any Society a larger field opened for occupation. With a State possessing every advantage of climate and soil, so situated as to defy competition in the early Northern Markets, producing fruits that are eagerly sought in the European cities, the conditions of her labor, so changed as to point many of her citizens to these branches of industry for a competence as well as a source of wealth, the Virginia Horticultural and Pomological Society, has before it a work of the greatest magnitude properly to aid and guide the development of these great and rapidly increasing interests. A glance at what is needed will assist us in determining how to accomplish it.

STATISTICAL INFORMATION.

In 1865 there were not over one hundred acres in vineyards in the entire State; at this date there are over thirty times that area devoted to grape culture. During the same period not less than ten thousand acres have been planted in fruit trees. Previous to 1860 the exports of fruits and vegetables from the State rarely reached one hundred thousand dollars annually, now more than one million dollars worth are shipped from Norfolk alone. It is essen-

tial to the successful prosecution of trucking and fruit growing that we should have detailed statistics of yield per acre, cost of production and marketing, net profits, &c., of the various fruits and vegetables, to guide us to proper conclusions as to usefulness and general profit. These can best be collected by a central society, with the aid and co-operation of county and district associations, of which latter there are already two in active operation in the State, viz: the Norfolk Horticultural Society, and the Potomac Fruit Growers' Association. In furtherance of this object, a standing committee on statistics has been appointed, who will publish from time to time such information as may be acquired and deemed useful.

CATALOGUE OF FRUITS.

Not less important is the preparation of a catalogue of fruits adapted to our climate, and the collection and dissemination of such new native varieties as may prove worthy of general culture. The Virginia fruit grower has no greater difficulty with which to contend than the selection of varieties of fruits, especially of apples—so many of the standard varieties of the North and West being totally unsuited to our section, while many others, which in Northern catalogues are classed as first rate, are at best but of second or third quality here, whereby much disappointment and loss occur as the result of taking these catalogues as guides.

With a view to an early preparation of such a list, a standing committee on fruits has been appointed, and it is earnestly desired that all interested in Pomology will forward to this committee such information as they may possess concerning either new or old varieties. Some of our finest apples, such as Rawle's, Janet, Mason, Pilot, are natives of this State, and Virginia boasts the parentage of that greatest of all American wine grapes, the Norton; but there are scattered over her hills and valleys, unnoticed, and unknown beyond the plantations which produce them, varieties destined to out rank any yet known to the Pomologist.

WINE.

The fostering of the wine interest also appertains in an eminent degree to the purposes of this association, and the large number of samples now upon exhibition foreshadow the important dimensions the production of wine will shortly assume. Perhaps no other State is capable of producing so many kinds of good wine as Virginia. The Norton, generally admitted to hold the first place among native red wines, flourishes here in the highest perfection. Along the

slopes of the Alleghany and Blue Ridge mountains the Catawba succeeds well, and the Delaware has found a congenial home in the Piedmont region. The Scuppernong belongs to our Southside friends, while the Ives, Concord, Hartford Prolific, and Clinton yield everywhere a good return in quantity, if not in quality. Your standing committee on wine will find abundant employment among these, and are to be envied the frequent opportunities likely to be afforded them of touching, tasting, and handling.

VEGETABLES.

The production of vegetables for both home and foreign markets has already assumed large proportions, and each year but adds to the demand. Wonderful has been the progress made in this branch of horticulture during the past four years; but what has been attained is only a promise of what is in reserve for the enterprise of our market gardeners. Where the exports of vegetables have amounted to thousands they will soon reach millions of dollars, and the day cannot, certainly ought not to be far distant when Virginia will cease to import such vegetables as the Irish potato. Under the auspices of the practical and skilled gentlemen who compose your committee on this subject, most favorable results may be anticipated.

ESSAYS.

Another direction for the labors of this Society is to be found in the collection and distribution of Essays upon the nature and culture of fruits, vegetables, and flowers, together with dissertations upon the diseases and insects to which plants are liable. It is thus that the experience and information of those already familiar with these subjects can be made most available to others. Books do not supply this want. Authors seldom care to tell us of their failures, and the consequence is that we only see the fair side, and that highly colored; but a system of premiums for essays, properly conducted, can be made to bring out the causes of failure and disappointment, which it is vastly more important for beginners to know. It is easy to sail in an open sea; the pilot is needed to avoid rocks and shoals. A horticultural literature of great usefulness will doubtless be the result of the labors of your committee upon this subject.

IMPLEMENTS.

Improved horticultural implements and machinery also demand your attention. Rapid has been the progress of the past few years in this direction, and much of the profit and success of gardening in

the future will depend upon the improvements which may be made in implements adapted to the saving of labor and facilitating the culture of the various crops.

But while it is the duty of your Society to foster all these more material interests, let it not be forgotten that the beautiful and ornamental also pertain to you, nor let it be said that flowers, and shrubs, and shade trees are unprofitable; or that we have no time in this intensely practical age to bestow upon the beauty and comfort of our homes. True, the orchard, vineyard, and kitchen garden are necessities; but are not the lawn and flower garden equally so? Take away these, and you rob home of its attractiveness, for who does not feel that even the simple pot of mignonette, or the single tea rose in the window gives evidence of contentment and happiness within. Ask your wives and daughters whether these are luxuries to be dispensed with until more prosperous times, and hear how they will plead for their flowers, at the expense of nearly all that you style necessities. A kind Providence has blessed us with a heritage which flows with milk and honey, and teems, from seashore to mountain-top, with a flora hardly surpassed by that of any section on the globe. The magnolia, grandiflora of our eastern lawns, majestic in its beauty, the lovely rhododendrons of our mountain sides, and the humble violets of our shady groves, with hundreds of intermediate genera, and thousands of species, make our fair State redolent with their fragrance, and glorious with their beauty. To arrange, classify, improve, these are surely worthy occupations for all who, recognizing the sources of happiness thus abundantly bestowed by a beneficent Providence, are ready with thankful hearts to receive and delight in them.

If, gentlemen, even we, with our colder, harder, more material natures can appreciate a handsome evergreen, a pretty flower, or enjoy the shade of the drooping elm, need we be surprised that the purer, the holier emotions of the female heart go out with enthusiasm after them? To them you owe to-day largely of the success which has attended your Society. From its inception to the present hour they have been its firm friends and supporters. Most heartily do we acknowledge our obligations for the past, and bespeak their continued favor and co-operation in the future.

EXPERIMENTAL GARDENS.

The establishment of an experimental garden is a matter of great general interest and utility, which it behooves us to take steps to initiate. The benefits resulting from such gardens are very numer-

ous. Here new varieties can be tested, the worthless rejected, while the good will receive an imprimatur from such a source entitling it to general credit. Here also rare plants may be gathered and disseminated, and synonyms ascertained and defined; to say nothing of the pleasure afforded by such establishments as places of resort and recreation. Time will only permit me to suggest these points, and leave them for your consideration and action.

DISCUSSIONS.

Stated meetings of the Society for discussions are also extremely useful, and it is to be hoped that these will be regularly and eagerly attended. These monthly reunions and conversations are beneficial to the public, as well as highly instructive to the members themselves; they also tend greatly to excite and keep up the general interest in these subjects.

LANDSCAPE GARDENING.

Landscape gardening and the adornment of grounds have, in almost all countries, advanced *pari passu* with civilization and refinement; yet in the Southern States, especially in Virginia, where nature has done so much towards evoking a taste for these humanizing and elevating cultures, the ruthless hand of improvement, with remorseless energy, has swept away the grand old "monarchs of the woods," to give place for ill-contrived and worse located dwellings, upon whose white and glaring walls the sun falls with scorching rays, compelling a subsequent planting to cover a deficiency which should never have arisen. How often, in traveling over our country roads, do we meet the rude gate giving most musical entrance to the visitor, whose eye, when raised, passes to the farmhouse along an uncared-for road, as straight as a pistol shot, between rows of ragged trees, the chance growth from the neglected corners of a rail fence; and in advancing, falls successively upon cow-house, pig-pen, stable, &c., thrown forward, apparently, as skirmishers, defending the approach to the dwelling, with odors more unsavory than "villainous gunpowder."

Among our mountain resorts, where health and pleasure seekers leave, year after year, the means for educated and tasteful adornments, the grounds are either wholly neglected, or treated so at variance with surrounding nature as to induce one to deplore the ingenuity that contrived an axe or fashioned a spade.

We live through the eye for happiness and the kindling of emotions which bring us nearer heaven, where all is beautiful—should we not, then, surround ourselves with the attractions which nature

so bountifully gives, in such harmony as to become a music to the eye?

Our rural population will awaken—and we hope to assist them—to an acknowledgement of the value and the employment of the aid of the architect and landscape gardener; but not before the thousand scars have been made which centuries of care will be required to efface—inroads upon nature's beauties that startle the cultivated foreigner, who returns to his home with the idea of vandalism closely associated with our notions of improvement.

FINANCES.

And now, gentlemen, we come to a subject that is necessarily and intimately connected with every enterprise—while that the love of money is the root of all evil, is beyond a peradventure true, it is equally true that nothing can be accomplished in this world without it. The finances of your Society require your prompt action. Heretofore we have depended to a large extent upon the annuities of members, and the entrance fees, for means with which to pay the premium lists, and meet the running expenses of the Society. When these proved inadequate for these purposes they were supplemented by subscriptions on the part of the friends of the Society. Such receipts are more or less uncertain, and I would respectfully recommend that such steps be taken as your wisdom may devise, for the establishment of a permanent fund, the interest of which shall alone be applied to the uses of the Society. An active agent could, doubtless, be procured to canvass the State for life members, receiving as remuneration for his services a commission upon his subscriptions. The funds thus procured and invested under direction of your executive committee in permanent securities, would give a certain annual income, which, with annuities, would doubtless prove sufficient for all the purposes of the Society. In furtherance of this, and necessary to it, will be the securing of an act of incorporation. I respectfully recommend the appointment of a committee for this purpose. Before dismissing the question of finances, I may be pardoned an appeal to those who are professionally engaged in horticulture and pomology throughout the State to respond liberally to the call for life-members. It devolves upon this class especially to give the operations of this Society an impetus at the outset. They are most immediately benefitted by it, and just in proportion as they throw their labors and influence in its behalf will the public rally to its support; and an earnest effort on their part at this time, will assure the rapid progress and full success of this to them important movement.

In conclusion, gentlemen, permit me again to congratulate you

on what has been attained, and with words of good cheer, bid you go forward in your work—a work most noble, elevating and refining in its influences, and enlisting the sympathies and encouragement of those without whose smiles and approval this world offers nothing worthy of our exertions.

After the report was read :

Col. John C. Shields offered a series of resolutions, recommending the adoption of the report, and appointing a committee to consider that portion of it which looks to the greater usefulness of the Society. Also, to take into consideration the propriety of reducing the price of life membership in the Society. Also, that the executive committee be empowered with full authority to change the Constitution and By-Laws of the Society in any particular which they may deem necessary to the permanent advantage of the Society, and the promotion of the objects for which it was instituted. The resolutions were taken up *seriatim* and adopted.

Rev. Leonidas Rosser, D. D., was then called to the stand to deliver the annual address.

He commenced his address by alluding to the influence which the subject of horticulture has recently exerted on the public mind. Man was, from the early days of Adam, bound to the earth, and the love of nature and her products is inherent in him. Horticulture lives at the base of man's development. Nature is fruitful in her resources and reproductions.

In the departments of horticulture and agriculture, we have reproductiveness in endless variety.

If nature hath her instincts on the one hand and reproductiveness on the other, what is man's work? First, he would say drainage—drainage below the soil; secondly, deep ploughing; thirdly, heavy fertilizing. There is not a garden in Virginia which has been brought up to its maximum of production. We must no longer be afraid of the expense of fertilizers. Nature's fertilizers have been used up. The cereal crops have drained it off. He used on his strawberry field a fertilizer of three bushels salt, fifty bushels lime, and fifteen bushels ashes; and for ten years he had used no other—not a bushel of barn-yard manure. Another rule was, *death to grass and weeds*. Be sure to keep the grass out.

Again. *Rigid system*, and lastly, *courageous perseverance*. Failures we all have, and must have; but courage, experience, and science, will give us triumph in the end.

THE FUTURE OF VIRGINIA.

In the first place, the war aroused in an unparalleled manner deep interest in horticulture. Before that time no one here raised strawberries, for instance, and so with all other small fruits; and now it is astonishing and gratifying to see the result of that interest. Our climate is temperate, and, in the opinion of all, the best upon earth; that, with the soil, gives us opportunities which we have never yet developed. One million quarts of strawberries have already been engaged by one house in New York.

We need here a packing-house, and it should be located in this city; then hundreds of acres of berries and small fruits would be planted where one is now raised.

There is more in the men than in the land.

The young men of our State with soft hands and ring-fingered are useless; they should turn their attention to the cultivation of the soil—and so with the ladies. Alas! her only emblem now is the greenhouse plant. Let them turn their attention to horticulture, and her days of usefulness will begin.

Here the learned orator paid a glowing compliment to what, under these circumstances, she would become. If we had all of Virginia's men and women engaged in these pursuits, we would again vie with the noble ancestry from which we came.

ELECTION OF OFFICERS.

The election of officers was next held, and the old officers were re-elected. as follows:

President,—John M. Allan.

Vice President—William H. Haxall.

Secretary—H. K. Ellyson.

Treasurer—I. S. Tower.

Executive Committee—Col. Wm. Gilham, Charles B. Williams, Joseph R. Rennie, Franklin Davis, Colonel J. C. Shields, Matthew Blair, Dr. S. P. Moore, Gen. J. D. Imboden, Dr. Jas. T. Johnson, Captain Charles H. Dimmock.

The President then appointed the following committee under the resolutions of Colonel Shields:

Colonel J. C. Shields, Captain Charles H. Dimmock, and Mr. I. S. Tower.

The Society then adjourned.

The meeting then resolved itself into a joint meeting of the two Societies, Major Sutherlin in the chair.

At the joint meeting there were several addresses delivered, which are noticed in the proceedings of the State Society, to which we

refer our readers; but especially do we call the attention of the members of this Society to that of Mr. Saunders, Experimental Gardener at Washington, as having more particular relation to the interest of this Society.

The President of the New York fruit growers club being present, on being called for, responded very happily. He spoke most encouragingly of the prospects of Virginia, and the advantages she offered to emigrants, and assured the Society that numbers of families in New York, and other Northern States were preparing to come to Virginia to locate. We regret that our space will not permit a full report of his remarks.

LIST OF PREMIUMS

AWARDED AT THE
ANNUAL EXHIBITION OF THE
HORTICULTURAL AND POMOLOGICAL SOCIETY,
HELD AT THE FAIR GROUNDS,
NEAR RICHMOND VIRGINIA,
November 2, 3, 4, and 5, 1869.

CLASS I.

Messrs. Allan & Johnson, best assortment of Nursery Stock, \$ 30

The Committee recommend a premium of equal value to Messrs. Franklin Davis & Co., for their large and greatly extended variety of Fruit Trees, Vines, &c., being the largest variety on exhibition.

Messrs. Allan & Johnson, best assortment of two year old Apple Trees suited to Virginia. \$ 10

To same for best assortment of one year old peach trees suited to Virginia. \$10

To same for best assortment two year old pear trees, (standard or dwarf.) \$ 10

Capt. H. B. Jones of Rockbridge, Va., for the largest and best collection of Apples, (87 varieties) raised by the exhibitor \$ 10

W. O. Hurt of Bedford, Va., for second best. 5

These apples of Mr. Hurt's (35 varieties) making quite an "aristocratic show," deserve high commendation as vindicating the adaptability of the soil, climate, and exposure of Virginia to fruit culture to the raising of fruit of a high order of merit.

S. E. Dove, for best collection of Pears, (7 varieties) raised by exhibitor. \$ 10

Allan & Johnson for 2d best collection, (6 varieties) raised by exhibitor,	\$ 5
Dr. C. R. Cullen of Hanover, for best collection of Cranberries raised in Va.	\$ 5
R. H. Dibrell, for best collection of grapes, no competition. Certificate To same for best native grapes, Norton's Virginia.	\$ 5

The Committee beg leave to express their gratification at the marked increase of interest in regard to fruit native to the State, and especially the Apple. Their attention was particularly arrested by "the Pilot," originating in Nelson Co., Va. and exhibited by John Dollins of Albemarle, the "Mason," and the "Gully," originating with Dr. Geo. Mason of Brunswick Co. Between these varieties, the Committee did not make a decision and express the opinion that the premium be divided between the "Pilot" and the "Mason," both being highly commended by high authority as possessing remarkable keeping qualities.

The exhibitors of Apples all merit commendation, and had they all occupied the same ground, so as to claim that they had raised the apples they exhibited, it would have been difficult for the Committee to have decided between them.

The Committee felt bound to make it a condition that the fruit contending for a premium, should be in the name of the individual that raised it.

The committee recommend that the Society establish this as a rule hereafter.

J. A. Foster, best specimen of Dried Peaches, very fine, (though less than a bushel,)	\$ 5
W. A. Gillespie, for best specimen of Dried Apples, 1 bus.	5
J. A. Foster, for 1 peck do. very fine,	Certificate

CLASS II.

Jos. Rennie, for best and largest collection of Vegetables.	\$ 25
Garland Hanes, for 2d best and largest collection do	\$ 10
J. E. L. Masurier, for best $\frac{1}{2}$ dozen cauliflowers.	5
Jos. Rennie, for best dozen carrots.	2
J. E. L. Masurier for best doz. celery,	5
F. Biershenk, for 2d best do,	Certificate
Jos. Rennie, for best dozen Parsnips,	2
S. G. B. Faulkner, for best doz. Pumpkins,	2
Jos. Rennie, for best doz. Salsify,	2
Garland Hanes, Jr., for 2d best salsify,	Certificate
Dr. J. G. Lumpkin for best bus. Sweet Potatoes,	5

P. T. Atkinson, for second best do,	Certificate
Garland Hanes, for best bushel Irish Potatoes,	5
Jas. Newman, 2d best do,	Certificate
Jos. Rennie, best Turnips,	2
Garland Hanes, 2d best do,	Certificate
Same, best doz. Endives,	2
Jos. Rennie, best peck Tomatoes,	2
R. Y. Slater, 2d best do,	Certificate

Your committee recommend a discretionary premium to W. L. Cowardin for the "Joe Johnson," Watermelon.

CLASS III.

Allan & Johnson, for best collection of Plants,	\$15
" " of flowering Shrubs,	10
" " Fluschias,	5
" " Chrysanthemums,	5
" " Geraniums,	10
" " Foliage Plants,	8
John Morton, largest and best collection of cut flowers,	10
Allan & Johnson, 2d best do,	6
John Morton, for handsomest design,	6
" " crops,	5
" " buquet,	2

There was a large and very fine Citronella exhibited by Miss Augusta H. West, and an India Rubber Tree exhibited by Dr. W. B. Pleasants, of Richmond. No premiums being offered for these plants, the committee would recommend certificates for each.

CLASS IV.

The Committee on Wines report that there were a large number of Wines on exhibition, and it was difficult to decide between many of them.

They make the following awards, viz :

Messrs. Burbank & Gallagher, for the best American wine (scuppernong.)	\$ 15
Marcus Buck, for best Catawba wine,	5
Col. W. Gilham, for best Concord wine,	5
Messrs. Burbank & Gallaher, for best Scuppernong wine	5
C. Sauer, for best Norton wine,	5
Mrs. Theo. Martin, for best Currant wine,	5
Miss M. A. Pattington, for best Blackberry wine,	5

The committee recommend a premium to Mr. J. E. Lipscomb, for "Bumgardner" whiskey exhibited by him.

CLASS V.

Messrs. H. M. Smith & Co., for best Cider and Wine mill, (Hovey's patent,)	\$ 10
Same, for second best do., (Hutcheson's patent,)	5
Same, for best collection of Horticultural Implements,	10
Same, for best Garden and Seed Drill,	10
Same, for best Garden Cultivator, (horse power,)	10
Same, for best Garden Roller, (horse power,)	5

Your committee recommend a Certificate of Merit to G. C. Cormick, for exhibition Basket and Flower stands.

CLASS VI.

Dr. L. R. Dickinson, for best Essay on Fertilizers,	\$ 20
H. Jones, for best Essay on Grape Culture,	20
"Author," for best Essay on some "Insects injurious to Vegetation,"	20

SPECIAL COMMITTEES.

MISCELLANEOUS.

The special committee appointed to examine a number of articles which were entered too late for examination by the regular committees, report as follows :

They have examined the various articles submitted to them, and enumerate below those they deem worthy of special mention on account of superior quality :

1. A very fine collection of Virginia-grown potatoes, from the Riverside Small Fruit farm of S. C. & R. Denise, Norfolk, Va., comprising specimens of Early Rose, Early Mohawk, Dyesight, and King of the Earlies.

2. Some fine specimens of Early Rose potatoes, from J. B. Lippincott, Esq.

3. Some remarkably fine Peach Blow potatoes, from Robert Douthat, Esq., Charles City county, Va. Also, some from Col. J. B. McClung, Hot Springs, Va.

4. A superior lot of Flat Dutch cabbage, by Col. J. B. McClung, from the Hot Springs, Virginia, grown from seed raised by Allan & Johnson, of Richmond. This is the finest cabbage on exhibition. Col. McClung also has on exhibition a lot of superior parsnips.

5. Schmidt & Miller, European grocers, of Richmond, Va., ex-

hibit an excellent assortment of the finest foreign groceries, embracing Lentil's German Peas, Pearl Barley, Holland Herrings, Russian Sardines, Arrack, Rhine Wine, &c.

6. Marcus B. Buck, Esq., of Belmont Vineyards, Front Royal, Warren county, Va., exhibits superior specimens of the "Hicks" white apple, (a native of Rappahannock county, Va.) We regard this as one of the finest eating apples we know, and one of the best products of Virginia horticulture.

7. John S. Coles, Esq., Albemarle county, Va., exhibits superb specimens of hot-house grapes, embracing the Black Hamburg, Dragon's Superb, Cannon Muscat, and White Muscat, of Alexandria.

8. Mr. J. D. Williamson, of New York Fruit Growers' Club, exhibits very fine specimens of the Duchess D'Angouleme Pear.

9. M. P. King, Esq., of North Carolina, exhibits good samples of the highly commended wine grape, the "Mist."

10. Mr. Morrisett, of Norfolk, Va., exhibits a barrel of splendid Lynn Haven oysters. These are shown as productions of *Virginia soil*, and do credit to the Old Dominion.

11. Mr. Maurice Evans, of Richmond, exhibits some handsome flower-pots.

The special committee on articles in the Pomological Hall that had not been examined by other committees, first, would call special attention to the Catawba Brandies of Mr. M. B. Buck, of the Belmont vineyards, Warren county, Virginia.

These brandies are distilled from fine pure wine of the vintage of 1865, and not from the grape, as is usual, and consequently they are of a superior quality for medicinal and all other purposes.

Second. The Catawba grapes from the same vineyards as the above, are worthy of mention for their rich, dark color, their abundance of saccharine matter and fine flavor.

Third. The grape roots and cuttings (numerous varieties) one year old, grown in the open air, from the above vineyards, are of the first quality.

The special committee appointed to examine the "Planet Hand Drill," exhibited by S. L. Allen, of Burlington, N. J., regret that it was not in place when the regular committee were examining horticultural implements, as they regard it as being decidedly the best Seed Drill and Fertilizer Distributor on exhibition.

We recommend that a first class premium be awarded Mr. Allen for same.

Seed Peanuts.

The large amount of inferior peanuts going now into market, and the diseased condition of the germs of the nuts, with an apparently fair, bright hull, renders a word of caution here particularly apropos to those who have slight experience in planting and growing the crop. On splitting open the peas you will find on the little leaflets of the germ at the pointed end of the kernel a brownish tinge, and often grayish spots on the thin, pale pink skin; later in the season you will find all spotted, mildewed, or inferior peas, become deep red, or pink; all such should be rejected for seed. There is no crop on which success depends so much in the character of the seed as this capricious one of Pindars. The drouth caused the first nuts formed in many soils to decay, and induced disease in others, and this has been particularly observable on lands admirably adapted to growing the crop, and is most often found on lands where the fertilizers, Guano, lime, and the phosphates were used. Such lands have produced large crops of vines; pops and saps, water to convey food was wanting for development, heat induced disease, death, and decay in the nuts first formed, and unhealthy products, so far as the germs are concerned, is general in the crop formed subsequent to the last rains. The query in the peanut growing district is universal, where shall we procure good seed?

Good seed should be of pale pink, uniform in color, bright lobes on opening the kernels, *germ and leaflets without tinge of brown*, and should be kept in sacks suspended in airy barn lofts, dry and cool, all winter. The writer of this has "no axe to grind," and will probably be a seed buyer, although several hundred bushels were grown on his lands the present season. B.

Curculio.

Mr. John C. Glenn selected his grounds for his plum trees near his barn, planted them altogether, surrounded them with a tall picket fence, and made his henhouse in the inclosure. He keeps from twenty to fifty hens. He also puts into this same inclosure two pigs; the hens are fond of insects, and gather and swallow eagerly all, or nearly all, the curculio; and should they escape the hens and sting the fruit, the fruit falls, and the pigs, being fond of plums, eat them at once, and thus fine crops of plums have been made from year to year.

THE SOUTHERN PLANTER AND FARMER.

RICHMOND, VIRGINIA. DECEMBER, 1869.

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Editorial Department.

The Southern Planter and Farmer.

The third volume of the new series of this Journal closes contemporaneously with the year 1869. We have labored in sunshine and cloud in sickness and in health—often under embarrassment and disappointment—for the promotion of the welfare of Virginia and the South, within the sphere which circumscribes our labors. We submit the result to the judgment of our subscribers and readers, the award of which will be indicated in the greater or less support which may be accorded to us in the coming year. None, we think can deny that we have faithfully fulfilled our contract with our subscribers, and that the correlative duty remains to be performed on their part, of promptly paying up arrears of subscription. There are a number excepted from this class who have paid up to January next, and some of our subscribers who have kindly and generously extended their payments up to 1871 and 1872. On the review of the past history of our Journal—like Paul on his long, painful, and perilous journey to Rome, shipwreck included, when he met with sympathy and courteous treatment by the way, and at length arrived at Appii Forum, was met and comforted by the brethren, was enabled to thank God and take courage—we, following his example, shall enter upon the new year under the inspiration of *hope*, the animating, and *faith*, the actuating principle of human action, and commending our labors to Him alone, in whose favor we may meekly and confidently trust, we shall await the developments of the (to us) unknown future for such measure of success in our labors as He may graciously please to grant us.

Fairs of 1869,

The State and District Fairs throughout the South have proved successful. That of our Virginia State Agricultural Society eminently so. We cannot give our readers a better impression of this than by submitting to them, as we have done, in this number, the awards of premiums by the Society, and by the Virginia Horticultural and Pomological Society which united with the State Society

in one general exhibition. There is one thing we cannot omit, as it tends to corroborate the grand success claimed for our Society, namely: That a larger percentage of the premiums offered were actually awarded than we have ever known within the scope of our past experience.

The Committee on "Short Horn Cattle" omitted to report the following premiums awarded to S. W. Ficklin, Esq :

- | | |
|---|------|
| 28. Best Heifer under 2 years old, | \$10 |
| 29. Second best Heifer under 2 years old, | 5 |

The chairman of the committee, James Newman, Esq, has since corrected the report by adding the above premiums, which, when reviewed and approved, as doubtless will be done, by the Executive Committee, Mr. Ficklin will be entitled to draw the premiums. The report on the section of the premium list relating to ploughs is for the present withheld, by reason of an appeal taken on some part of the subject matter of it, which also awaits the decision of the Executive Committee.

The citizens of the State, and especially of Richmond, have largely participated in the honors of the season, as will be seen by the following paragraphs extracted from the *Richmond Whig* and from the *Enquirer and Examiner* :

DIXIE PLOUGH IN THE FAR WEST.—It was a striking truth which Colonel Williamson, of New York, referred to in his remarks before the Horticultural Society during the Fair week, when he stated that the Virginia-made ploughs were better and cheaper than those of Northern manufacture, and that hereafter the demand from the North would be much enlarged.

We have before us a correspondence relating to occurrences at Jerseyville, Illinois, at a Fair held at that place in October. In the competition for the best plough were many entries. No little attention had been given to the skill and taste with which the mechanical service was performed in producing bright steel mouldboards, varnished framework, &c., and it was considered somewhat presumptuous that the plain and substantial specimen of Starke's Dixie, brought from the South, should be thought of in connection with the honors of the occasion. Consequently it was left for the last, and then the ploughman enquired with an indifferent air if he must try it. He was requested to do so, and, before the round was made, he was exultant in his praises of the implement. The crowd was astonished at the work executed by the "Dixie;" the ploughman never held before in his hands such a plough, and the judges awarded to it with entire unanimity the premium. Well done for Virginia, Richmond, and the well-known Starke plough of renown!

THE WILMINGTON FAIR—PREMIUMS TO VIRGINIANS.—At the first annual Fair of the Cape Fear Agricultural Society held at Wilmington last week, the following premiums were awarded to Virginia exhibitors:

Best whiskey (Bumgardner), J. W. Rison, Richmond; second best, "Sunny South," A. Myers, Norfolk.

Best subsoil plough, Palmer & Turpin, Richmond.

Best single and double plough, garden plough, corn planter, Prescott, Liberty Mills, Va, diploma.

Best gang plough, H. M. Smith, Richmond, Va., diploma.

Best patent well fixtures, H. M. Smith & Co., diploma.

The committee award a diploma to N. A. Young, of Richmond, Va., for a vise and drill combination, an extension screw-driver, and a patent mucilage cup, of all of which they speak in the highest terms.

Also, a diploma to E. A. Dayton, of Richmond, Va., for a lot of twisted drills, screw-wrenches, self adjusting saw mandrills, all of which are most excellent.

The committee are favorably impressed with Harding's Fire and Thief Detector, Bagby & Jeffers, agents, Richmond, Va., and recommended a diploma.

Best assortment of drugs and medicines, J. W. Rison, Richmond, Va., \$5.

Steam atomizer and fancy articles, J. W. Rison, Richmond, Va., diploma.

The committee return thanks for many curious articles from China, contributed by Miss H. A. Suddoth, of Manchester, Va. They attracted much attention.

The New Eclectic

Comes before us with a most attractive prospectus for 1870. This journal, having absorbed *The Land We Love*, stands now in the fore-front as the leader and organ of Southern literature; and it is for our people to decide whether they will sustain the ENERGY and brains grown and developed on their own soil, and in their own genial clime, or whether they will starve literature, and by their continued apathy render the life of any such enterprise a simple impossibility. The talent, home and foreign, that is pledged to THE ECLECTIC is an ample guarantee that, as it has been in the past, so it will be in the future, well worthy of a generous support; and it is not demanding too much when we ask that at least every neighborhood in the South shall take and read one or more copies. Money thus spent will bring to any family a rich return, in enlarging the views, elevating, and in many instances creating and refining, the tastes of our children, and leading them to seek the sources from whence the streams of knowledge derived from THE ECLECTIC are obtained.

Poverty is a poor plea, when the amount necessary to obtain such a journal as this is so small. Better by far economize in some other quarter. People of the South, do not save by starving the minds of your children.

Having said this much we most cordially commend "The New Eclectic" to our readers, with the hope that we may have been instrumental in securing for its deserving publishers many subscribers. The subscription is \$4 per annum. Address Turnbull & Murdoch, 54 Lexington street, Baltimore.

The Dickson Fertilizer Company.

In passing through Augusta, Georgia, a short time since, we called on Mr. James T. Gardiner, the courteous and thorough business manager of the above-named company, and found him alive to the interests of his own people, and zealously engaged in sending "the Dickson Compound" throughout Georgia and the South. He made many enquiries in regard to Virginia and North Carolina, and, with a view of developing new trade, determined to advertise with us.

This compound is highly spoken of wherever it has been used; and Mr. Gardiner can, we doubt not, supply many of our readers in Eastern and Western North Carolina, and, indeed, in many parts of Virginia, at as low rates—freight included—as other companies. The energy, and, we may say, commendable enterprise displayed by this company deserves especial mention, and we hope they may meet with such patronage as shall insure abundant success.

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