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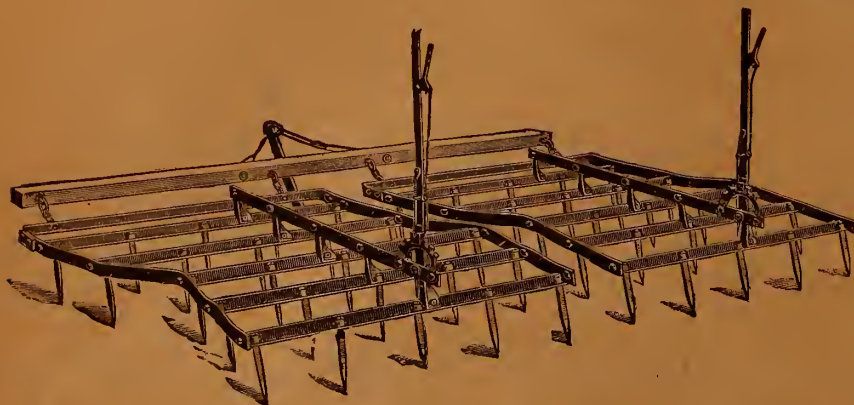


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Agriculture is the nursing mother of the Arts.--XENOPHON.

Tillage and pasturage are the two breasts of the State.--SULLY.

64th Year.

Richmond, April, 1903.

No 4.

Farm Management.

WORK FOR THE MONTH.

The month of March has given us a most welcome change in the weather conditions over the Southern States. Up to the 2d of February, whilst we had only very little severely cold weather, we had almost continuous rains, and February itself was, with the exception of the years 1897 and 1899, the wettest February we have had since the records were kept, giving a record of 4.97 inches for this State. The month of March up to this writing (20th) has been spring-like and genial—indeed, in many sections, has been warmer than could have been wished, and unless we are to have a continuance of such weather, is likely to cause premature blooming of fruit trees, with consequent great risk of loss of crops. The warmth of the weather, with the abundance of moisture in the soil, has caused vegetation to make a rapid advance, and wheat, oats, grass and clover are, generally, looking and promising well. We have heard little complaint of winter killing of the wheat and oat plant, but some complaint of damage by fly in some sections. The continuous rain of February caused some delay in the sowing of tobacco plant beds, but with the warmth of this month this seed, when sown, will germinate quickly, and probably no harm has been done to the prospects of the crop. We may, we think, with confidence assert that we enter upon the crop season with good prospects. The only drawback would seem to be that plowing of the land

has been delayed with those, and unfortunately there are many, who did not avail themselves of the fall and early winter months. Whilst very many more now use these months as they ought to be used in getting forward the preparation of the land for spring crops, there is yet much room for improvement. The sowing of the spring oat crop has also been delayed, and we fear much that many crops will be put in too late to make a profitable yield if hot weather should set in as early as is often the case. We believe that much better can be done with the land than seeding to oats at this late period of the spring. In the South spring oats are mainly grown as a forage crop. To put the crop in after February, or at the latest, the first half of March, is to run a great risk of a crop hardly worth the cutting for hay. Far better would it be to leave the land unseeded in most cases until after the corn crop is planted, and then sow to one of the numerous summer forage crops of which we can grow so great a variety, and which make a yield so much greater per acre of the best and most nutritious feed for stock.

Where a farmer can grow, but say at best, two tons to the acre of oat hay, he can readily grow twice or three times that weight of peas and sorghum, sorghum alone, or of German millet or Pencillaria (Cattail millet), or of Soy beans, or even of corn, and can cut some of these crops and harvest them in time to follow with another crop of the same kind. Indeed, we know of

men who make three crops of peas and sorghum hay or two crops of millet in the season. Teocinte, also in the Southern portion of this State, and in all the States South of this will make two or more crops of the finest feed either for green feed or for fodder from one seeding. We would urge this matter on the attention of our readers.

We hear excellent reports of the Crimson clover crops from almost every section. The mildness of the winter has favored the growth, and there will be a heavy yield per acre. We would urge our readers not to let the crop stand too long before cutting for hay. It is a perfectly safe crop to feed to stock of all kinds when made into hay if cut just when coming into bloom, but if allowed to stand until the seed forms it is not safe to feed to horses (we have never heard of any trouble caused to cows). The hulls of the seed mat together in the stomach and form hard balls which cannot be passed through the bowels. We have had several such balls sent in, taken from horses, and which had caused their death, as large as an orange.

The preparation of the land for the corn crop and the planting of it will be the chief work calling for the attention of farmers during this month. A careful consideration of the subject in the light of the numerous experiments made in different States compels us to the conclusion that the successful and profitable production of corn depends more upon the perfect preparation of the land for the crop *before planting*, and the subsequent cultivation of the crop, than upon the quantity and quality of the fertilizer used on the crop. Whilst the average production of corn in Virginia is about 20 bushels to the acre; in North Carolina about 13 bushels, and South Carolina about 10 bushels, yet Virginia upland has made, in one experiment, nearly 100 bushels to the acre, and Virginia lowland nearly 200 bushels to the acre. South Carolina has made the largest crop to the acre of any State in the Union—nearly 250 bushels to the acre. In all these cases of great yield the preparation of the land before planting was such as to put the soil into nearly a perfect condition as a seed bed, not merely just on the surface, but to a depth of 12 to 15 inches. Corn is a crop with an enormous capacity for root development, and it is upon this development that the power of the plant to produce a great yield largely depends. If the soil is deeply and finely broken the roots will fill the whole soil for an area of 6 feet around each plant and to the depth of the finely broken soil. With such an enormous feeding area and the known capacity of the crop to utilize even tough and largely unavailable plant food for other

crops, and the fact that it exercises this capacity during the hottest months of the year when nitrification is most active in the soil, there can be no reason why we in Virginia, North and South Carolina should rest content with such miserably poor yields of this crop as are common. With a yield of 20 bushels to the acre how can there be profit in the production of corn even at 50 cents per bushel? The average cost of the production of the crop was ascertained for the United States several years ago by the Department of Agriculture, and was fixed at \$11.81 per acre for the South. This cost included an item of \$3.00 per acre rent for the land. At this figure, with 20 bushels to the acre, the cost of the corn is 59 cents per bushel, showing even at a sale price of 50 cents a loss of 9 cents per bushel on the cost of production. The Maryland Bureau of Statistics has recently investigated this question of the cost of corn production in that State, and fixes the cost, under ordinary conditions of cultivation, at \$10.10 per acre, or 50 cents per bushel with 20 bushels to the acre. We want to see this year an effort generally made to alter this condition of affairs, and make the production of the corn crop a profitable one. It is a most important one to this State, as the total crop of last year was over 41,000,000 bushels. As we have above stated, the first step in this work should be a better preparation of the land. Where the land was deeply broken in the fall and early winter months this better preparation can be brought about by the use of the harrow, roller and cultivator in most cases, but if the soil is at all packed hard in the bottom do not hesitate to replot after well breaking the surface with the harrow and cultivator. It will pay well to adopt this course. There should be at least a foot deep of finely broken soil before seed is planted. Where the land is still to plow it is too late now to turn up the subsoil on to the surface. Plow an inch or two deeper than last year, and then break the subsoil with a subsoil plow or coulter, but do not bring it to the surface. Then harrow, reharrow, roll and cultivate until the whole of the field is a bed of finely broken soil. As the subsequent cultivation of the crop during growth has a large bearing upon the yield, do not break or plant an acre more than you will be able to care for as it ought to be done during growth. Better to plant a short crop and care for it well than pitch a large one and have subsequently to neglect it. Land not planted can subsequently be put into a forage crop of some kind and a good return be obtained from it in the way of feed for stock. Do not plow the land until it is dry enough to leave the plow in a crumbly condition; wet clods turned up now are very apt to remain clods until next

year with all the plant food in them securely locked away from the use of the crop. Land plowed wet is land ruined for at least one year, and often for very many years.

Whilst, as we have stated, we believe that much more depends upon the perfect preparation of the land than upon the fertilizer used, yet we are compelled to say something as to fertilizing the crop, as we have so many enquiries upon the subject. A careful examination of the result of the experiments made in the different States upon this question show that with but very few exceptions, there is no fertilizer which can be used with profit on the corn crop except farm yard manure. We do not want to be understood as asserting that fertilizer is of no use to the crop, but that its use is rarely profitable. It can be so used as to materially increase the yield, but with a crop having a comparatively low market value like corn the increase of yield required to be made to be profitable over the cost of the fertilizer is so large as to be rarely reached. A crop of 30 bushels to the acre removes from the soil 40 lbs. of nitrogen, 41 lbs. of potash and 13 lbs. of phosphoric acid. This would point to the necessity for using a fertilizer rich in potash and nitrogen, yet many of the best crops have been grown with the use of a fertilizer in which a low percentage of both these ingredients have been applied. The explanation of this so far as the nitrogen is concerned may probably be found in the fact that corn makes its growth at a period of the year when nitrification is most active in the soil, and with its great root growth the plant is able to seize upon this nitrogen over so large a surface as to meet all its requirements. Whilst as to the potash, the natural supply of this in the soil of most of the land east of the Blue Ridge is sufficiently large to meet requirements of a plant able like corn to utilize plant food in a somewhat tough and unavailable condition as compared with the ability of most plants to utilize such food. In experiments made at the Virginia Experiment Station, the needs of the crop, as shown by what plant food an average crop removed from the soil, were sought to be met by the application of 80 lbs. of muriate of potash, 80 lbs. of dissolved bone black and 254 lbs. of nitrate of soda. With this application the yield of the plots over those upon which no fertilizer was applied were as follows: Where only the potash was applied the increase was 3 bushels to the acre, where only the phosphoric acid was applied the increased yield was 5 bushels to the acre, and where only the nitrogen was applied the increased yield was 2 bushels to the acre. The best yield made in the experiments was where 120 lbs. of potash, 120 lbs. of bone black and 381 lbs. of

nitrate of soda were applied. This increased the crop 6 bushels over that on the unfertilized plot, but the cost was greater than was justified by the increase, as where only half this amount of fertilizer was used the yield was only 1 bushel less. The conclusion to be drawn from the experiments is that the most important factor in a corn fertilizer is the phosphoric acid, which can just as well and as cheaply be supplied by acid phosphate as bone black, and that with this should be used a small proportion of nitrogen and probably with advantage in some sections such as the sandy lands of the coast plain a small amount of potash. Where land is very deficient in vegetable matter cotton seed meal has been found to be a useful help in the making of the crop, and we would certainly advise its use in the cotton sections. It supplies nitrogen and a small percentage of phosphoric acid, and being only slowly available, helps the crop all through the growing season. Whenever farm yard manure is available do not fail to use it. Its results are certain, and nowhere on the farm can it be better used than on this crop. Wherever fertilizer is used in excess of 250 lbs. to the acre apply it broadcast and work it well into the land. If only 250 lbs. or less be applied put it in the row and mix it well with the soil before planting. The best fertilization for the corn crop is to let it always follow a clover and grass sod upon which the farm yard manure has been gotten out during the winter. If a heavy yield is to be looked for there must be a heavy growth of stalks to carry the ears. It is no use expecting a great crop with rows 4 feet apart and the stalks 3 feet apart in the rows. There are not sufficient stalks on the land to make a great yield. The rows should not be more than 3 feet apart, and the plants should be 2 feet apart in the rows. If the land will not make a good yield planted at this distance it is not in good enough fertility to be utilized profitably for a corn crop, and ought to be improved by growing peas and having manure applied to it. In planting the crop use a planter that will throw out a furrow and drop the seed in the bottom of the furrow, and then cover it, say, 2 or 3 inches. This allows the crop to be cultivated more closely to the plants without injuring them in the early stage of growth, and later permits of the soil being worked to them, and thus gives them a better hold on the land to withstand the wind.

If cut worms are likely to be troublesome poison them before planting the corn. It is no use doing so after the corn is up, as they will prefer the corn to the poison. Mix Paris green with bran moistened so that it will stick together in balls and drop these over the field or dip bunches of green clover in Paris green mixed in water and drop these in the field.

Push on the planting of the cotton crop as fast as the condition of the land will allow. In our last issue we gave advice as to the planting and fertilization of this crop, and to that we refer our readers.

In this issue will be found an article on the preparation for the tobacco crop.

PREPARING FOR AND FERTILIZING THE TOBACCO CROP.

The tobacco crop is one of so much importance to the South Atlantic Coast States that we are not surprised to receive numerous requests to discuss the question of preparing the land for it and the fertilizer necessary to be used to produce it profitably. In 1892 Virginia produced 136,789,250 lbs. of tobacco on 182,259 acres; North Carolina produced 142,520,950 lbs. on 219,263 acres, and South Carolina 25,629,948 lbs. on 34,912 acres, and Maryland 31,300,625 lbs. on 34,081 acres. The indications now are that, notwithstanding the action of the so-called "trusts," the area in tobacco will this year be still larger than the last. This would seem unmistakably to point to the fact that tobacco production is still a profitable business, and we believe this to be true, notwithstanding the complaints as to limitation of buyers. The truth is, that the demand for the weed grows apace, and, though there are fewer buyers, those on the market have much greater demands to supply than ever in the past, and by their enormous command of capital they have extended their businesses so as to command world-wide trade instead of, as formerly, merely local consumption, and they can therefore afford to give good prices for good tobacco. Poor they do not want. For *good* tobacco there is, and seems likely to be, an almost unlimited demand, and these coast States being in a latitude and an isothermal belt, where conditions are most favorable for its production, the growth of it here is likely each year to become larger. Under these circumstances it is wisdom on the part of our tobacco planters to give greater consideration to the problems involved in its culture and curing. Tobacco is a crop that requires for its successful culture more care in the preparation of the land and the fertilizing of it than in the past has been given to it. It is a plant that is more influenced in its growth by soil conditions than almost any other crop. Whilst almost every kind of land in these coast States will grow tobacco, yet each different kind of land and the condition of that land as to fertility and mechanical condition so changes the character of the growth as to make it practically a different

crop on each different kind of land. The influence of the soil and the character of the plant food in it and its degree of availability so affects the "cure" of the crop as to make some of it most desirable upon the market, whilst other lots will go begging for a buyer at the price of trash. One of the most essential requisites for a successful tobacco crop is the most perfect physical and mechanical condition of the soil before planting. This is necessary for two or three reasons. Primarily and mainly, it is necessary because of the fact that the crop has only a short season of growth, about 100 days on the average, and it starts out on this season of growth one of the smallest and most delicate of plants. To enable such a plant with naturally a limited root growth to acquire the size and leaf area necessary to make it profitable in that short period it must have the finest mechanical condition of the soil, so that the tiny rootlets may run freely and be able to lay hold of and utilize the plant food within their limited area, and this plant food must be in a most available condition. Hence arises the necessity not only for a fine mechanical condition of the soil, but also a fine physical condition. The soil requires to be well filled with vegetable matter, so that it may hold moisture and that the acids developed by this vegetable matter may give aid in dissolving and rendering available the natural and applied plant food in the soil. Very much of the failure to grow tobacco successfully in recent years in the South arises from the fact that the vegetable matter in the soil has been depleted so much by constant cropping and the failure to return vegetable matter to the soil, either in the shape of humus producing crops or farm-yard manure, as to leave the soil lacking in this essential to successful quick growth. The first step therefore required to be taken by tobacco planters is to break their tobacco fields early and set about the complete pulverizing of the soil. The land should be plowed, harrowed, rolled, and replowed, harrowed and rolled until a deep bed is made as fine as an ash heap. To do this, however, on land devoid of humus will be waste of labor and money. Therefore select only such land for planting as is well supplied with this necessary ingredient. If lacking it must be supplied by farm-yard manure or other vegetable matter. Commercial fertilizer will never make good this deficiency. With reference to the fertilizing of the crop Professor Patterson, the director of the Maryland Experiment Station, discussing experiments made at that station, says:

"In applying fertilizers or manure to most crops, of course it is always desirable to increase the yield, and in general that is the primary object of fertilization,

and it is only in the increased yield that we commonly look for profit from the application of manure. With tobacco we find ourselves confronted with a very different condition of affairs, it often being easy to produce an increase in the yield, but the product will be of an inferior quality, and in consequence its total value much less than it would have been without fertilization. Again, fertilizers will often show little, if any, increase in yield, but cause a decided *improvement* in *quality*, and thus give return by the tobacco bringing more per pound than it would have otherwise done. The Maryland Agricultural Experiment Station has been making experiments along this line and studying the effect of our chief fertilizing elements upon the feeding habits of the tobacco plant, and their ultimate effect upon its quality, particularly the burning quality. These experiments, though conducted upon Maryland soils, yet have brought out many facts that are equally applicable to the crop wherever grown. These experiments showed the potash salts to be the most potent factors in changing the composition and quality of the tobacco produced. It was shown very plainly that muriate of potash, kainit and *low grade* sulphate of potash were unfit for use as tobacco fertilizers, and should never be applied to lands that were ever to be cultivated in tobacco, because the chlorine which these potash salts contain is taken up very freely by the tobacco plant, and chlorine always produces a tobacco with bad burning qualities. On the other hand, *high grade* sulphate of potash always *improved* the burning qualities. Carbonate of potash (ashes) produced tobacco with the best combustibility. The application of potash was, in most cases, accompanied by an increase in yield, but in many cases the increase was small.

Phosphoric acid proved to have but little direct bearing upon the combustibility, but generally produced a very decided increase in the yield. Lime and magnesia compounds, in small quantities, seemed to produce a tobacco that cured badly and had an inferior texture; the duration of glow was considerably longer with the lime and magnesia tobaccos, but in many cases the ash was of a bad color. On the whole, while lime and magnesia will often very materially increase the yield, yet the quality is such that their application cannot be recommended.

The salient principles in the use of fertilizers for the tobacco crop may be summarized as follows:

1st. Apply fertilizers with reference to improvement of quality rather than quantity, and never sacrifice quality of tobacco for quantity.

2d. Many things that produce marked increase in yield make tobacco of inferior quality.

3d. Use concentrated fertilizers as the extraneous matter—matter, not plant food, very often has the effect of making inferior tobacco.

4th. Tobacco lands should not be cropped by plants that take out of the soil relatively much potash and little chlorine.

5th. Never apply any fertilizer to tobacco that contains much, if any, chlorine.

6th. Chlorine always causes tobacco to burn badly.

7th. Never apply common salt to tobacco lands.

8th. Do not furnish the potash of a tobacco fertilizer by means of muriate of potash, as it produces a bad quality.

9th. Do not apply kainit to tobacco or tobacco lands, as it produces a bad quality of tobacco.

10th. Do not use *low-grade* sulphate of potash in tobacco fertilizers, as it causes inferior quality in the tobacco.

11th. High-grade sulphate of potash always improved the quality of tobacco, and generally increased the yield.

12th. The tobacco having the best combustibility was grown with carbonate of potash, but the cost of carbonate of potash often excludes its use.

13th. Never apply lime to land immediately before planting it in tobacco. In fact, its bad effects upon curing will sometimes last for several years.

14th. Phosphoric acid generally increases the yield, but does not affect the quality.

15th. Nitrogen produces in most cases an increased yield; but no marked effects on quality could be detected.

16th. Yard manure is not well adapted to tobacco, as it is apt to contain detrimental chlorine compounds, and contains relatively too much nitrogen and too little phosphoric acid and potash.

Having thus discussed the general principles affecting the production and fertilization of the tobacco crop, we think it may be well to conclude with two or three specific formulæ for the fertilization of the crop. These were tested in this State by one of the most intelligent, studious and successful growers, the late Major R. L. Ragland, and may therefore be taken to be reliable. He tried six different system of fertilization one year. On Plot No. 1 he applied 50 lbs. of sulphate of ammonia, 80 lbs. of dried blood, 50 lbs. of sulphate of potash and 114 lbs. of acid phosphate. This plot produced tobacco of the value of \$131.20. Plot No. 2, fertilized with 72 lbs. of nitrate of soda, 80 lbs. of dried blood, 120 lbs. of sulphate of potash and 114

lbs. of acid phosphate, produced tobacco of the value of \$127.90. Plot No. 3, fertilized with 160 lbs. of dried blood, 120 lbs. of sulphate of potash and 114 lbs. of acid phosphate, produced tobacco of the value of \$146.60. These three plots were the most successful of the six tested. He remarked that where dried blood and nitrate of soda were used, in combination or separately, there was scarcely any field firing, much less than where no fertilizers were used.

CORN CULTURE.

Editor Southern Planter:

So many inquiries have come to me about the growing of corn that I take the liberty of replying to them through the columns of the Southern Planter.

There are some general impressions regarding seed and the corn plant which are erroneous, and which I believe affect very much the yield of corn in our State. In the first place it is a general practice in preparing seed to cut off the tips and butts of the ears and plant only the middle grains. This is unfortunate, for the small grains on the tip of the ear have more vitality and are the best on the ear; the butt grains are slightly better or certainly as good as the middle grains. An experiment in the field or garden will convince the skeptical of the truth of this. Seed corn should be taken from good sound ears and the whole ear should be used. If prolific seed is used the lower and smaller ear which comes out last will have the tendency to multiply ears to a much greater extent than the large ears above. If the large top ear is continually used it will soon grow only a one-eared corn.

Another popular error is that the corn plant has shallow roots. It is often the case that the roots of the corn plant are all near the top of the ground, but it is because the ground has been so poorly prepared that the roots cannot go deeper. If the land permits it the roots will go six feet and more into the ground, and the intermediate space will be filled with roots. It is of first importance in cultivating corn to break the ground as deeply as possible, otherwise our clay subsoil will stop the roots near the surface. I use a three-horse plow and run a two-horse subsoil plow in the furrow. The subsoil plow is rather expensive, and I have gotten almost as good results in most soils, in some soils better results, with a long heavy coulter with projecting tongue. I have in this way broken bottom land 22 inches, hillsides 14 to 16 inches. The benefit of this is three-fold, it allows the roots to go deep into the soil to feed; it stores up the winter and spring rains and insures against dry weather in summer, and by taking

the rains down into the soil it prevents washing. By plowing in this way "worn out" lands will soon be brought back to fertility. Shallow plowing is the curse of our farming; it means twisted corn when hot and dry weather comes, "short" corn at harvest, galls and gullies. The subsoil when acted upon by sun and air becomes valuable for plant food and restores fertility to the soil. After the land is deeply plowed it should be put into perfect order before planting. All clods left at planting time can be counted on to roll around the rest of the season, or, if buried, to lock up the fertility. It is easier to cultivate corn *before* planting than *after*. In our section I have found it better not to plant too early. Hill land planted by May 10th and low grounds by May 20th is early enough. I would rather have it put in then than a month earlier, especially if the land is thoroughly worked in the meantime.

The cultivation after planting should be shallow and level. A weeder, if started early enough and kept going, is a splendid implement, one hand and horse going over 20 acres a day and doing all that is needed. If you let the weeds get a few days start the weeder is no earthly account. Kill the weeds when they first "hatch." After the corn gets a foot or so high a five-tooth cultivator should be used, nothing heavier. The soil should be gently stirred and kept clean. Any breaking of the roots of the corn plant is injurious, and even in a wet season, when it is least harmful, it will lessen the yield.

Another caution seems to be needed. Do not plow land when wet, especially clay soils. Next to shallow plowing this is ruining more land in Virginia than any other cause. Take up a handful of the soil near the bottom of the furrow and squeeze it hard three or four times, then throw it on the ground, if it goes to pieces the land will do to plow, but if it hangs together in a clod, or like putty, it is too wet. Land plowed too wet will take several years to recover. Winter plowing and freezing is the best way to get it back to proper tilth.

In planting I like to lay off the rows with a one-horse plow, running several times in the row, and put the seed down in the ground deep, then cover lightly. After the corn is up, at each working the soil works to the corn. This helps the corn later on to stand up when heavy rains and winds come. Covering too deep retards the sprouting and growth.

Where land is rich and well plowed put more seed in the ground. On bottom lands with the kind of corn I grow I try to have the rows 2½ feet apart and a single stalk every twelve inches in the row. This looks very thick, but it pays if the land is plowed deep enough to

let the roots down into the ground. A good Valley farmer was driving into my farm with me, and looking at the growing corn, said: "Mr. Woods, if you don't thin that corn you will get nothing but fodder." It yielded a fraction over 163 bushels (shelled corn) to the acre: I believe we are making the same mistake with all other crops—wheat, oats, and especially grass. We do not put enough seed on the ground, or better still, *in* the ground, for all seed ought always to be well covered.

I think we do not appreciate the possibilities in our hands when we plant our crops. We have too little faith. A farmer who does not believe that more than 60 bushels of corn can be raised to the acre is not apt to raise more. It will be an accident if he does. But the man who knows what has been done will try to come somewhere near the mark. The best authentic crop of corn, as far as I am informed, was 250 bushels of shelled corn on one acre of land. Most of us cannot attain this perhaps, but we can easily double or triple the crops we are raising by a judicious selection of seed and by *intensive* farming. The average yield credited to Virginia in the Agricultural Department Reports should suggest something to us Virginia farmers. We all ought to have the latest work on Corn Culture, and read it and practice its teachings.

Albemarle Co., Va.

SAMUEL B. WOODS.

SHALL IT BE COW-PEAS OR SOY BEAN

Editor Southern Planter:

The year 1902 gave the writer a season of experience with rich results. He has contended that when better known the Soy bean would, as a farm and feed crop, be second only to corn. Events of 1902 bring the matter right to the door of the dairyman, feeders, breeders and farmers.

All kinds of ordinary hay and fodders can be perfectly cured and housed. The farm press bears evidence that curing cow-pea hay is a difficult problem, too often a total failure.

In ten years' experience more than one-third of the time we have either lost all or a large part of our pea hay. Our best seasons we have lost a large part of the best of it, the leaves. If rained on after they are cut the leaves, stems and vines turn black, the leaves shatter off, we get into the barn a lot of stringy stuff with a hempen fiber so tough stock cannot masticate it, and have a big waste. The quality of the feed is seriously injured.

For hogging off, for pasture, or to plow under I regard the cow-pea a wonderful crop.

In this correspondence I have given tables taken from the bulletins of the Department of Agriculture, of Washington, D. C., showing that as a means of taking nitrogen from the air and fixing it in the soil the Soy bean stands first, clover second and cow-peas third.

I have also shown from the letter of Mr. James Bellwood, of Virginia, that he has thrashed "over one hundred bushels of Soy beans from one acre of rich 'James river' bottom land." No man in Virginia has higher standing or character than Mr. Bellwood. I copied from these bulletins that analysis shows that one bushel of Soy bean seed has a feeding value equivalent to more than three bushels of corn. Then (I don't say it, but the United States says) this one acre of beans was worth more than 300 bushels of corn for feeding purposes.

I have also given tables showing that corn fodder and Soy bean hay, equal parts, make a perfectly "balanced ration."

The difficulty in getting seed that would grow, and harvesting Soy beans, have kept them in the back-ground. With our better knowledge both are overcome.

The Soy bean is so rich in nitrogen that if thrashed and put in bulk with the least moisture in the seeds the will heat enough to injure the germ. That part of the crop the farmer wants for seed he should let stand until the leaves fall off then cut, shock and let stand until the seed is dry, thrash and put in sacks (do not bulk) and store in a dry place. Thus treated, every seed will grow. The idea is to thoroughly eliminate moisture. A common separator thrashes them as easily as oats.

HARVESTING AND CURING THIS CROP.

Previous to 1902 I have been able to cut and bind a few bundles in a comparatively green state. They cured out perfectly, but following the cutting we had ideal curing weather, hot with fresh winds. I feared to put it out to the public lest wet, muggy weather might cause them to heat and mould. In 1902 I determined to test the mater and found a machine that could cut and bind them in their greenest stage. The weather was cloudy, with showers every few days. I selected about three acres of very heavy beans from 3½ to 5 feet high, in full bloom (their greenest stage). I cut them in the afternoon, leaving them on the ground to wilt and dry out a few days before shocking. That night a hard shower wet the bundles thoroughly. They were shocked the next day as we would wheat.

A few days after they were shocked we had a down-pour; the dense and immense foilage turned the water off like a duck's feathers, then we had four weeks of

cloudy and showery weather, ideal to test the question whether Soy beans cut green and tightly bound would cure out into perfect animal feed. They were left six weeks, until perfectly cured and dry, and when fed out not a moulded bundle was found.

Two days before I cut the beans I cut four acres of cow-peas. The continued wet weather caused us to lose the pea foliage, it rotted. I got a fair crop of pea seed.

The superiority of the Soy bean over any other crop will be emphasised in our future farming by growing Soy beans alone for feed, pasture and to plow down.

Olney, Illinois.

ROBERT C. MORRIS.

RANDOM NOTES ON MARCH NUMBERS.

Editor Southern Planter:

Mr. Clark's Grass.—The wonderful results that have been secured by Mr. Clark, in Connecticut, as noted in your editorial remarks, show conclusively the value of heavy fertilization for grass, and the crops he has made show that this lavish fertilization is done at a profit. Then, too, as we have often insisted, the corn crop is the place where the farm manure pays best and furnishes humus to enable the fertilizers to act more efficiently through the retention of moisture in the land. What crops of grass could be made on the mellow lands of Eastern North Carolina and Southeastern Virginia by Clark's method? The black peaty soils of Eastern North Carolina naturally produce grass in abundance, and on these soils the potash that Mr. Clark uses would pay as well as there. You are right, so far as most of the Piedmont soils of Virginia are concerned, in supposing that they need little potash, but on the sandy soils of the coast plain potash is an important matter.

Flat Culture of Cotton.—I have recently gotten letters from all over the South showing that here and there the growers are realizing that the old plan of ridging and hilling is not best for the cotton crop any more than for the corn crop. The leaven of improvement is working all through the cotton country, and flat culture will soon come to be the method of the improving farmers, and ere long the man who grows but half a bale per acre will be looked upon as behind the times as a farmer. Keep on urging the need of humus in the cotton field. They cannot get humus with cotton on the land every year, and the fertilizers will never have their best effect till the cotton farmers go to farming and quits cotton planting.

All Flesh is Grass.—And I am glad to see that the farmers in the cotton belt are gradually losing their dread of Bermuda and are beginning to realize that grass and forage and cattle are as important in the im-

provement of the land for cotton as they are for the crops of the North. When the cotton farmers fatten three bees for every bale of cotton they raise they will grow more cotton on fewer acres and at a smaller cost per pound.

Fertilizers for Peas.—On the sandy soils where Mr. Tyson lives there is no doubt that his mixture of acid phosphate and potash will be the thing for peas, but on the red clay uplands I had rather depend on the acid phosphate alone or a much smaller percentage of the potash. I used here last year a fertilizer with but 1 per cent. of potash on peas with marked results. The recommendation of a fertilizer for any crop will depend on the land where it is to be used, and no one but the farmer can tell what his land needs, and he needs to experiment to find out. Every thoughtful farmer should study his soil and thus avoid the buying of what he does not need.

Improving Mountain Land.—On the land in the North Carolina mountains I am sure that the best pasture can be made of the so-called English or Canada blue grass, *Poa Compressa*. On these rich lands it will be what Bermuda is to the lower South, and it thrives on land where there is no limestone, while the Kentucky grass does not.

Peas and Sorghum.—My advice is to put the peas by themselves and the sorghum by itself. Sorghum among the peas will make them hard to cure, for sorghum never cures dry. Sorghum is valuable as a forage but the peas are better without it. There is no difficulty in curing peas by themselves, and I have the hay to show that it is so. My hay has the leaves all green in color and not a speck of mould, and it went into the barn the third day after it was cut, and was cured there. It is easier to balance the ration with the crops grown separately than to try to grow two plants where but one should grow.

Ginseng.—Hardly a day passes that I do not get an inquiry about the cultivation of ginseng. The imaginative newspaper reporters have told such wonderful tales about it that the men who are always ready to drop the crops they know for others they know nothing about, are all now seeking to know more of ginseng. My advice is to stick to wheat, cotton, corn and peas and let the men who want to, experiment with ginseng. Like silk culture, there is nothing in it for most of us, certainly not in the warmer sections of the South.

W. F. MASSEY,

Editor of Practical Farmer.

When corresponding with advertisers mention the *Planter*.

NITRATE OF SODA ON TOBACCO PLANT-BEDS.

Editor Southern Planter:

Mr. H P. Baker, of Cumberland county, Va., says in March Planter that he used 10 lbs. to 100 square yards, which would be at rate of 500 lbs. to the acre. He applied it when some plants were the size of a quarter. I should have supposed that so heavy an application would have burned the tender young plant. I have, a number of times, experimented with nitrate soda on tobacco plants, but never with such positive or immediate action. In fact, I have been somewhat disappointed in results and have concluded that I put nitrate on too late, after plants were up, and felt convinced that the proper time to put it on was a little before plants came up. I tried to put at rate of 150 lbs. to acre, which I supposed was sufficient, as we put on a pound to the yard of the highest grade plant bed fertilizer when we sowed seed.

Nitrate of soda is very lumpy, and I found difficulty in getting it fine enough to sow evenly, for if you sow good sized lumps and they dissolve right around the plants it will be apt to burn them. I have seen plants burned entirely up in this way, and have also seen a small piece of "Green Sward grass" burned up completely by a heavy application of nitrate.

My experience is that if you are going to put it on plants after they are up, that it should either be dissolved in water and sprinkled on or else be sown on bed while it is raining. If you knew positively it was going to rain before night sow just before the rain. I feel sure that my failures with nitrate of soda were caused by putting it on too late. I have never had plants much benefitted by it in time to plant but have gone back to the bed after we had finished planting and found it wild with green plants. I believe that nitrate is invaluable for plants if applied at right time and in proper manner, and that you can have plants as early as you choose.

It is just such extravagant accounts as Mr. Baker's which first started me to experimenting with nitrate, not only on plants, but on numbers of other things, greatly to my disappointment.

I believe that you can greatly benefit the tobacco raisers by explaining to them the proper manner of putting nitrate on plant beds. The next issue of your paper will be out before the tobacco plants are up. Myself and a number of my neighbors would have been greatly benefitted by the proper information on this very important subject several years ago, and would have saved us the expense of buying our experience. To the ordinary farmer the whole subject is a sort of a mystery. Anyone expecting to see such miraculous results as nitrate turning grass "a vivid green" in a week after applied will be disappointed as I was. I read about nitrate of soda years ago, and sent to New York to the importer to get 300 lbs. A friend of mine did the same. We tried it and gave it to others to try in every conceivable manner without slightest results on anything. We were so much disgusted that I waited ten years before trying it again. We expected too immediate action.

After reading Planter to-day I concluded to scribble

this with the hope that you might spare the time to take it into consideration.

Albemarle, Co., Va.

J. S. Wood.

Whilst we have never used nitrate of soda on tobacco plant beds we have used it largely on farm and vegetable crops of various kinds, and can, therefore, speak with confidence as to its action. Nitrate of soda is peculiar amongst fertilizers in that it is the only one in use which is naturally in the condition in which plants take nitrogen. All plants assimilate nitrogen in the form of a nitrate. In all other forms of nitrogen fertilizers the nitrogen is chemically when applied in some other form than a nitrate, and has to undergo a chemical change in the soil before the plants can utilize it. It first passes into the form of a nitrite and then into a nitrate, which absorbs time. In the form of sulphate of ammonia it is a sulphate, and has to pass through several chemical changes before assimilable. In the organic form, such as dried blood, fish scrap, cotton seed meal, it has to decompose before the nitrogen takes the form of a nitrate. A knowledge of these facts should regulate the use of the different nitrogenous fertilizers. Another feature about nitrate of soda in which it differs from other fertilizers is its extreme solubility. It melts as quickly as salt. If, therefore, when applied the plant is not in a state of root activity so that it can immediately utilize the nitrate, the chances are strongly in favor of a heavy loss of the nitrogen by leaching. This was clearly demonstrated by Sir J. B. Lawes in one of his experiments. He applied nitrate of soda to a plot of tile drained land, the drains of which discharged into tanks. On part of the plot there was a growing crop, on another part there was no vegetation. He applied equal quantities of nitrate of soda to each plot. On the part where there was a crop with active root growth the nitrate was all assimilated by the crop and little or no trace of it could be found in the drain water in the tank. On the other plot, where there was no vegetation, nearly the whole of the nitrate of soda was recovered from the drain water in the tank. Bearing these facts in mind, the proper time to apply nitrate of soda to any crop is after the plants have commenced to grow, when root action is active. We would always apply just previous to a gentle rain if possible, but a heavy dew will readily dissolve it. We have frequently seen the result of applying nitrate of soda within a week after the application, when conditions of root growth and moisture were favorable. The nitrate should be in as fine a condition as possible when applied, all lumps being broken by beating with the back of a shovel or running a roller over it on a hard floor before sowing.—Ed.

GRASS SEEDING—CORN GROWING—HAY GROWING.

Editor Southern Planter:

In your March edition you again advise sowing on permanent meadows seeds of grasses that will die out, relying upon other varieties to endure and to keep the land covered. You have often recommended clover for the same purpose.

This is all wrong. Where grass dies out weeds, brushes, etc., will grow up. If you want a meadow or a pasture to last, say five years, sow only grasses that will last, and do not mix in anything that will not last. This very common mistake is one of the reasons why grass lands are not lasting here.

Here is a problem for you: Corn can be raised to profit in Kansas, Nebraska and other Western States at 25 cents per bushel; 40 to 50 bushels per acre is considered a good crop there.

Now, here corn sells at 50 cents per bushel. As there is little difference in the cost of cultivation, provided the corn is planted with check cable, so that the disk cultivators can be worked both ways across the field, it would seem that the Virginia planter could afford to spend 25 cents per bushel in fertilizer for every bushel of corn if he can thus increase his harvest to 40 or 50 bushels per acre.

I read your account of the Clark system of hay culture. Over \$40 per acre net profit looks big to a Westerner who has seen real good hay sold at \$3 per ton. I take it, however, that Virginia soil is either not suited to such intense culture or that Virginia farmers are able to make more profit by other crops, else the Clark system would be followed by those who have the means. Has our Agricultural Experiment Station ever given the system a trial? I have some red soil, some chocolate color soil, some gray, wet soil and some river bottom, and would like to know whether it is suited to the Clark system, especially since some of the gray soil does not seem to be much good for anything else.

Apropos of flat cultivation of corn. Why not publish a few articles on the Campbell system of soil culture?

I notice many inquiries in regard to alfalfa. Farmers should read Coburn's work on the subject. The price, I think, is 50 cents, and it is worth \$5 for every acre of alfalfa. Seed should be sown with press-drill, 30 lbs. to the acre, drill twice, 15 lbs. each way. It does not pay to sow alfalfa unless the soil has been infected with tubercles. Probably most soils will require liming. After the first year disk and cross-disk and roll every spring. Sow between 1st and 20th of September. Alfalfa will stand grazing well after the second year.

Hanover Co., Va.

GREENHORN.

We are not in agreement with our correspondent on the subject of grass seeding. The most permanent grasses are slow to take hold of and cover the land, hence the wisdom of seeding with them some of the less permanent varieties to occupy the land for two or three years until the permanent ones have gotten good hold. These prevent weeds killing out the permanent grasses

in the first two years, and in their decay provide food for the permanent grasses. The clover, whilst it lasts and in its decay supplies nitrogen for the use of the permanent grasses, hence its value in addition to its hay value. There is no reason why corn cannot be grown here as profitably as in the West, seeing the much greater price for which it sells. The greatest crop ever grown on an acre—250 bushels—was grown in the South, and several crops in excess of 150 bushels to the acre have been grown in this State. What is more needed to secure this end than periodical doses of fertilizer is the enhancement of the permanent fertility of the land by the addition of humus to our soils. The corn crop is best fertilized with the coarse, home-made farm yard manure. It is difficult to fertilize the corn crop with commercial fertilizers with profit. Read what Professor Massey says in this issue as to Clark's method of growing hay—we agree with him.—Ed.

THAT LITTLE FARM WELL TILLED.

Editor Southern Planter:

I do not believe that either you, or I, or anybody else can over estimate the advantages growing out of the "intensive" cultivation of the soil in Eastern Virginia.

The motto of our farmers should be "not how much, but how well and how thorough." The aim should be not how many acres can I till, but how much can I get per acre.

Take a worn and "run down" farm in Eastern Virginia, worn by the tenant system, which robs the soil, and by shallow plowing—there are two good farms underneath the worn one. There are two good farms upon which the sun has never shone, which have never been brought to light and life by the influence of the frost, air and sunshine.

Deeper plowing, subsoiling and tile drainage, aided by the splendid influences of the clover and pea crops, will bring up these two idle farms to the surface, or will bring up their hidden stores of plant food and make these stores available, instead of lying there dormant as at the present time.

A few weeks ago we sent the Planter a short article showing what one of our farmers had done on two acres of land planted to early potatoes, followed by a crop of turnips sowed with clover.

The showing was a good one, but a reader of the Planter has sent us a statement still better. With your permission we will make a brief statement. We do this for the encouragement of your readers who have small farms and who wish to get the most out of them.

The gentleman referred to writes that in March last

year he planted two acres of Irish potatoes. In June, before digging his potatoes, he planted corn between the rows.

The last of June he dug one hundred and seventeen barrels of marketable potatoes, then went on and cultivated the corn, which was making a very rapid growth. When he finished working his corn in August he sowed the land to clover and turnips. The turnips grew very large, some of them being six inches or more in diameter, making an enormous yield, which he failed to measure.

In the fall the case stood like this. He had taken from the two acres 117 barrels of fine potatoes, had 60 bushels of shelled corn, \$9 worth of fodder, also a splendid crop of turnips, and the land was seeded to clover with as splendid a stand as he ever saw. This clover he expects to cut in May, 1903, and turn down the stubble and prepare the ground for sweet potatoes.

Our correspondent stands ready to prove the truthfulness of all his statements, and it goes to show the advantage of cultivating small areas of land and doing it well, and we mention these matters for the encouragement of farmers in general, and for those in particular who own small farms. We can but say to them that if they will do their work thoroughly and study the agricultural journals, especially the Southern Planter, and be governed by its teachings, they will find themselves making more money, and making themselves more independent from ten acres of land than the Western farmers do off one hundred and sixty acres.

The whole of Eastern Virginia will some day be one vast garden. It will all be farmed intensively; every acre will be brought into subjection and put under thorough cultivation.

If cows are kept, there will be two or three cows kept to the acre. If sheep are kept, they will be kept just as they are now on the high-priced lands in England, and all farm work will be thorough, practical and intensive. Why should not these things be done? The soil and climate permits and encourages it, and the markets are at our doors, and all things combine to demand that man shall do as much for himself here as nature has done for him.

The man above mentioned, who raised 117 barrels of fine potatoes, 60 bushels of shelled corn, \$9 worth of fodder, and so many turnips that he could not measure them, from two acres of ground, and now has that same two acres in a splendid stand of clover, has demonstrated what can be done, what should be done, and what will be done all over this fair section of ours a few years hence, when the leaven of development and improvement has permeated and penetrated the whole mass.

May the shadow of the Planter never grow less and may its influence ever broaden, deepen and expand until the agricultural interests, especially of Eastern Virginia, shall be thoroughly and properly developed.
Norfolk, Va.

A. JEFFERS.

POTASH.

Mr. Stubbs, of Gloucester county, wrote several articles in the "Planter" on the subject of "Potash," which, together with my own experience, proved to me conclusively that it does not pay to buy "potash." From the way he wrote I had supposed that he was an authority on the subject, and that his opinions deserved consideration. I think Mr. Stubbs was so positive that he urged that agricultural papers should not continue to advise its patrons to use potash in order to benefit manufacturers at the expense of farmers.

I have been greatly surprised that Mr. Stubbs' experience has made so little impression. I think Mr. Stubbs alluded to potash on "tobacco" principally. His opinion, however, has made no impression, as all tobacco fertilizers continue to come with a high per cent. of potash. All Mr. Stubbs' experiments were in Gloucester, where the soil is supposed to be devoid of potash, whilst our soil here has it sufficiently, according to Professor Massey and many others.

Experience has pretty conclusively shown here that tobacco wants "phosphoric acid" and nothing-else. Still when farmers see agricultural papers urging use of potash, especially on tobacco, they imagine that perhaps their experience is wrong, and continue to buy it.

This is contradictory to all theory, and as Mr. Stubbs says, he imagined that of all plants tobacco stood more in need of potash.

I think I've heard that Mr. Stubbs is not only a practical farmer, but also a scientific man. I should imagine that his opinions ought to have a great weight.
J. S. Wood.

Albemarle Co., Va.

Dr. Stubbs, who is a most able and scientific chemist, and director of the Louisiana Experiment Station, is also a farmer in Gloucester county, Va., where he owns the old ancestral home of his family. This plantation is managed under his direction by his nephew, who has had a scientific education. In the course of experiments which he conducts regularly every year on his Virginia farm in a scientific manner, he has arrived at the conclusion that potash is little needed, even on the Eastern lands of this State, except it may be for tobacco, Irish potatoes and some vegetable crops. On the middle and Western lands he does not think it at all necessary except for these special crops. His opinion ought to have weight as he is a most careful experimenter and has had a long experience both theoretical and practical.—Ed.

SOWING CRIMSON CLOVER SEED.

Editor Southern Planter:

For years I have been sowing crimson clover, both to turn in and for grazing. As a fertilizer it is estimated to be worth about \$10 per acre. It gives better spring grazing, while it lasts, than any grass we have. The seed ranges in price from \$2.50 to \$4 per bushel, and up to a year or two ago I had great trouble in getting "a stand."

I determined, if it could be done, to save my own seed. I wrote to the Aultman-Taylor people for prices on clover-hulling machinery, and found it cost too much for a small quantity—\$500 to \$800—so I concluded I would cut it with my mowing machine, rake in wind rows when the dew was on, and then beat out as you would black field peas or oats, when only small quantities (of oats) are needed.

It was more than a success. I not only got more seed than I needed, but seed that cost me but little, and which would always germinate. Since then (about three or four years ago) I have never had to buy any seed. This season I cut less than two acres and I secured enough seed to sow over forty, and I have beautiful stands wherever sown. I will be more than glad to give further information about this to anyone interested.

Several of my friends are now sowing their seed with the same results I have mentioned. The seed will be no trouble to sow, though they are in the husk and look like Orchard grass. A man can sow a drift of five or six feet. It cost me less than \$5 to save the seed. So on forty acres at 75 cents an acre (one peck at \$3 per bushel, the present price) I save \$25, and, what is best of all, get perfect results.

Isle of Wight Co., Va.

C. F. DAY.

FERTILITY WITHOUT HUMUS.

Editor Southern Planter:

It is usually taken for granted by farmers that common clay contains no plant food. They think the latter exists only in humus or decayed vegetable matter. Such an impression comes from the fact that in worn-out land the humus has disappeared and nothing but clay remains.

It is true that little plant food that is available exists in such clay, for the nutrient element has been weathered out, or carried away in crops. There is plant food still remaining, however, but it is not in a chemical condition suitable for absorption by the plant.

That plant food exists abundantly in clay that has not been exhausted, we have many proofs. Near my place there is a fill in the public road, the dirt for which was taken from a red clay hill that contained no humus whatever. Yet the sides of that fill now sustain a vigorous growth of blackberry briars. The briars must

obtain their plant food from the clay, the elements of which have been made soluble by the incidental manipulation and exposure to the weather.

In a similar manner I have seen peach trees growing on the sides of railway embankments where it did not seem at all probable that there could have been any humus. At least it could not have existed in sufficient quantities to have produced the observed result.

A few years after the siege at Knoxville, during the Civil War, I noticed rank vegetation growing on the mounds of clay thrown up from the rifle-pits on the picket line. Poke stalks were especially vigorous. In this case it may be argued that the superimposed layer of clay was so thin that the roots of the large plants penetrated to the original surface and fed on the humus there found, but this would not seem to account for the growth being more vigorous than on the adjacent surface where there was no superimposed clay.

I have also noticed a decided improvement in crops where clay has washed down upon low land at the foot of a hill. In all the cases mentioned, the clay must, of course, have sufficient length of exposure to the action of air, rain and frost. If a lot of raw clay should be turned up in the spring, and at once planted, the result would prove disastrous.

Still another evidence that humus is not essential to fertility is furnished by irrigated lands in arid districts. There has been no opportunity for vegetable mold to accumulate on these lands, and yet they are exceedingly productive. The plant food lies in abundance near the surface because there have been no rains to wash it away, nor has it been exhausted by crops.

I do not set forth these facts as newly discovered, but as overlooked by the general farmer. The exhaustion of our fields is, perhaps, as much a result of shallow and imperfect cultivation as of a loss of humus. In fact, it has been claimed that deep and thorough cultivation will make humus. It may be better to say that it will preserve humus and make plant food more available. We certainly may say that the better the cultivation the less need for a fertilizer and the more its effects. To use an expensive fertilizer on poorly cultivated lands is anything but a paying business.

Knox Co., Tenn.

K. N. CRAST.

Whilst it is undoubtedly true that most clays are rich in plant food, yet it is equally true that unless these clays become filled with humus they cannot be kept in a condition in which plants can utilize that food. In hot dry weather they bake into bricks, whilst in wet weather they become puddles. Neither conditions are conducive to plant growth. The presence of humus prevents both these conditions and makes clay soils some of the most productive soils in the world. A clay soil devoid of humus can never be kept in a productive condition by cultivation alone, as it practically becomes impossible to work in either very dry or wet weather.—
Ed.

Mention the *Planter* to your friends.

IMPROVING MOUNTAIN LAND PASTURES.

Editor Southern Planter:

I take pleasure in describing the value of our mountain lands. As my father owns several thousand acres, I have had some experience in the management of the same. In regard to Mr. Reynolds' letter, will say that we have lands at an altitude between 2,500 and 5,000 feet, and we think that these lands make the finest pastures in the South.

The land is very black and deep, with very rich soil, composed of rotten vegetable matter, which grows a very heavy growth of wild weeds or rattle weeds. In order to get a good stand of grass the land should be cultivated one year, or sow the grass seed (Orchard, Herds and Blue grass) the same year in the corn. This land will make 40 bushels of corn to the acre, and the pastures will last from 30 to 50 years. Mr. W. D. McCracken, of Crabtree, N. C., keeps his short horns on his pastures until Christmas in good condition.

As the land is cold it should be free from shade or trees. The grass is very tender from early spring until very cold weather. The land will keep one short horn three years old on every two acres for several months. The sod will be equal to any lawn or bottom land hay field, and after a good stand of grass will get better without renewal almost to the end of time.

A very economical way of setting mountain lands is to clean up the undergrowth, deaden all standing trees, sow seed March 1st, then keep enough calves (year olds) on same to keep the weeds down, and then the grass will spread to a solid sod.

Our mountain land will make cattle fatter than any other land in pasture, but will not grow them as large on account of the lack of lime in our soil. And as to finishing cattle, I am sure that you cannot find a soil that will equal ours in West North Carolina.

Mr. R. E. Osborne, of Waynesville, N. C., finished cattle on his mountain pastures, making a gain averaging 437 lbs. per head in one season.

Haywood Co., N. C.

ALDEN HOWELL, JR.

COAL ASHES.

Editor Southern Planter:

Seeing an item in the Planter some time ago stating that there was no fertilizing value in coal ashes, and recently several articles relating to the cause and prevention of potato scab, will give you a little of my experience in Pennsylvania. Some years ago I had a piece of land cleaned off and had it broken up for Irish potatoes. The land had been a sugar bush timbered with sugar maple, therefore, I considered it plenty rich

enough without manure, but when I planted I put a pretty good sprinkling of coal ashes right on the potatoes in the furrows of part of the lot, then covered as usual. When I dug them in the fall the part that had the coal ash application had considerably larger and nicer tubers and they were entirely free from scab. I have since used coal ashes occasionally, and I always found nice clean tubers where so treated, and this leads me to believe that there is some fertility in coal ashes, and that they might be used to advantage as a preventive of potash scab.

Goochland Co., Va.

It is possible that ashes may be a preventive of scab, though we know of no chemical reason why they should so act, but certainly they have no value as a fertilizer as they contain no plant food.—Ed.

KILLING STUMPS—LICE ON HOGS.

Editor Southern Planter:

I noticed in the March issue of the Planter a query by L. C. A., who wished to know a simple and cheap way to kill stumps, such as gum and poplar. Having received so much valuable information through the Planter I can, and will, furnish the desired information:

With a hoe pull away the dirt around the stump till the roots nearest the surface are exposed. The dirt will be pulled away about 12 or 15 inches from the stump, then place dry brush around the stump and burn till the exposed roots are well heated, and the stump will surely die, never putting out another sprout. I clear some land every year, and all stumps too large to take up with a hoe I kill in this way. I have killed many stumps with an armful of corn stalks applied in the above way. I think kerosene oil would do as well, though the brush or corn stalks is cheaper and available. If the stumps have no roots near the surface dig around the stump about 8 inches deep and burn as above directed. While I am writing I will give a remedy to rid hogs of lice. Take a small wooden paddle and dip in gas tar and apply to the hog where the nits are most found, say on both sides of the neck and hams. If the first application does not suffice make the second in a week or ten days, and it will utterly exterminate the lice. This can be done while the hogs are eating slop, which saves the trouble of catching and holding them.

M. C. HAWKES.

Nottoway Co., Va.

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ENQUIRER'S COLUMN.

Enquiries should be sent to the office of *The Southern Planter* Richmond, Va., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Soja Beans.

I should be greatly obliged for the experience, through the columns of the *Southern Planter*, of any of your patrons as to the growing, cultivation, etc., of Soja beans in connection with ensilage corn for ensiling together. Also as to the growing, harvesting, threshing and feeding of Soja beans as a grain crop for grinding into meal to take the place of cottonseed meal, bran, etc., and as a forage crop to be made into hay.

Shenandoah Co., Va.

W. H. NEWMAN.

In this issue you will find an article dealing with Soy beans as a fodder crop. In last month's issue you will also find an article, "All flesh is grass," recommending them. They can also be grown with corn for the silo, but we prefer to grow them alone and then cut and fill into the silo with the corn load for load. This makes excellent silage, and you get a much heavier yield per acre than when grown together with the corn. When grown for the grain alone they should be planted in drills 2 feet apart and 10 inches apart in the row and be allowed to stand until the pods begin to turn yellow, but not until they are ripe, or they will shell out badly. Then cut and bind in bundles and set up in shocks like wheat until cured thoroughly. They may then be thrashed out with the separator, taking out the whole or part of the concaves and running the machine slowly. They should not be put in large bulk until thoroughly dry, as they heat quickly. We shall have more to say about this crop when writing on forage crops in our next issue.—ED.

Corn Fertilizer—Composition of Fertilizers.

I have a field that has been pastured for several years which I propose to plant in corn. Will it pay me to use commercial fertilizer? If so, what? When and how should it be applied?

I am offered a fertilizer said to contain 4 per cent. potash, 10 per cent. phosphate and 86 per cent?

Now, can't I get this 80 lbs. potash and 200 lbs. phosphate and use them without hauling and handling 1,720 lbs. sand, or whatever it may be? If so, where can I get them, and how and when apply?

What and how much should I use for cow-peas, and when and how apply? Also for Irish potatoes.

Henrico Co., Va.

"W."

In this issue you will find in an article on "Work for the Month" our views on corn fertilizing. Phosphorus, the element from which phosphoric acid is obtained, is unavailable for use as a fertilizer. It is

so highly combustible that on exposure to the air it bursts into flame and has to be kept under water to preserve it for use in scientific experiments. Phosphoric acid for use as a fertilizer is always in some combination; most generally as a phosphate of lime, as in bone and South Carolina rock. In this combination it is largely in an unavailable form or only slowly available. To render it available the rock or bone is treated with about an equal quantity of sulphuric acid. When the acid is mixed with the rock or bone it combines with two-thirds of the lime, forming sulphate of lime (plaster), and leaving the phosphoric acid previously united with all the lime united with one-third of the lime as mono-phosphate of lime. This mono-phosphate is then in a condition to give up its phosphoric acid to the crop, the same being in that form soluble in water. The buyer of a ton of acid phosphate, analyzing 10 per cent. phosphoric acid, does not therefore haul and handle sand or useless material to the extent of 1,500 lbs. to the ton, but 800 lbs. of phosphate of lime containing 200 lbs. of available phosphoric acid and 1,200 lbs. of sulphate of lime (plaster), which in itself is available as a fertilizer. In no other form can you get phosphoric acid for use as a fertilizer than as a phosphate of lime. In the case of potash—this is a natural mineral production brought into this country from Germany. In the mines it exists in combination with other salts and minerals. Kainit is the form in which it is most largely combined with other elements. Kainit analyses usually only 12 per cent. of potash and the other 88 per cent. is largely chloride of sodium (common salt). In the form of muriate of potash there is usually about 45 to 50 per cent. of potash, and the other 50 per cent. is made up of other salts and acids. In buying muriate of potash or sulphate of potash, which is even purer than muriate, you will get the least admixture of any other element in any form of potash, and therefore have less to haul and handle to get the same quantity of pure potash. You can get the 80 lbs. of potash you mention in something less than 200 lbs. of muriate of potash and the 200 lbs. of phosphoric acid in 1,500 lbs. of 14 per cent. acid phosphate.

For cow-peas apply from 250 to 350 lbs. to the acre of acid phosphate. For Irish potatoes a good fertilizer may be made up of 300 lbs. nitrate of soda, 600 lbs. cotton seed meal, 800 lbs. acid phosphate, 300 lbs. muriate of potash to make a ton. Use from 400 to 1,000 lbs. to the acre.—ED.

When corresponding with advertisers mention the *Planter*.

Sorghum and Millet—Plowing for Wheat.

I want to know how will sorghum and millet do to sow for feed for stock. Will they mature together? If so, how much to the acre, and when to sow it, and at what stage to cut it. I also want to know about breaking land for wheat at this time of the year and then let it lay till July, as I can plow then with less rain. By plowing now is it against the land or not? I have about forty acres of old field that has been cleared of pine and stumps and has been run for years and is too thin for clover, and as labor cannot be had it is left to lay. I don't want it to grow up again in brush. I broke part of my land last spring at idle times, and if I had not done so then it would not have been in wheat to-day, as it was so dry. I could plow where I broke in the spring when I could not crack the other land. I never had a finer looking wheat crop at this time of the year.

Guildford Co., N. C.

D. B. SMITH.

Sow the sorghum and millet separately, as they will not mature together. Millet and peas and sorghum and peas make good hay when grown together. Break the land for wheat as soon as convenient, and keep working it during the summer and up to within a short time of seeding, and you will make a wheat crop.—Ed.

Grass for Name.

I send you to-day under separate cover a sample of grass that seems to grow vigorously in a piece of low land I have. Will you please give me the name of the grass? I would like to put the land in it for a permanent pasture. It stays green nearly all the winter and can't be killed easily.

Princess Anne Co., Va. . .

THOS. S. LAND.

It is impossible for us to name a grass from a small sample of the first spring growth. We must have the seed stalk with the seed head on it and the root. If you will send us these later, we will endeavor to help you.—Ed.

Blight on Apple Trees.

Some of my young apple trees are affected with what I call blight. The ends of some of the twigs are dead. You will find some twigs enclosed. Will you kindly tell me in the next issue of the *Planter* what kind of insects are on them, and if they are very injurious? Also suggest a remedy; and oblige a subscriber.

Accomac Co., Va.

LEE R. PHILLIPS.

The dead twigs have suffered from twig blight, a disease of the same nature as that called "fire blight" in pears. It is a bacterial disease for which no remedy has yet been found except to cut out the dead twigs below the point to which the disease has run. The apple being much more resistant to the disease than

the pear, it does not often cause more than temporary injury. Spray the trees with Bordeaux Mixture as advised in our Spray calendar published in last month's issue.—Ed.

Corn Fertilizrr.

In next issue of your excellent paper kindly tell what a good fertilizer for corn should contain, and how much per acre should be applied (broadcast) on land from which a medium crop of clover hay was cut last season. This land will produce 20 or 25 bushels corn per acre without the use of any fertilizer, if season is good.

Northumberland Co., Va.

SUBSCRIBER.

See our article, "Work for the Month," in this issue—Ed.

Seeding Crimson Clover and Vetch.

Will you please tell me if I can put in vetch and crimson clover seed with peas, say in July, and get a stand of the vetch and clover, or will the peas shade it to death? I expect to mow the peas off for hay in the fall.

Iredell Co., N. C.

O. E. SHOOK.

We have known crimson clover to be seeded with peas in July and August, and to make a stand, but it is a risky proceeding, as if the peas are at all a heavy crop they will smother the clover. It is too early to sow vetch in July. This crop can well be seeded after the peas are cut for hay, and unless the peas be cut very late the crimson clover can also be then seeded, though not with quite as good a chance of success as if seeded in August.—Ed.

Cut Worms and Tomatoes—Fertilizer for Tomatoes—Grubs in the Backs of Cattie.

I have been troubled with worms cutting off my tomato plants as soon as they are set out; what is a preventative? How much fertilizer must I use to insure a good crop of tomatoes on land which will produce from 5 to 6 barrels of corn per acre? Is it proper to remove the so-called "wolves" from the backs of cattle or let nature pursue its course in expelling them? Which do you consider the better method of cultivating corn, flat or in beds, and what the best implement to use in working it?

Westmoreland Co., Va.

F. E. OMOHUNDRO.

Previous to setting out the tomato plants, and when the field is clear of vegetation of any kind, mix Paris green with bran moistened so that it will stick together in balls. A little molasses mixed with it will help it to stick and make it more attractive to the worms. Drop the balls at intervals over the field. The worms will find them and be poisoned. Or dip bunches of green clover in Paris green mixed in water, and drop these at intervals over the field. In this issue you will find an article dealing with the tomato crop in which you will

find our views on this fertilizer best suited to meet the needs of the crop. These so called "wolves" are one stage in the life history of a fly which troubles cattle when flying about. They should be squeezed out of the hole, which will be found at the top of each cell, and be killed, and thus lessen the number of pests for another year.—ED.

Johnson Grass.

Professor Massey strongly condemns Johnson grass and sustains his argument with the experiences of farmers residing in the cotton and sugar regions. Do you know any farmer residing north of Richmond, Va., who has experimented with this grass? Bulletin No. 11, on Johnson grass, of the United States Department of Agriculture, throws no light on this inquiry, for the investigations of its author, Mr. E. E. Ball, were confined to the States of Alabama, Louisiana, and Texas, and is therefore of no more weight for us farmers in Northern Virginia than bulletins devoted to cotton and sugar. We need a permanent pasturage grass, which will be to our lands what Blue grass is to my old home limestone farm in Ohio.

Can you aid to that end?
Alexandria Co., Va.

R S. LACEY.

We have heard of several farmers to the north of this city who have tried Johnson grass and are satisfied with it. It makes a good growth, and, cut early enough, makes good hay. It is valuable as a pasture, but should not be grazed too closely. It may be killed out by close grazing in this State and by exposing the roots to the winter's frost. Bermuda grass makes the best summer pasture of any grass we know of for the eastern and middle sections of this State, and Virginia Blue grass (*Poa compressa*) for the other sections.—ED.

Failure of Soil to Grow Crops—Insects in Seed.

Please advise me in your next issue about the following:

1. I have a piece of land which I think is very rich and light, with clay subsoil, which makes a fine yield of collards, corn and snaps, but turnips and salad don't do so well. Salad comes very readily, but is a light, delicate green, and in spring after having been through the bad weather, it puts out very small, but with a very good flavor.

2. I used a piece of land for tomatoes which is very light and rich, with a slight sprinkling of clay and with clay subsoil, and after seeing that they did not make the yield they ought to do, as the vines grew fast enough, I tried nitrate of soda, a small quantity, and in a short while the vines became yellow, and showed signs of dying. This I do not attribute to the soda, as the same land did so on previous occasions. It brings snaps, butter beans, etc. I depend on stock manure, but tried the crops without manure, as I thought the land was

in prime condition, having been manured for previous crops.

3. I kept snaps in hulls in a bag in a dry place for seed, but on looking over my seed the other day I discovered that they were full of insects. What must I do to get rid of these?

Chesterfield Co., Va.

A SUBSCRIBER.

1. The failure of the land to grow turnips and salad would indicate that it is lacking in nitrogen and potash. We would apply 100 lbs. of muriate of potash and 100 lbs. of nitrate of soda and 500 lbs. of cotton seed meal to the acre.

2. We think if you had applied 100 or 150 lbs. of nitrate of soda to the acre on the tomato field that it would have had a good effect, that is, assuming the land to be as well supplied with fertility, as you suggest. It may be that this land also lacks potash as well as nitrogen. It would be well to test this by applying muriate of potash to some part of it.

3. Put the seed snaps into a box and place a saucer full of bisulphide of carbon on the top of them and close up tightly, and this will destroy all insect life in them. Be careful to keep lights away from the bisulphide, as it is very explosive.—ED.

Top-Dressing for Meadow—Fertilizer for Young Apple Trees

1. What makes the best top dressing for meadow? Would you harrow after making application?

2. What is the best fertilizer for young apple trees?
Patrick Co., Va.

R. S. MARTIN.

1. In our last issue in our article on "Work for the Month" you will find particulars of the fertilizer used by Mr. Clark in his most successful grass growing experiments. The fertilizers he uses we can endorse as being suitable. The quantity per acre we should much reduce, say to one-half, unless the land had been as perfectly prepared as Mr. Clark's. In a series of experiments made at the Rhode Island Experiment Station, three plots of grass land have been tested with different top dressings for the last four years, with the following results: On each of the plots 130 lbs. of phosphoric acid per acre supplied by 807 lbs. of acid phosphate has been applied in each year. In 1899 and 1900 180 lbs. of muriate of potash was applied to each plot. In 1901 and 1902 200 and 300 lbs. of muriate of potash were applied, respectively. On plot 17 no nitrate of soda was applied, on plot 19 130 lbs. of nitrate of soda was applied per year, and on plot 21 414 lbs. of nitrate of soda was applied per year. The following are yields of field cured hay harvested in 1902 from these three plots thus top dressed:

Plot 17, without nitrate of soda, but with the phosphoric acid and potash mentioned above.....2,950 lbs. per acre.

Plot 19, with 138 lbs. nitrate of soda and the acid and potash mentioned above4,850 lbs. per acre.

Plot 21, with 414 lbs. nitrate of soda and the acid and potash mentioned above8,200 lbs. per acre.

2. For the young orchard apply 250 lbs. of acid phosphate and 150 lbs. muriate of potash per acre, and sow cow-peas to plow down in the fall and then follow with crimson clover or vetches for a winter cover—Ed.

Lame Horse.

I want some information about curbs on horses. My horse has a knot on both hind legs just below the knee joint. Can you recommend anything to cure same?

Brunswick Co., Va.

C. I. MITCHELL.

Firing is the best remedy for a long standing curb, and even this is not always effectual. The animal should have rest, and high-heeled shoes should be applied.—Ed.

Cow-Peas and Oats—Cow-Peas and Corn—Killing Persimmons.

We of this section know but little about raising cow peas for hay or forage, and I am going to ask for some information along that line. How would it do to sow peas, corn, and oats together about the 10th of May, to cut for hay when peas are ready, and, if advisable, how much of each should be sown? Expect to put them in with a wheat drill and use small amount of fertilizer. Would you advise planting peas in the hill with corn, where corn is to be cut by hand?

You can say to your inquirer who wants to know how to get rid of his persimmon bushes that if he will cut them off even with the top of the ground during the months of January or February he will find it a sure way to get rid of them. This is best done when the ground is frozen, and it is claimed to be more successful if done at that time. This plan acts equally well with all other kinds of bushes.

Fauquier Co., Va.

W. L. RICHARDS.

Cow peas and corn may be sown together in May, but we do not think that oats sown with them will be likely to make much growth. We think sorghum seeded with peas make a better hay than corn. If put in with a drill, half a bushels of peas and a peck of sorghum will be sufficient. If corn is planted with the peas, a peck will be sufficient. The practice of planting cow peas in the hill with corn is being largely practiced in some sections, and with good results. They are so planted even when the corn is to be cut with a machine. For filling the silo, this makes a most valuable crop, as the result is

a much better balanced ration for stock. For a fodder crop, they are excellent. Our Northern Virginia farmers should give more attention to cow peas and other forage crops. There is profit in growing them. The quicker maturing varieties of peas should be planted.—Ed.

Lime—Nitrate of Soda—Potash.

1. How can we farmers get stone lime?
2. How apply it? How much to an acre?
3. Is it cheaper to buy stone lime by the barrel at 80 cents a barrel, or shell lime slacked at 6 cents a bushels?
4. How do we get nitrate of soda and muriate of potash?

Chesterfield Co., Va.

AN OLD SUBSCRIBER.

1. You will find stone lime advertised in *The Planter* by Reeves Catt. Write him for quotations delivered at your depot. He will, we think, give you a much better price than you name.

2. Apply from 15 to 25 bushels to the acre in the fall or early winter. Set the lime on the field in the stone in small lumps of less than half a bushel each. Throw half a bucket of water on each lump and then spread broadcast with a shovel.

3. We prefer the stone lime to the shell lime. A bushel of stone lime should slack out to 3 bushels.

4. You will find nitrate of soda and muriate of potash advertised in *The Planter* by E. Mortimer & Co., New York.—Ed.

Value of Milk Cows.

I have two graded milk cows that eat the same amount of food. One of them gives me 6 gallons of milk and 3½ lbs. butter per day. It is firm, but white. The other cow gives me 5 gallons of milk and 2½ lbs. butter that is as yellow as gold. Which one is worth the most on the market or to breed from? Also state what you think they are worth, at a reasonable price.

J. G. ANDREWS.

The one giving the most milk and making the most butter is the more valuable cow either to sell or breed from. The want of color in the butter can easily be remedied by a little butter coloring added to the cream before churning. We have used a little annato or the coloring matter from a good red carrot for this purpose. We could not undertake to place a value on cows we have never seen.—Ed.

Wood Ashes.

I would like to know the constituent quantities of wood ashes.

Berkley Co., S. C. JAMES JOYNER.

A good sample of hardwood ashes (unleached) will analyze 5.25 per cent. potash, 34 per cent. lime, with a small percentage of phosphoric acid.—Ed.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

The remarkable burst of spring weather which has distinguished the month of March has set all vegetation to growing, and is going to make the months of April and May very busy ones in the garden and truck fields, as all the earliest crops now press for attention. Do not, however, be in too great haste to plow or work land, but wait until it is dry enough to crumble as it falls from the plow, and then it will warm up quickly and work freely all through the season, and clods will be conspicuous by their absence. Continue the work of getting out manure on to the land and apply with it the acid phosphate and potash which you intend to use, and then work the whole thoroughly into the land. These mineral fertilizers require time to become available, and they are so essential to the successful growth of vegetables that their use is to be encouraged by all truckers and gardeners. Before planting any crops lay out a plan of the garden, and so apportion the land as that you may be able to have a continuous supply of vegetables for the table all through the season until frost cuts them off. Work the land as finely as possible, and then lay off the rows so that cultivation may be done by horse labor. Where this is not done, crops are frequently lost from lack of time to give the necessary hand labor to the work.

Irish potatoes and English peas, not already planted, should be gotten in at once, and those planted should be encouraged to grow by cultivation. Whilst the weather is so genial as to encourage the planting of full crops it should be borne in mind that it is yet too early for us to feel safe from frost, and, therefore, it will be wise not to put into the ground more than a small part of the crop except in those sections near the coast, where frost rarely does much injury after this time. The end of the month and the first half of May is soon enough to put in the full crop. Salads, lettuce, radishes, onions and successional crops of English peas may be sown. Onion sets may be planted and cabbage plants be set out if well hardened.

Fall planted cabbages should be encouraged to grow by cultivation, and after they have made a good start a top dressing of 100 lbs. of nitrate of soda to the acre will help them greatly.

The seed of tomatoes, egg plant and peppers should be sown in gentle hot beds in frames, and as the plants become large enough to handle they should be transplanted into cold frames or where they can be protected

by canvas or mats at night and during the cold season. Sweet potatoes may be bedded in the hot beds to provide plants for setting out in May. In our last issue will be found instructions for making a hot bed.

Strawberry beds should be worked out and the plants be encouraged to grow. If not looking thrifty a top dressing of nitrate of soda, 100 lbs. to the acre, should be applied. After working the beds and top dressing, apply between the rows a mulch of pine tags or trash, free from weed seed of any kind, to keep the berries clean.

See that attention is given to the spraying of the orchard, vineyard and small fruit plantation. In our last issue will be found a spray calendar, giving full instructions on this subject.

Clean up all trash from the lawn and flower garden and dig up the flower beds and give them a dressing of good, rich manure. Plants that have been kept in the house or in pits during the winter should now be exposed to the air on every fine day, and thus be hardened so that they may be ready to plant out in the beds next month. Send to the seedsman for a copy of his catalogue, and make a selection of hardy flower seeds and plants. For a dollar or two enough can be bought to make a good sized garden gay with bloom all summer. Strive in this way to make the home beautiful and attractive. It will do more to keep the young people in the country than much advice. Imbue in them a love of nature and of nature's productions, and they will long more every day to spend their lives with these surroundings.

TOMATO GROWING.

During the past two years there has been a great development of the canning industry in Maryland and part of this State, and this seems likely to be still further developed this year. The result is that there is demand for information as to the raising of the tomato crop. For canning purposes the crop raised is the medium and late crop. The early crop is grown mainly to supply the markets with tomatoes for the table. The soil best adapted for the crop is a well drained, sandy loam, though it is not so essential that this should be the character of the soil where the crop is not required to be early. One having greater natural fertility and a stronger consistency will grow the crop

equally well, and produce more fruit if well drained and finely prepared. It should be free from weeds, and deeply and thoroughly broken and fined. The fertilization of the land may be either with farm yard manure or partly manure and partly commercial fertilizer, or solely with commercial fertilizer. If farm yard manure alone is used it ought to have been gotten on the land in the winter and be thoroughly worked in previous to planting, and a good shovelful of the best manure should be placed in each hill at the time of planting. Where manure and fertilizers are both used they are usually applied in the hill at the time of planting. This is generally the most successful way. Where fertilizers only are used they should be applied part on the hill at the time of planting and part during the growth of the crop. The tomato is a plant that responds well to heavy manuring and fertilization. Experiments made at the New Jersey Station show that nitrate of soda is one of the best nitrogenous fertilizers for this crop, and that its used in small quantities, 160 lbs. per acre in one application, or in large quantities, 320 lbs. per acre in two applications increased the yield materially. Where the soil is poor naturally in plant food a fertilizer made up of 600 lbs. of acid phosphate, 300 lbs of muriate of potash and 500 lbs. of tankage or cotton seed meal should be applied at the rate of 500 lbs. to the acre previous to setting out the plants and be well mixed in the soil. Then at the time of setting out the plants apply 100 lbs to the acre of nitrate of soda. This should be spread in small quantities around the hills, but not be allowed to touch the plants. Where nitrate of soda is used along with manure the manure should be applied in the hill, or be mixed with the soil, and the nitrate of soda be applied on the hills after setting out the plants. Acid phosphate and potash can be used with advantage along with manure, and should be worked with the soil. The plants should be set from 4 to 4½ feet apart each way, and should be sturdy, stocky plants, which should have been transplanted once or twice from the hot bed before being set out in the field. The seed for raising the plants should be sowed in a gentle hot bed in March or April, and the young plants should be transplanted as soon as they can be handled into a cold frame or on to beds where they can be protected with canvas or mats at night or in case of a cold season. Do not force the growth so as to make the plants spindling, but aim to use stout, stocky plants. When setting them out in the hills plant somewhat deeper than they stood in the plant beds, and this will increase the root growth. Cultivation should begin as soon as the plants are set out, so as to lighten and freshen the soil, which will have been tramped down in the setting. Cultivate deep the first

time, and afterwards shallow so as not to disturb the roots. Frequent cultivation is desirable to encourage rapid growth. The variety to be planted for canning purposes is very much a matter of local adaptability. The Stone, Paragon, Trophy and Perfection are good and reliable sorts. The yield per acre will vary from 5 to 10 tons, and sometimes goes as high as 20 tons. About 8 tons is considered an average crop in canning sections.

NOTES ON VARIETIES OF APPLES AT THE AGRICULTURAL EXPERIMENT STATION, BLACKSBURG, VA.

[EXCERPT FROM BULLETIN 130.]

[Continued from March number, 1903.]

York Imperial (Johnson's Fine Winter).—This is one of the best known of Virginia standard orchard fruits. It originated in Pennsylvania. The tree is a very vigorous grower, forming a rounded head, fairly compact, of excellent shape; trunk 30 inches in circumference at base, 27 inches at head. The tree develops in certain situations a grave weakness in regard to blight and of recent years this has very much damaged its standing as a commercial variety. Thus far it has not been possible to determine whether this peculiarity is more markedly developed on one soil than another.

Here the first bloom was noted in 1893, and the first fruit in 1897; that year the trees bore a very fair crop of fruit for their size, of fine form, and free from disease; in 1899, the crop was light; in 1901, the crop was fairly heavy, being an average of six bushels per tree. The fruit was of fine character, about 70 per cent. first class. This crop is not at all heavy for the size of the trees, and in this characteristic the variety does not at present compare well with the productiveness of Arkansas. The fruit of *York Imperial*, and also the quality, do not require a description in this State, but to our taste it is lower in quality than Arkansas.

Whether this variety will continue to hold its place as one of our chief market sorts, is a question which must be considered in the gravest manner by growers, and we suggest that observation in every community ought in a measure guide planters. If it continues to show serious trouble from the blight, other more hardy varieties ought to take its place in the planting of commercial orchards.

Grimes' Golden.—This is an old variety of Virginia origin, and though well known as the standard of quality of distinctly dessert apples in America, it is not so commonly met with in our fruit plantations as its worth warrants. Here the tree is a good grower, quite healthy: forms an upright, moderately spreading top with well-grown wood. The trunk measures 28 inches at base and 26 inches at head in circumference.

This variety bloomed first in 1893 and gave a few fruits in 1895, and a fair crop in 1897 and 1899; in 1901, the crop was much better, but was not measured. The past season it bore a light crop of fruit, though it was the off year. Up to the present, though the trees

are fine and large, they have never borne a heavy crop of fruit. The fruit is medium to large, round, oblong, a beautiful golden yellow color when ripe. Quality as to spiciness and high flavor, unsurpassed. No home orchard should be without this valuable variety, and as grown here, it has every quality to warrant its shipment to market as a fine grade of boxed fruit.

Roxbury.—A famous old variety of Massachusetts origin, but which is little grown at the South. The tree is a robust grower, forming a low spreading head, strikingly characteristic. The trunk measures 28 inches in circumference at base, and 22 at head. It has been entirely healthy at this place, free from blight and fungous diseases.

First bloom was noted in 1895, and first fruit in 1897; in 1899, the trees bore a half bushel each, and in 1901, 2½ bushels each. The fruit is of large size, roundish, oblate, with a distinctly characteristic russet skin, which plainly distinguishes it. In quality, it has a peculiarly fine flavor and aroma all its own, and is unsurpassed in this regard by any other American variety. In this regard, the Southern grown fruit seems to be superior to the Northern grown. We think that especially in the high mountain situations of Virginia, this apple could be grown to perfection, and as it keeps well in cold storage, it might prove a desirable commercial sort.

Smokehouse.—An old variety of Pennsylvania origin, and widely known as one of the finest autumn and early and winter varieties, especially for dessert and kitchen use. The tree is a vigorous grower, forming a well-shaped, spreading head. The trunk is 36 inches in circumference at base, and 31 at head. It is practically free from blight, and not overly susceptible to fungous diseases.

First bloom was noted in 1893, and the first fruit in 1895; in 1897, the trees bore a full crop for their size, but in 1899 and in 1901, the crop was very light—only one bushel per tree. Thus far the tree is a shy bearer in this situation. The fruit is roundish, oblate; yellow color, spotted with crimson. The quality is excellent, and the fruit is fairly free from rot and scab. This variety has excellent qualities for the amateur and for the home orchard, but hardly to be commended as a commercial variety. Season, early winter; here, autumn in all lower parts of Virginia.

Cions.—Since issuing Bulletin 128, we have a considerable number of requests for Cions. So far as possible each year we will furnish a limited number of cuttings from the Station orchards to interested parties who are willing to bear the expense of preparing and transportation of the same.

WM. B. ALWOOD,
Horticulturist.

Dec. 20, 1902.

ORCHARD AND GARDEN NOTES.

Editor Southern Planter:

The farm garden is too frequently a source of vexation and annoyance to the farmer instead of pleasure and profit. This owing to a bad location, poor arrangement and an insecure fence, that permits fowls to get into the grounds and scratch up the plants and seeds. All these things can be easily prevented. See

to it that the garden fence is made secure at once. It is too late this season to change the location or arrangement. The rush of spring work is now on in earnest, but the garden must not be neglected. If the grounds are enclosed by a good fence, and the rows of vegetables and fruits are made straight across the garden to permit of easy cultivation, many pleasant hours of healthful exercise can now be spent in it. To watch the flowers open and the plants grow after a spring shower is a rare treat to all lovers of nature. Take the boy into the garden and teach him how the different blooms fertilize themselves—teach him the meaning of color in flowers, why the most highly colored flowers are the least fragrant, why the white flowers are usually more fragrant, and why insects are attracted to flowers.

Nature offers to teach us a thousand lessons now if we would only learn. All our work must not be for the dollar. Our greatest efforts should be to make better men and women. I never saw a good garden where an uneducated and unhappy family lived. The garden tells something about the family to the passer-by. What does it tell about you?

Plant some melons in the garden for the boy. If he can invite some of his playmates to his home some warm Sunday afternoon in August to help to eat a fine, red, luscious watermelon, grown by his own hand, and just from the cool spring, he will be more contented to stay on the farm when grown up. Plant some Duke Jones watermelon seed and Ideal or Rockyford canteloupe seed the last of this month. Use a shovel full of well-rotted manure thoroughly mixed with the soil of each hill before planting the seed.

Now is the time to do some top grafting in the orchard. Nearly all orchards have some undesirable trees in them which may be made to bear good fruit by top grafting. While this fact is often realized still the grafting is usually put off and neglected in the great rush of spring work.

Explain all the details of the operation to the bright farm boy, and he will usually attend to it in time. While teaching horticulture for ten years, I found no subject so fascinating to the young man as that of how to bud and graft. It was a marvelous thing to him to learn that by grafting the tree with small pieces and twigs from other trees that same tree could be made to bear early apples, late apples, red apples, yellow apples, &c.—in fact, be a small orchard in itself.

When I was a boy it always appeared to me that the nurseryman had a great secret in propagating and growing so many nice young trees. How he did it appeared

a great mystery, and was past finding out by other people. I was never satisfied until I learned about this secret, and found what the mystery was. It was interesting to me to learn that there were many other young men who had the same desire. Just here let me state, parenthetically, that most nurserymen do have certain rules to follow in propagating particular kinds of fruit, which rules they find from their own experience are best. These particular rules are not published in the books, and the nurseryman does keep them "a secret" as much as possible. These special rules are for the professional nurseryman and not for the farmer.

The first thing in successful top grafting is to have the scion, or piece of wood, you are to use in grafting, more dormant than the tree upon which the grafting is to be done, though grafting is successful sometimes after buds are swollen. I cut off the water sprouts that are the size of a lead pencil before the buds swell and bury them to hold them dormant till the buds on the tree I want to graft on begin to open. We call these sprouts, scions. Label them carefully. The next thing is to have good grafting wax. This you can make yourself.

Melt together in a kettle, $2\frac{1}{2}$ lbs. of English rosin and 6 ounces of bees wax. Melt 9 ounces of tallow in another vessel. Then stir them while mixing together. Let the material partially cool and then work it like people do the old-fashioned home-made candy or "taffy." Use a little oil on the hands to keep the wax from sticking. You need a sharp, thin-bladed knife, and you are ready for the work.

Limbs from one-half to one inch in diameter are about the right size to cut off and graft into the stubs, though much larger ones can be used. If so, insert a graft on each side. Use a thin, sharp implement for splitting the stub. Make the graft wedge-shaped to fit into the cut nicely. The bark must not be bruised. Now, the "great secret" in grafting is to make the inner bark (cambium) of the graft fit up closely with the inner bark of the tree or stock. When growth starts at these places union will soon take place. Put on the wax carefully to keep the water out, and the job is completed. It is best not to cut off all the limbs on the tree at one time, since one or two should be left to elaborate the sap till the grafts grow up.

Later on I will have something to say about budding.

Let the boy start a small nursery in the garden and plant peach seed, apple seed, plum seed and cherry seed for grafting and budding stocks. Remember this when the seeds ripen. Make cuttings of grape vines and quinces for setting out now. The quince cuttings will

make good stock upon which to bud pears. Of course, this stock will make dwarf pear trees, just the right kind for garden planting. Now is the time to make them, though cuttings made in the fall do best. Cut them about 12 inches long and plant them into the ground in rows 3 feet apart, and 12 inches apart in the row. Do not injure the bark on the end that goes into the ground. Press the dirt firmly around the cuttings.

Plant some Haverland and Lady Thompson strawberries now in your garden for family use.

Montgomery Co., Va.

R. H. PRICE.

SPRAYING PEACHES.

Professor M. B. Waite, the pathologist in charge of Investigations of Diseases of Orchard Trees, suggests that the following treatment should be given peaches:

First treatment before the buds swell, in addition to copper sulphate, give for San Jose scale and curl leaf, lime, sulphur, salt solution; second treatment, just before the flowers open, Bordeaux mixture, 6-4-50 formula; third treatment, when the fruit has set, weak Bordeaux mixture, 3-9-50 formula; fourth treatment, two weeks later, the same. Peach foliage is sensitive to Bordeaux, even the 3-9-50 formula, which consists of 3 lbs. bluestone, 9 lbs. lime and 50 gallons water, being somewhat injurious.

TOMATO BLIGHT AND ROT.

Professor M. B. Waite suggests the following treatment:

First application Bordeaux mixture on seedlings in the seed bed when they first begin to form rough leaves; second application 5 to 7 days later, repeat; third application when they begin to grow and form new leaves in the field; fourth, fifth and sixth at intervals of from 10 to 15 days.

CANTELOUPE BLIGHT.

Professor M. B. White suggests the following treatment:

First application Bordeaux mixture when the vines begin to run; second, third, fourth and fifth repeat at intervals of 10 days to two weeks, or in such a manner as to cover the new leaves as rapidly as possible after they are formed.

CORROSIVE SUBLIMATE FOR SCAB ON IRISH POTATOES.

In our last issue in advising a remedy for the prevention of scab on Irish potatoes the types make us say a solution of 2 ounces of sublimate to 16 ounces of water. What we did say was 2 ounces of sublimate to 16 gallons of water.

EXPERIMENTS WITH INSECTICIDES ON IRISH POTATOES.

BUG DEATH, PARIS GREEN, AND ARSENATE OF LEAD COMPARED.

Three series of experiments were made during the season of 1902 with the purpose of comparing Bug Death, Paris green and Arsenate of lead as insecticides as measured by the readiness with which they kill the potato beetle and particularly, the yield per acre. One set of these experiments (5 plots) was made by the Danforth Chemical Company at Caribou; another (12 plots) by the Maine Experiment Station at Houlton; and another (9 plots) by Mr. E. A. Rogers at Brunswick. The Caribou experiment was also under the care of Mr. Rogers. The insecticides were used in conjunction with Bordeaux mixture, the plots being sprayed five times. The details of the experiments will appear in a bulletin of the Maine Experiment Station to be published as soon as the analyses of the potatoes are completed. The average yield per acre of merchantable potatoes from the plots in the experiments are given here without discussion.

AVERAGE YIELD PER ACRE OF MERCHANTABLE POTATOES.

EXPERIMENT AT CARIBOU BY DANFORTH CHEMICAL CO.

	Bush.
	per acre.
Bug Death	288
Paris Green	247
Arsenate of Lead	245

EXPERIMENT AT HOULTON BY MAINE EXPERIMENT STATION.

Bug Death	319
Paris Green	314
Arsenate of Lead	318

EXPERIMENT AT BRUNSWICK BY MR. ROGERS.

Bug Death	382
Paris Green	321
Arsenate of Lead	335

Orano, Me. CHAS. D. WOODS.
Director.

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ORCHARD PLANTING IN PIEDMONT VIRGINIA.

Mr. S. B. Woods, the president of the Horticultural Society, writes us that he is pushing the work of planting orchards in the Piedmont section. In one orchard they are planting out 10,000 trees this spring, and in another 20,000 trees. The owners of the latter orchard will then have about 54,000 trees planted. Virginia is fast making her way to the top of the list of fruit producing States. She now stands about the fifth, with over 10,000,000 trees planted.

LIME-SULPHUR-SALT WASH FOR SAN JOSE SCALE

In the West, especially in California, where San Jose scale and similar insects have been a great menace to fruit growing, the lime sulphur salt wash has become the dependable means of depression. Tested in the East, some years ago, it received an unfavorable report, as it seemed to wash off the trees by rains before exerting much destructive effect on the insects. But tests made by the Station at Geneva, N. Y., during the past season, show that, properly made, it adheres to the twigs and limbs remarkably well, even during such exceptionally wet weather as we had last spring.

In the tests more than seven hundred trees, in five orchards scattered well over the State, were treated with this wash. Only in one instance, when the foliage was too far advanced, was there any injury to fruit, leaf or twig, and this damage was slight. When applied before the buds began to swell, their opening was retarded a few days, but within two weeks or so all difference between treated and untreated trees, in this respect, had disappeared; but later the untreated trees continued to lose vigor and healthfulness through the work of the scale, while the treated trees were practically cleared of the pests.

The mixture is made by boiling together 40 pounds of lime, 20 pounds of sulphur, and 15 pounds of salt, in about 30 gallons of water. Boil for two hours; then add more water to make 60 gallons, and apply while hot, using a powerful pump and good nozzle.

PAWPAW AND PERSIMMON.

Considerable interest is being taken in Orange county, Ind., in the cultivation of the pawpaw and the persimmon. Already the latter has been doubled in size, the seeds reduced in size and number, and the puckery taste largely eliminated, so that the fruit, when placed on the city markets, finds ready sale. The growers have received substantial returns for their efforts, and as both wild fruits respond so readily to cultivation, they feel assured that there is a great future for them. Both are beautiful shade trees of rapid growth, and it is urged that farmers plant them along the roadsides for the benefit of the travelling public, where the trees can easily be cared for and given a chance to develop as well.

KAFIR CORN, SORGHUM AND MILLET AS FEED.

Editor Southern Planter:

I have tried Kaffir corn, sorghum and German millet with cow-peas for feed. I drill 1 bushel of peas and 1 peck of German millet per acre. I like the millet the best, it gives a much finer feed, and cures better than Kaffir corn or sorghum. As I have to cut with a mowing machine, I find that the rake will pick it up cleaner than either Kaffir corn or sorghum; but whatever is sown with peas let every farmer sow peas. It is the best cow feed given when properly cured, and brings the land into a better state of fertility at the same time.
Stafford Co., Va. AUG. SORGENFREI.

Live Stock and Dairy.

A FARMERS OBSERVATION ON FEEDING.

Editor Southern Planter:

Domestic animals cannot provide food for themselves, but are entirely dependent on their owner, who is responsible for their condition, and is rewarded for his labor and kindness, financially, in proportion to his knowledge and skill in the art of feeding. He is also compensated, morally, by the pleasure it always gives the righteous man to confer comfort and happiness on dependent creatures. "The righteous man regardeth the life of his beast." The "Good Book" makes kindness to animals the test of righteousness.

The subject of feeding to the best advantage has engaged the attention of farmers and herdsmen ever since the herdsmen of Abraham and Lot quarreled about the pasture and Jacob fed Lahan's cattle.

That able, careful and candid experimenters should not always be able to arrive at the same conclusions is not surprising nor derogatory to scientific research. It only shows that human knowledge is limited, and that different minds pursuing different courses of reasoning may arrive at different results. Experiments differ in spite of all painstaking, because they cannot be made under the same conditions.

The first and most important thing about feeding for profit is to supply the animals with the kinds of food in the qualities and quantities that will produce the most flesh or milk at the *least possible cost*. This problem most farmers must solve for themselves, because the different cost of feeding stuffs in different localities renders the experience of other feeders (though accurate for the places where made) unreliable in other regions. There is, perhaps, no investigator among the large body of able and educated men who has given the subject of feeding animals more study than the late Professor E. W. Stewart, or whose writings are more valuable than his. But there is such a difference in the capacity of different animals of the same species, age and size, to appropriate and digest food, that neither Professor Stewart nor any other person could prescribe a ration that would be exactly suitable for all. By my own experience in feeding I have found that animals with the most ravenous appetites are not always the ones that fatten the fastest, or can endure the strongest feeding without becoming cloyed. It may be their greed and hasty eating impairs digestion, and a portion of their food passes away without giving up the nourishment, and creates a looseness of the bowels not favorable to putting on flesh or secreting milk. Some of our fat-

tening steers that increased in weight the fastest were of a quiet, stolid disposition, ate their rations with great deliberation, and no matter how much meal was given to them, would never eat enough to cloy their appetites or bring on diarrhoea. When they left a little feed in their boxes I took it out before the next feeding time, and gave them a little less for the next meal.

The right quantity to be fed for the cheapest production of flesh or milk and the maintenance of the health of the animals, is the quantity they will eat up clean every time. I know of no better criterion. No animal can gain in flesh if only fed enough to keep it alive.

Inexperienced feeders are apt to feed too strongly, especially at the start. They are in a hurry to get their animals fat, and so crowd them with grain, thinking that is the right road to the end they have in view; but they soon find their animals refusing their food, their dung as thin as water, and that they have lost flesh instead of gaining any. It requires *time* to fatten animals, the business cannot be hurried, and it is better to feed too little grain than too much.

Most steers of 800 lbs. weight, after becoming gradually accustomed to it, will eat 8 quarts of corn meal per day to advantage, besides what hay or stalks they require. If corn and oats were of the same price per hundred I would grind equal parts of them together, and feed about 14 lbs. per day of the mixture. It is relished better, furnishes a more bulky ration to fill the stomach fuller, and does not become so compact as corn meal alone. There is not much doubt that it pays to cut the fodder, whether straw, stalks or hay, into half-inch pieces, wet the mass and mix the meal with it thoroughly, thereby securing a better digestion of the meal by having it raised and remasticated with the cut fodder to which it adheres.

Professor Sanborn does not believe in this mixing meal with cut fodder for cattle, but Professor Stewart recommends it, and my own experience sanctions the practice. When meal is to be put on cut straw, hay or stalks, I have enough rye ground with the corn and oats to make the meal and fodder stick together, so that the animals must eat the whole in order to get the meal. One bushel of rye ground with three bushels of corn and one of oats is sufficient for the purpose, or the oats may be left out entirely if oats are relatively dearer than corn and rye, which is frequently the case. Corn and rye are of the same weight, and usually the same price in this locality. Rye is not quite so fattening as corn, but when ground is a healthful, palatable food

for cattle, and improves the ration without adding to its cost. The most profitable feeding I ever did was to fatten a lot of ten steers which weighed 800 or 900 pounds each when first put up, almost entirely on cut straw mixed with rye and corn meal. I give each steer about a bushel basketful of straw moistened with water, and mixed with 7 lbs. of meal at each feed, and two feeds per day. Dry hay was fed after the cut feed was eaten, but it required very little to satisfy them. A greater gain will be made if each animal is supplied with a few pounds of roots every day in addition to its other food. There is not much fattening substance in roots, but they sharpen the appetite, assist digestion and promote the general health of the animals. There is no doubt that when ensilage is well preserved and fed in addition to hay and grain by adding to the variety of foods, it gives a change of diet which animals, as well as human beings, crave, and is favorable to the preservation of vigorous health, and the formation of flesh and milk.

Animals are not kept on the farm like canary birds, gold fishes and lap dogs, for amusement and playthings, but for profit, and the foundation law of feeding requires foods that will produce the greatest quantity of flesh or milk at the least possible cost. The next most important requirement is to secure the most perfect digestion and assimilation of the food after being eaten. This in my opinion, can only be done by grinding the grain in order that all its parts may be acted upon by the digestive organs of the stomachs. Another thing, the stomachs must be well filled in order that all the organs may have a chance to do something, instead of standing idle spectators of the work going on.

There must be some mistakes in the chemists' tables, as printed in the United States Report of the Department of Agriculture for 1894. The average amount of fat in corn kernels is placed at 5.4. The average amount of fat in corn meal at 3.5. Corn honestly ground will surely contain exactly the same ingredients, and in the same proportions as in the unground kernels. The average amount of fat in unground oats (by the same authority) is placed at 5., and the amount of fat in oat meal at 7.1. Either the chemist, the miller or the printer must have made mistakes.

According to the authority above stated, the richest thing in fats is peanuts without the shucks, 39.6; sunflower seeds, 21.2; cotton seed, with the hulls, 19.2.

J. W. INGHAM.

When corresponding with advertisers mention the *Planter*.

BUY THE BEST BREEDS.

Editor Southern Planter:

We are more and more impressed with the short-sighted folly of the men who buy cheap, inferior sires for their flocks. Every year we receive a limited number, usually about a half dozen, of letters like this:

"Please reserve me your best ram lamb; the best one you have to offer. I want him to be specially strong in ——— points, and I am willing to pay a good price for him."

It is a pleasure to deal with such a man. We frankly describe what we have, and if we think that nothing is good enough we cheerfully say so. Then comes another class of letters like this:

"I want a good ram, cheap in price only."

Well, we haven't got him, because we are not doing business for our health. Finally a man writes:

"Have you any \$10 or \$15 yearling rams for sale?"

We haven't. The ewes we have purchased have cost us an average of about \$35 each, and our rams from \$60 to \$100. When we have to raise rams from as high priced stock as this, kept on high priced land, fed high priced feed and tended by high priced help, and sell for \$10 a head, spending perhaps \$300 a year for advertising them and \$150 worth of time and postage in correspondence, we want somebody to help us out of the business.

But now, suppose a man pays \$25, or \$50, or \$100 for a ram. Suppose he has fairly good ewes—50 head of them. Suppose in a year he raises 50 lambs, 25 rams and 25 ewes. Suppose he sells of these rams 10 head at \$20 each, 10 head at \$25, 3 head at \$30, and 2 head at \$50, a total of \$640. Now, on the other hand, suppose he buys a \$10 ram for a like number of ewes of like quality and raises a like number of lambs. He sells his rams, 5 head at \$10, 10 head at \$15 and 10 head at \$20, a total of \$400. But suppose his customers are not quite satisfied, and, besides, he will want to save his ewe lambs, the best of them, and to gradually help out the average of his flock. Now he has saved fifteen whole dollars, maybe more, on his ram, and his first year's lamb crop has lost him the price of several good rams.

One of our greatest living sheep authorities says: "Always remember that an exceptionally good creature is worth ten ordinary ones." If the extraordinary ram has an earning capacity of \$250 a year over the common one, and if his period of usefulness be only 6 years, it makes \$1,500.

Woodland Farm has one ewe that we value at \$100. We would not sell her for a half more than that. She has twins at side, a ram and ewe. Now, suppose in the

next five years she raises six lambs. If we get \$50 each for 2, \$25 each for 2, and save two ewe lambs worth \$35 each, she will surely earn more than the \$100 valuation. We wish that we had a photograph of this ewe to show you, but have none at present. We shall hope to show you some of her lambs, and in the show ring.

CHAS. B. WING.

Woodland Farm, Mechanicsburg, Ohio.

GRAZING AND FEEDING EXPERIMENTS WITH PIGS.

The following plants were tested as hog food on the farm of the Experiment Station, at Auburn, the hogs doing the harvesting; these plants are available for use in the months indicated:

Spanish peanuts, August to December.

Chufas, November to March.

Cowpeas, July to November.

Sweet Potatoes, August to November.

Sorghum, July to November.

Vetch and oats, March, April and May.

Dwarf Essex rape (spring sown), May and June.

Dwarf Essex rape (fall sown), December, January, February, March and part of April.

In most cases it was found best to feed, in addition to the above crops, from one-fourth to one-half of the usual ration of grain. If we assume that of this grain 5 lbs. was required to produce 1 lb. of increase in live weight, we have left the following amount of growth of shoats attributable to one acre of each crop after deducting the increase due to the grain consumed:

An acre of peanuts in 7 tests averaged a net return of 333 lbs. of growth, now worth \$16.65.

Peanuts alone in two tests averaged 281 lbs., worth \$14.05.

Chufas in two tests averaged 307 lbs., worth \$15.35.

Cowpeas in two tests averaged 229 lbs., worth \$11.45.

Essex rape in two tests averaged 452 lbs., worth \$22.50.

Sorghum in two tests averaged 174 lbs., worth \$8.70.

One acre of the best of these crops (peanuts, rape and chufas), afforded pasturage for one month for at least 25 100-lb. shoats, when a half ration of grain was fed.

It usually requires about 5 lbs. of grain to make 1 lb. of growth in live weight of such shoats as these. However, when they grazed on the crops named below, 1 lb. of increase in weight required only:

1.77 lbs. of grain with peanuts.

2.30 lbs. of grain with chufas.

3.07 lbs. of grain with cowpeas.

2.68 lbs. of grain with rape.

3.70 lbs. of grain with sorghum.

3.13 lbs. of grain with sweet potatoes.

Pigs grazing on sorghum, fully headed out, ate only 12 per cent. less grain per lb. of growth than those supported entirely on corn.

Shoats fed on a mixture of corn meal and of 20 or 25 per cent. cotton seed meal in most experiments ate but

little food and made very slow growth. In other experiments they required only 3.84 and 4.68 lbs. of this mixture per lb. of growth.

The feeding of cotton seed meal as one-fifth or one-fourth of the grain ration for 34 to 38 days in most cases had a poisonous effect on shoats weighing from 59 to 118 lbs. each. No ill effect was noticed prior to the 33d day, and some pigs showed no perceptible ill effects on the 32d day.

Young pigs were more susceptible to injury from cotton seed meal than older shoats.

Peanuts fed up to the date of slaughter made a very soft lard. Chufas softened the lard to an almost equal degree. Sorghum did not soften the lard to the same extent.

Rice polish proved to be a better hog food than corn meal, 78.6 lbs. of polish equaling in feeding value 100 lbs. of corn meal.

J. F. DUGGAR,

Agriculturist, Alabama Experiment Station.

ANGORA GOATS.

Editor Southern Planter:

As I have had a few years' experience with Angoras, probably I can be of service to those contemplating buying them.

I think they are a wonderful animal and that every land-owner in Virginia can handle them at good profit.

They will do well on any kind of grasses and sod land, whilst at the same time they will thrive and fatten equally as well on brush land.

We do not have to dispense with our sheep or any other stock to make room for goats.

Last spring we pastured a fresh sodded field with sheep until June, and poke weeds had grown up in great clusters all over the field. We turned in our Angoras and in less time than three weeks not a stalk over 3 inches high could be found.

Even if we pasture them on our grass land, their fleece will pay for their keeping.

If nannies are properly cared for, will raise a kid every year for 15 years or more, which will bring as much as a well-bred lamb.

Our nannies are always kept to breed from, as the demand for them is rapidly increasing.

Wether Angoras are not butchered young like sheep. They live to a greater age, hence it takes longer to make their growth.

Wethers are generally sold with sheep at about the same price per pound, and after being dressed are called mutton (Angora venison), simply because there is prejudice against the old-time goat, as their meat was not palatable.

A short time ago a gentleman called in to dine with us. Fortunately, we had killed an Angora, conse-

quently had fresh mutton, and as we returned from the dining-room he smacked his lips and said: "Your wife certainly knows how to serve mutton."

It does not require a very high fence to turn Angora goats, but it must stand up straight, or they will walk up the locks.

I do not advise using barbed wire fence, especially of only four strands. The goats are liable to get fast reaching through between the wires.

Woven wire is preferable. Either board or rail makes a good cheap fence for us, as timber is plentiful.

I think it would be requiring too much of 50 Angoras to kill out underbrush on 135 acres of land, and it mostly a thicket. However, it might succeed if the lot is divided into smaller plots and use 50 Angoras on one plot at a time and then cultivate this plot when the Angoras are moved off to another plot.

Stockmen in Texas, New Mexico, Arizona and Kansas and in many Western States have become independent raising Angoras, and why can't we make a success at the business in Virginia?

Carroll Co., Va.

J. M. MARSHALL.

BOAR INCAPABLE OF SERVICE.

At the request of Mr. Thomas S. White, of Lexington, we publish the following remedy, which we recently advised him to use upon a very valuable boar pig, which had become incapable of serving a sow and which completely restored him to service. From the description he gave us, we came to the conclusion that the boar was suffering from ulceration of the sheath, caused either by an accident or from serving a diseased sow, We advised the thorough cleansing of the sheath by syringing with warm water, and then the injection by a syringe of a lotion made of 4 drams of Sulphate of Zinc, dissolved in a pint of water, to be used twice or three times a day.

Recent foals dropped at the Ellerslie Stud of R. J. Hancock & Son, Charlottesville, Va., are as follows:

Mermaid, dam of Merry Day and Eonic, by imp. St. Blaise, dam Palmetto, by Virgil, foaled on March 14th, a chestnut filly by Eon and was bred back.

Aurinc, by Eon, dam Sample, by imp. Rotherhill, foaled on March 16th, a chestnut colt, by imp. Fatherless, and was bred back.

Winter Cherry, full sister to Morello, by Eolus, dam Cerise, by imp. Moccasin, slipped her first foal (a colt), by imp. Fatherless, and was bred back.

Mention the *Planter* to your friends.

NEW MEAT FOODS FOR STOCK.

The farmer who is feeding only corn to his steers or hogs, literally, must have corn to burn. For years it has been a difficult matter to know where protein could be obtained at such cost that the farmer could afford to sell some of his corn and buy a protein feed with which to properly balance the remainder. The results of experiments quoted have surprised the oldest practical feeders of many States and would seem to indicate that the solution lies ready at hand in the large output of by products prepared in the packing house.

Many men object to the use of animal foods in the shape of blood meal or tankage. We do not find this objection well founded in actual practice. Hogs will greedily eat all kinds of refuse coming fresh from the slaughter-house. Many people have objected to the use of slaughter-house-fed animals, owing to the danger of disease infection. Packing-house foods are free from this objection. In their manufacture they are subjected to such a high temperature that any germs which might cause trouble are destroyed. In the first place, every animal which goes into the packing-house has passed a careful inspection by officers of the United States Bureau of Animal Industry, so that the danger of infection is reduced to a minimum.

These foods are cheap, clean and highly concentrated. It is not necessary to handle a large bulk in order to get the food constituents required. We do not believe in tablet rations, but recommend a wise and carefully planned system of feeding by which an animal will get plenty of bulk food and at the same time plenty of nutritive material. The following table will give a better idea of the relation existing between some of these feeds and the ordinary feeds of the farm. These analyses are authentic:

Feed—	Per cent. protein.	Pounds protein in one ton.
Corn .....	.08	160
Wheat bran .....	.12	240
Oil meal (O. P.) .....	.29	580
Cottonseed meal .....	.37	740
Digester tankage .....	.60	1200
Blood meal .....	.87	1740
Soluble blood flour .....	.87	1740

One of the by-product foods mentioned above is likely to become of great interest and importance to practical dairymen. We refer to soluble blood flour. This preparation has been tried and proved to be an excellent food to develop rapid growth in young calves feeding on skimmed milk. Different stations have found that blood meal absolutely cures and prevents scours, which causes so much trouble with skimmed-milk-fed calves.

Digester tankage is a food for hogs only. It is made from pure meat scraps thoroughly dried and carefully ground. Hogs eat it greedily, and, as noted before, make large and satisfactory gains.

Meat meal is a product of higher grade meat scraps, dried and ground, and is meeting with a large demand

from poultrymen who wish cheap winter eggs. Every practical poultryman knows that no food is a better egg stimulant than meat scraps, fresh from the butcher shop. Such scraps cannot be stored except in refrigerators during hot weather, so are not available to many poultrymen. Many of our best breeders of pure-bred swine are thoroughly alive to the fact that if they are going to develop proper bone in their breeding stock they must make a radical change in the methods of breeding, feeding and treatment. It has been a practice in Great Britain and Germany for many years to feed swine, especially early in life, liberal rations of ground bone. Ground bone contains a large amount of digestible protein, from twenty to twenty-five per cent., and is rich in phosphates, containing from fifty to fifty-five per cent. It will be readily seen that this material affords the swine breeder valuable help in overcoming the serious defect in his breed stock. In conclusion, we would say that we believe that a great future is in store for the use of animal foods. We believe that it is a matter of only a few years until every available material from our great packing houses will be converted into palatable and nutritive foods for the growth and maintenance of farm live stock.

Iowa

PROF. J. J. FERGUSON.

THE CHESTER WHITE HOG.

Editor Southern Planter:

This valuable breed of hogs originated in Chester county, Pennsylvania. They are the result of a cross of Bedfords upon the native hogs. Captain James Jeffreys brought a pair of white pigs from Bedfordshire, England, in 1818. These were crossed upon the native hogs and by careful selection and judicious breeding have produced the Chester white hog, a most desirable, well-formed, large-sized, easily fattened hog. The Chester white hog sprung into sudden popularity before there were enough genuine Chesters to supply the demand. As a result farmers sold all kinds of white pigs at fancy prices as genuine Chester whites. As a natural result, the Chester whites got a very bad name and it took them years to overcome this setback. Of recent years the value of the Chesters as good economical pork producers is generally recognized. The record that they made at the International Fat-Stock Show in 1901, at Chicago, gave them quite a boom. The Chesters won Sweepstakes prizes over all other breeds. My experience with the Chesters is that they are very fast growers, very healthy and easily fattened at any age. The sows usually farrow large litters, and they are good mothers. A few years ago I put up the runt pig of a litter of eight. The pig was just eight weeks old and weighed just 20 lbs. when put up, while its mates weighed about 30 lbs. each. The pig was put up on the first day of June, and was reasonably well taken

care of until November 21, when it was killed and dressed 197 lbs.

A neighbor butchered a Chester white pig of last May's farrowing. He killed it the week before Christmas, and it dressed 256 lbs. Some ten years ago I purchased my first Chester white boar and crossed upon a grade Poland China. I was so well pleased with the result that I decided to raise full bloods. They have proved to be the most satisfactory hog that I have ever tried. If there is mast they will take to the mast and do quite as good a job of ranging as the old native scrubs, and they will fatten much faster. If there is no mast they will pay much better for feed consumed than the hogs that have a reputation as rangers.

Albion, W. Va.

A. J. LEGG.

EARLY LAMBS.

Editor Southern Planter:

I would be very glad to have you inform me through the *Planter* what treatment should be given sheep to have them lamb early, say about January, which is the best time to have them in order to be ready for the early market, at which time you always get better prices than later in the season. I expect to keep grade Shropshire ewes and a thoroughbred Shropshire ram, which I think far ahead of all other breeds for all purposes. I have now 14 grade ewes and 25 lambs, therefore, I hardly think the Dorsets can excel that, for the Shropshire is not only prolific, but also good milkers as well. Any information on the breeding subject and how to have early lambs will be gladly accepted.

Albemarle Co., Va.

W. C. S., JR.

The first thing to be done to encourage early mating of the ewes is to get the present crop of lambs off as quickly as possible. After weaning turn the ewes into a short pasture and keep them in fair thriving condition, but with no tendency to becoming fat. In August put them on to a rich, full pasture and feed them a little grain, peas and oats daily, and turn the buck to them at night. They will usually soon accept service.—ED.

THE BROOD SOW.

Editor Southern Planter:

I see two mistakes in my article, "The Brood Sow," in March *Planter*, page 181, which you will please correct, as they are misleading. I begin taking off the pigs a few weeks before they are a month old. Take off two or three per day until all are off, and withhold all slop food a day or two before I begin taking off the pigs.

Goochland Co., Va.

N. S. WATKINS.

The Poultry Yard.

THE BROWN LEGHORNS

Editor Southern Planter:

The good qualities of the Brown Leghorn I find are far from being generally known.

So many questions are asked concerning them that I think it would be well to speak of some of their good points through the medium of your most excellent journal.

They are not, as many think, very delicate and hard to raise, on the contrary, I believe they are the hardiest chicken I know. If well cared for a few days after hatching, they need only to be fed to grow right off. I have raised fifteen from one hatch and shut them up only three nights, and I might say fed them very irregularly, as they left their house before I went out to feed, and spent most of their time around the stables.

In fact, I believe the Leghorn thrives best with little attention. They are great rovers, and will come nearer gathering their own food than any breed. They do not like confinement, and never live on good terms with other breeds. I find they lay much better kept by themselves. They have the name of being great egg producers, which is very correct. For all the year round no better layers are known. They never set unless advanced in years, when they cannot be trusted with the eggs to the hatching day. I have often had them kill chickens as soon as they left the shell, and still oftener to spoil the eggs in a few days after being trusted with them. I once set a Leghorn on a few of her own eggs, and put in three Plymouth Rocks to make up the right number. Several visits paid to her henship showed three eggs too few. I noticed that the yellow eggs were the discarded ones, which goes to show the discriminating power of the Leghorn hen.

One question I am often asked is: Aren't the Leghorns easy to frost bite? I never saw large combed chickens less susceptible to cold.

Naturally, the Leghorn is wild, and prefers out-door roosts, often choosing trees and open sheds. I have kept one hundred through the winter and only two show any signs of frost bitten combs, and they stayed with about fifty others under an open shed on an old wagon. I have had the Leghorn for ten years, and my father kept them, the first I ever saw in Virginia, gathering eggs daily in a peck basket, the envy of his neighbors, who were so anxious to exchange eggs with him.

For beauty, style, hardiness and laying qualities, I

cheerfully recommend the Leghorn. They are a little longer getting large enough to eat than the Brown Plymouth Rock, but are in every way as good with that exception, but very few persons would wish to eat such handsome chickens.

Albemarle Co., Va.

MRS. JNO. F. PAYNE.

PULLETS FOR LAYERS.

It is the pullets that do the late fall and early winter laying, and if we would have an abundant supply of eggs at the time of highest prices a goodly proportion of our birds must be early hatched and well-grown pullets. An experiment illustrating the doubled profits to be gotten from pullets as compared with year old hens was carried on at the Utah Experiment Station, Logan, Utah, a few years ago, and the results were most instructive. Two pens of old hens averaged 85 eggs apiece, while two pens of pullets averaged 170 eggs apiece—exactly double the number. The doubled number of eggs laid by the pullets does not rightly present the ratio of profit, however, because from one-half to two thirds of the increase comes at a time of decidedly higher prices, hence the proportion of profit is much greater. In this Utah experiment the average value of the eggs per hen was \$0.78, while that of the eggs per pullet was \$1.78. The food, cost, labor and interest on buildings, etc., is no greater for a pullet than it is for a hen, and it would seem to be the part of wisdom to have the bulk of our flocks early-hatched and well grown.

To keep away mites and lice from sitting hens, paint the inside of nest-boxes with crude carbolic acid. This has been used with perfect success for the past two years.

The idea that nature will supply both food and shelter must be banished before the hen can be made profitable. Houses must be built, food must be given and water and grit must be supplied.

Biddy's chicks are as strong as machine hatched ones. If given reasonable common sense care, she will give strong, fast growing chicks that will eventually bring good returns to the owner.

If furnishing eggs for table use is your branch of the poultry business, there is no need of having males in the flock. In fact, it is better to have none. It saves feed; it saves worry of the hens.

Though ducks are water fowl, they do better to be kept dry while wearing their downy cloths. Even waddling through wet grass is not helpful to their growth and development.

Bowel trouble that carries off many chicks when one or two weeks old may be often corrected by taking away their drinking water and giving scalded milk instead.

Hens enjoy scratching for a living. Give them the enjoyment and they will reward you with a good supply of eggs—provided their scratching is rewarded with finding grain.

Wheat contains a larger per cent. of albumen than any other grain and for this reason it is one of the best grains to feed for egg production. It should not be made an exclusive ration, however.

In buying an incubator get one that is run by simple rules—if the rules are long and complicated you may get discouraged before you master them and start the machine before you can run it successfully.

There is not a great deal of difference in the feeding value of buckwheat and wheat, pound for pound. Buckwheat is a good winter feed and may be fed as one feed two or three days in the week if it is not too high priced.

Don't forget about the lice. There may be thousands in your poultry house before you find one. Look for them and take measures to prevent them from getting started. Lice killers are plentiful and cheap, and they save a lot of money by preventing losses.

If the fowls are let out for a run through the only door in the hen house, be sure it is fastened open so they can go in at will, either through the day or at roosting time. The weather is uncertain in March and an open door is often needed to escape a sudden storm.

Every poultry house should have a platform under the roosts to catch the droppings. Such an arrangement allows all the floor space to be utilized for scratching purposes and lessens the work required to keep the house clean and sweet. Have a droppings board and clean it at least twice a week—six times would be better.

This is a good time to start your son or daughter in the poultry business. Let them care for the flock, market the produce and have the returns for their own spending. If they cannot get enough out of the flock to pay for their keep you inquire into the management and suggest the remedy, for poultry will pay if managed rightly.

At the South Carolina Experiment Station the past two seasons several remedies have been tried for sore head. The best results were obtained from the following mixture: Chloronaphtholeum one part, lard four parts. Mix well and grease the whole head. If in an advanced stage, wash the head in warm water to remove scabs before using.

Mention the *Planter* when corresponding with advertisers.

WHAT A SMALL FLOCK IS DOING.

Editor Southern Planter:

I have 20 Plymouth Rock and 16 White Wyandotte hens and six cocks. It has cost me to feed them during January and February $3\frac{3}{4}$ cents each per month, or $7\frac{1}{2}$ cents each for the two months. I have got an average of 31 eggs from each hen in the two months. You can judge for yourself from this whether it pays to put in any time with good poultry. I feed my chickens in the morning first green, cut bone and bran mush; next a liberal supply of green vetch, turnips and beets, and in the evening I feed corn, peas and wheat mixed together.

Iredell Co., N. C.

O. E. SHOOK.

INCUBATORS NECESSARY.

Recently we have been getting numerous letters from our subscribers asking us if we really think incubators necessary to the successful prosecution of the poultry business.

We certainly do think incubators necessary, or we would not use them, recommend them or urge their use by those who raise each year one hundred or more chickens.

We believe an incubator is just as necessary as any other form of improved machinery.

The farmer, the village poultry breeder, and the man in the city who likes poultry, may each derive much benefit from the use of incubators instead of relying on hens, always untrustworthy and never pleasant to handle nor easy to manage.

An incubator may be kept in a kitchen, cellar, bedroom or living-room without any offense to any of the senses.

There is no more odor to an incubator than there is to an ordinary kerosene lamp, and often not as much, for as a rule, the combustion of the oil in an incubator lamp is more perfect than it is in an ordinary house lamp.

As incubators are now made they are not unsightly, and look as well as ordinary house furniture.

We are thoroughly and unreservedly in favor of incubators.

Often we get a letter saying the writer has bought some certain kind of an incubator, but has not made as much of a success of it as has a neighbor who has another kind.

The trouble is almost invariably in the operator.

If our correspondents would trade incubators with their neighbors, they would probably not change their "luck" in the least, and their neighbor would continue to get good hatches and they would get poor ones.

The incubator has come to stay; is firmly fixed, and the poultry breeder who does not use them is falling behind the procession.—*Commercial Poultry.*

If you set any hens this month do not give them all the eggs they can possibly cover, for we may expect some cold days, and eggs are liable to be chilled if near the nest's edge.

The Horse.

A LIBERAL OFFER.

Mr. R. Harvey Barton, of Dublin, Pulaski county, Va., writes that he will be glad to allow his stallion Wilberforce, 2:21, by Pilot Wilkes, out of Nellie Green, 2:25, to serve three mares of approved breeding free of charge. If the mares are shipped to him the 1st of May or later he will keep them a month free of charge. He would prefer well bred Hul mares.

NOTES

The Virginia Horse Show Association is making active preparations for the greatest season of its career, and not only will larger prizes be offered, but more varied programmes be gotten out and a large number of novelties introduced. At a recent meeting in Washington twelve organizations were represented and a schedule of dates arranged that seems likely to meet with general approval. This schedule was prepared by J. T. Anderson, of Richmond; C. W. Smith, of Warrenton, and Charles Milliken, of Berryville. An amendment, however, was offered by J. J. Davies, of Manassas, and adopted to the effect that within fifteen days from the date of the meeting that the various horse show organizations in the association may have the days of the week allotted them changed to some other days in the same week, if desired. The Virginia Horse Show Circuit is an interesting one and yearly enlarges and grows more important. This is as it should be, as some great show horses are developed, while the impetus given the breeding of high-class harness horses, saddlers, hunters and jumpers is very decided and of much benefit to breeders and farmers in general. The dates of this circuit follow:

Leesburg, June 3, 4; Upperville, June 10, 11; Culpeper, July 3, 4; Manassas, July 21, 22; Orange, July 28, 29; Front Royal, August 5, 6; Berryville, August 12, 13; Harrisonburg, August 19, 20; Warrenton, August 26, 27; Charlottesville, September 2, 3; Lynchburg, October 7, 10; Richmond, October 12-17.

* * *

M. W. Savage, of Minneapolis, Minnesota, proprietor of the famous International Stock Farm, and of the elegant stock farm bearing the same name, which is the home of the noted stallions Dan Patch, 1:59½; Directum, 2:05¼, and Roy Wilkes, 2:06¼, is stocking his great breeding establishment with a band of brood mares in keeping with the sires in use there. Mr. Savage has recently purchased from W. J. Carter, the brown mare Alcyrene, 2:27¾, by Alcyone, dam Bessie Oliver, by Kearsarge, the son of Volunteer and famous old Clara, dam of Dexter, 2:17¼; Dictator, etc. Alcyone is in foal to Red Leo, 2:26¼, by Red Wilkes. The brown colt Featherbone, one year old, by Whalebone, 7872, out of Alcyrene, bred and owned by Mr. Carter, is a trotter and promises to develop both speed and race horse capacity.

* * *

Whalebone, 7872, the son of Abdallah Wilkes and Molly O., by Adallah, 15, owned by W. J. Carter, of this city, is making his third consecutive season here, and so well pleased with his foal are those who bred to him, that his book is fast filling. This horse is not only well bred, but has manners, style, speed and action that fit him for the show ring, and these qualities are uniformly transmitted to his get. That the latter are large and well formed is an item of great importance that should not be lost sight of by breeders, as such horses find ready sale now at paying prices.

* * *

The Ainslie Carriage Company, of south Tenth street, this city, of which David A. Ainslie is the head and moving spirit, reports a fine trade this season, which applies not only to business wagons and the like, but to pleasure vehicles of all classes, including landaus, broughams and family carriages. Particular attention is directed to the stock of the last named, especially to those designed for the use of farmers and others away from cities. The Ainslie Carriage Company is the oldest house of its kind probably in the South, and has enjoyed a long and continued prosperity on account of uniform fair dealing and strict attention to recognized business methods.

* * *

T. O. Sandy, of the Grove Stock Farm, Burkeville, Va., has made a number of sales recently and his patrons are well pleased with his method of doing business. Mr. Sandy is one of the most progressive, up-to-date farmers in the South, and has achieved an enviable degree of success. Through an advertisement in the *Southern Planter* he has recently sold to parties on the Eastern Shore of Virginia, the imported hackney stallion The Duke, by Silver Star, dam Lady Fanny, by Rob Roy. The Duke was brought to the above section by the late Captain Orris A. Browne, of Cape Charles, and from him passed to J. A. Jarvis, Eastville, who sold him to Mr. Sandy. The Duke left a number of promising colts around Cape Charles and Eastville, which induced his return to that section.

* * *

Wickham, the chestnut son of Willful and Ecliptic, who heads the Cedar Grove Farm of Mr. Harry Giddings, Ontario, Canada, is attracting attention as a sire in the Dominion of King Edward. Recently Mr. Giddings sold two of his get in Wire In, 4, and War Whoop, 2, both out of Lady Lightfoot, for \$7,000. Wickham was bred in the Bullfield Stud of the late Major Thomas W. Doswell, and was foaled in 1882. His sire, Willful, son of imp. Australian, formerly headed the Bullfield Stud, while his dam, Ecliptic, was one of the foundation brood mares. She was bred by Major Doswell and sired by imp. Eclipse, dam the ever famous Nina, by Boston. Wickham was a successful turf performer, and though well along in years, he is still siring speed and race horse quality.

BROAD ROCK.

Miscellaneous.

VIRGINIA POLYTECHNIC INSTITUTE, AGRICULTURAL AND MERCHANDISE COLLEGE, BLACKSBURG, VA.

The wonderful reputation which this most excellent institution has made during the last ten years under the direction of Dr. J. M. McBryde has resulted in such an influx of students during the past five years that the facilities afforded by the existing buildings are more than exhausted, and class rooms and dormitories are so overcrowded as to render good work and discipline difficult. The youths of this State have learned to appreciate the fact that what they need in order to insure success in life is a practical technical education rather than a merely literary training. They see that it is the men who know how *to do* something rather than those who merely know how *to say* something who are the ones wanted and who succeed in life. They realize that it is the youth who has had a special technical training for his calling, be it as a farmer, as an engineer or as a scientist who is wanted by the makers of the destinies of the country. As a result of this knowledge they clamor for admission to the technical college. Realizing this fact, and the impossibility of responding to the demand without further help from the State, the Board of Visitors of the Polytechnic Institute are applying to the Legislature of Virginia for an appropriation of \$140,000 to enable them to erect and furnish the required buildings and appliances, and for an annual grant of \$40,000 to enable them to maintain the fabric of the institution, and keep it fully equipped with the necessary scientific equipment to enable it to give the training for which it was instituted. Whilst realizing as fully as any one can do the necessity for keeping down the expenditure of the State and curbing all extravagance in order that she may be able to live within her income and avoid an increase of taxation, we feel constrained to support the Board of Visitors in their appeal, and to ask our readers to urge upon their representatives in the Legislature to give favorable consideration to the appropriation asked. The farmers of the State are deeply concerned in this question. The Polytechnic Institution is the only one in the State where their sons can receive free of cost for tuition special training in scientific agriculture, horticulture and fruit growing, and the president of the college informs us that they are realizing this fact, and that the students in the Agricultural Department now more than utilize all the accommodation which the board have provided. Unless the appropriation asked for is made the college

will have to refuse admission to any more students. It is a serious responsibility for the State to deny to its youth the opportunity of obtaining that training which is needed for success in life. We trust that the Legislature will realize this and make the appropriation, even though in order to do so it may have to deny some other appropriations which are being asked for. We think that the appropriation asked for the alteration of the Capitol (\$200,000) might well be postponed in favor of that for the college. The Capitol and new Library Building has met the needs of the State for public offices up to this time, and we think they might well continue to do for some years to come. The claim of the Polytechnic Institute is for help which is urgently and immediately needed to prevent the necessity for denying admission to the youth of the State to the first rung of the ladder on which they may mount to success. Such a claim as this ought to have priority over everything but the absolutely essential needs of economical government.

THE WASTING OF THE LANDS.

Editor Southern Planter:

I am encouraged by seeing that you put so much stress in your valued monthly on diversity of agricultural products, importance of live stock raising, grass, clover, peas, small grains, &c., as against too much cotton and other cleanhoed crops. And in this connection permit me to say that another ray of hope I have for our Piedmont sections is that the higher prices of meats, &c., coupled with the scarcity of farm labor, may soon lead or drive us hill-side farmers to adopt a more rational system of agriculture, one consistent with the topography of our country, and with the nature of our soil and climate. I mean practices which will tend to hold the sand and soil on the upland, where nature put it, and where it should be kept; for, doubtless, far more land in rolling regions is ruined by washing away than is impoverished by cropping. As a consequence of existing suicidal methods in many instances the beds of the streams are filled with sand, and the low-lands (formerly worth 5 times the upland, acre for acre) are in part, or totally abandoned, except possibly as cow pasture in dry summers.

More and more timber is being cut each year, more land cleared and cultivated if possible, and mostly in such a way as to furnish more and more sand to cover up the bottoms. The question naturally arises: What will we or posterity do forty years hence if this kind of work goes on and increases as it has done in the last forty years? Isn't it high time to call a halt and take our bearings? Talk about draining your bottoms when tons and tons of sand come in with every heavy rain! Go back to your hills and set things right there first,

and give nature a chance; she is as ready to restore as she is to waste, and more so.

I have noticed that some streams having from 25 to 35 feet fall to the mile are almost constantly clogged with sand. On the other hand, the Illinois river runs 250 miles with only about 28 feet fall in that distance, and still remains a river. The different surrounding conditions and methods of working and cropping lands are the key to the true solution of this problem.

I have watched with interest this trend of things for nearly forty years, and I must say that I deem it one of the biggest questions of the day, in a material way, and which must be grappled with in earnest, and the sooner the better. It means millions for weal or for woe.

But I must desist. Go on, Mr. Editor, with your work of reform.

Rowan Co., N. C.

J. K. G.

PROPERTY GONE IN SMOKE.

Editor Southern Planter:

Ever since the beginning the creation of property has employed intelligent people. Property has been the basis of support and arises from the hand of industry and economy. The marvelous waste of the products of labor by blind stupidity and recklessness, and the criminal use of fire, has been a besetting frailty of the ages, but now challenges the attention of modern civilization. The effort has been to succeed by increased toil and study despite the ravages of fires, which have been tolerated as a fatality. Intelligent thinkers consider conflagrations with their horrors, the creatures of cause and responsibility. They are blows directed not only against individuals, but against society and the State, the body politic. In this age of intensive thinking and investigation, the rude and barbarous customs of the past must give place to common sense and improved methods by which immense savings may be accomplished and the general welfare promoted.

That class of people with minds and dispositions hostile to private accumulations and public prosperity must be dealt with and cared for by the government arms. Their number is small and can be diminished by suitable discipline, and fire-waste may be reduced to the unavoidable minimum. It was a maxim at common law that an individual should suffer rather than the public be incommoded, but here the public suffers to indulge the base passion of the individual. The waste referred to in the February paper referred to the waste caused by forest fires. The lack of information in the census returns, and also on the part of the State on fire losses, is strange in view of the immensity and retarding influence upon the property and the country, and the destruction of life.

The Year Book, American Agriculturist, 1898, pp. 271-2, represents the fire losses in the United States from 1877 to 1896, inclusive, \$2,337,000,000. In the State of Virginia for 21 years at \$28,427,000. This appears to be insured property; the uninsured should be added, and this would probably increase the loss in Virginia to double. This data is obtained from "the great

problems of 1898 insurance." It is astounding to see the lack of sagacity and practical financial acumen which has permitted this great grievance to run on. If committed by a foreign power it would long since have been declared a cause of war.

Will the Assembly of Virginia take hold of this subject before it adjourns, and inaugurate remedial measures to be perfected as time shall suggest? The burning can produce something besides persimmons, broom straw of institutions of charity, schools, the university, seminaries, hotels, factories, towns, cities, private residences, country homes and property, and not least, precious lives, should command relief, if the ingenuity of man can devise it, increased revenue demands it. Turn attention to saving this waste to the relief of increased taxation.

Augusta Co., Va.

PRO. BONO PUBLICO.

A BIT OF EXPERIENCE IN FARMING IN VIRGINIA.

Editor Southern Planter:

Last October, twelve months ago (1901), I had on a small piece of ground corn, sweet potatoes and peas. That same month I sowed on that same piece one bushel of rye. The third week in the following April (1902), I began to cut it for feeding. The first crop was heavy; three weeks afterwards I cut the second crop, very fair; several weeks after this I cut for the third time a thin but well matured crop. In June I broke the ground with a one-horse plow and sowed peas and planted sweet potatoes, both of these crops doing well. I plowed the vines under the first of October, and seeded to rye again, this being the sixth crop put on the same land in one year.

If any brother can beat this I would like to hear from him. I write this to show you that "Old Fluvanna" and pretty girls.

Fluvanna Co., Va.

S. E. BEALE.

CONFEDERATE BAZAAR APRIL 15, 1903, RICHMOND, VA.

All over the South we have placed monuments to our private soldiers and sailors and their great commanders.

It now remains for the capital of the Confederacy to crown the whole by raising one to our first, our last, our only President, the head of our civil government—a government as wonderful as it was brief.

We owe this duty to ourselves, and to our children, that they may realize what a sublime record was made for them in history. The whole South unites in this loving tribute to the men who died to uphold that government, and to those who, with no less devotion, steered the Ship of State. What have you done to help us? What will you do to complete the work? We ask both your influence, and your sympathy, that we may build a monument worthy of our people and their deathless past.

This movement is endorsed by the United Confederate Veterans and the Daughters of the Confederacy.

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J. F. JACKSON,
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BUSINESS MANAGER.

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Remittances should be made direct to this office, either by Registered Letter or Money Order, which will be at our risk. When made otherwise we cannot be responsible.

We invite Farmers to write us on any agricultural topic. We are always pleased to receive practical articles, Criticism of Articles, Suggestions How to Improve THE PLANTER, Descriptions of New Grains, Roots, or Vegetables not generally known, Particulars of Experiments Tried, or Improved Methods of Cultivation are each and all welcome. Contributions sent us must not be furnished other papers until after they have appeared in our columns. Rejected matter will be returned on receipt of postage.

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PUBLISHER'S NOTES.

TO ADVERTISERS.

All advertisements and matter pertaining to advertising must reach us by the 25th of each month, please bear this in mind.

To Subscribers.

The season for subscribing to journals is fast drawing to a close. Work on the farm is beginning to tax the time and energies of the farmer to keep up with it, and little opportunity will now offer for inducing your friends to become readers of THE SOUTHERN PLANTER. We would, however, ask our friends to avail themselves of what time they can spare to give us yet another lift. Most farmers find time to attend the April Courts, as they have generally supplies of some kind to procure or have stock to sell or buy. When starting out for court, put your copy of THE SOUTHERN PLANTER in your pocket, and when an opportunity offers bring it to the notice of your friends, and secure us a few subscribers. This you can easily do, and at the same time benefit yourself by securing the terms which we offer to old subscribers who send us in two or more new names with the money for them. We have had a most successful subscription season so far, having within the past three months secured more new subscribers than ever before in the same time. We want, however, to add yet more to the list, and you can help us to do so. Will you try? We feel that it is not necessary for us to say one word in commendation of the journal. The thousands who read it and send us testimonials, unasked, as to its helpfulness to them, emphasize this point better and more disinterestedly than we can do.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

WOOD'S SEEDS.

Cow Peas
AND
Soja Beans
WRITE FOR PRICES.

We have issued two special circulars entitled, "Soja Beans vs. Corn," and "Cow Peas, The Clover of the South," which we will mail free to parties interested, upon request.

T. W. WOOD & SONS,
Seedsmen, Richmond, Va.

Spring Samples

FREE

Fine Suitings

with tape measure and self measurement blank.

You Save a half by Buying Direct from the Mill.

Suits guaranteed one year. Tailor made or ready made—equal to \$20.00 suits—our prices are

STYLISH SUITS
\$7.50 and \$10.

We buy raw wool and do all the rest under one roof, selling you these fine all wool suits direct. We call special attention to three facts: These suits have all hand shrunk collars, hand made buttonholes, padded shoulders. We invite comparison of our suits with suits costing \$18.00 to \$25.00 that are sold in the usual way. Every garment bears our label and is guaranteed for one year.

Men's all wool and worsted trousers \$2., \$2.50 and \$3. Handsonely made and trimmed. We have the cheapest, strongest and heat all-wool boys clothing. Also cloth by yard or piece and ladies' suitings and skirtings. Write to-day for samples, &c.
GLEN ROCK WOOLEN MILLS, Somerville, N. J.

CRONK'S
Improved
Staple Puller



IS AT THE FRONT. Ask your dealer to show it. Three wire cutters, two hammers, two splicing clamps—all in one tool. A Staple Puller that will pull staples when no other make will. A cutter that will reach wire when the button cutter will not. One day's use will save the cost of it. \$1.00, postage paid
CRONK & CARRIER MFG. CO., Elmira, N. Y.

WITH THE ADVERTISERS.

The Studebaker Bros. Mfg. Co., of South Bend, Ind., send us a very beautiful poster, showing a photographic reproduction of the original log cabin and blacksmith shop, which was the beginning of their mammoth enterprise, which is also shown. The lesson of the wonderful progress made by this firm is forcibly presented.

The Granite Poultry Yards are offering eggs from fine laying strains of Barred Plymouth Rocks and Silver Laced Wyandottes.

"The Cultivation and Storing of Sweet Potatoes," is the subject of a little pamphlet advertised for sale by Bryan Tyson in this issue.

T. W. Jarman reports that business is good in Pit Games, as a result of his advertising with us.

Hawkins and other fine strains of poultry are advertised by the Oakland Poultry Farm, Ruffin, N. C.

A. S. Craven is also advertising Pit Games elsewhere in this issue.

Baker's Jack Farm, Lawrence, Ind., issues a little pamphlet, containing 20 reasons why a farmer should raise mules. He will send it free on application.

S. P. Yoder is advertising Silver Laced Wyandottes in another column. He claims the Golden Rule for his motto.

The Onstad Chemical Co. is advertising its well-known Lumpy Jaw Capsules in this issue. This company will gladly mail a circular, giving testimonials as to the merits of this preparation.

Note the advertisement of the Castalia Herefords in this issue. Some splendid stock is offered.

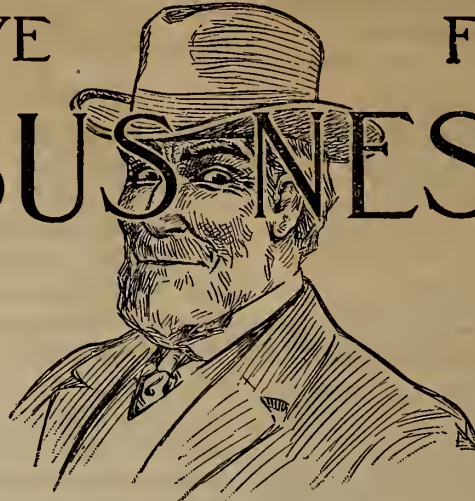
CATARRH CANNOT BE CURED

with LOCAL APPLICATIONS, as they cannot reach the seat of the disease. Catarrh is a blood or constitutional disease, and in order to cure it you must take internal remedies. Hall's Catarrh Cure is taken internally, and acts directly on the blood and mucous surfaces. Hall's Catarrh Cure is not a quack medicine. It was prescribed by one of the best physicians in this country for years, and is a regular prescription. It is composed of the best tonics known, combined with the best blood purifiers, acting directly on the mucous surfaces. The perfect combination of the two ingredients is what produces such wonderful results in curing Catarrh. Send for testimonials, free.

F. J. CHENEY, & CO., Props.,
Toledo, O.

Sold by druggists, price 75c.
Hall's Family Pills are the best.

THE FARMER WITH AN EYE FOR BUSINESS



PURCHASES

the McCormick whenever he wants a binder, reaper, mower, rake, corn binder, husker and shredder, or other harvesting machine, because he prefers machines that meet his requirements — machines that give him satisfaction — machines that are worth every dollar that he pays for them.

It will help your farming business to read the McCormick book, "A MODEL MACHINE," which is mailed free.

**W. K. BACHE, General Agent for
McCormick Machines, Richmond, Va.**

ORDER AND SEE THAT YOU GET

Pasteur Black Leg Vaccine

If not obtainable from dealers, refuse substitutes and wire your order to us. Over 20,000,000 calves successfully vaccinated with the original Vaccine during the last eighteen years. Powder form and Cord form both for Single and Double treatment.

PASTEUR VACCINE COMPANY, Ltd.,
CHICAGO - NEW YORK, - FT. WORTH - SAN FRANCISCO.

Save Time, Labor and Money

by having a threshing and power outfit of your own.

This No. 3 Pennsylvania Thresher and Cleaner and Roller Bearing Level Tread Power is the best individual outfit for threshing rye, barley, oats, fax, rice, alfalfa, millet, sorghum, timothy, etc. Will thresh and clean 100 to 150 bushels of wheat per day. Also made in two and three horse sizes. Power can be used for cutting ensilage and dry feed, shelling all kinds of grain, to run the saw, green bone cutter, pump water, separate cream, churn, etc. Also make lever powers, Feed and Ensilage Cutters, Grinders, Saws, etc. Heebner & Sons, 25 Broad St., Lansdale, Pa.



The Virginia Cattle Food Co. starts its spring advertising in this number. This company is sole proprietor of Mrs. Lea's Milk and Butter Purifier. That this preparation removes all taint of garlic or weeds from the milk and butter is amply attested by the numerous testimonials, which they will be pleased to send any one interested.

Slug Shot is offered our readers as usual this season by Benj. Hammond, Fishkill, N. Y. This well-known insecticide has been on the market over 20 years, as numbers of our readers know.

Look up the ad. and get circulars and other information in regard to it.

Thomas S. White, of Lexington, Va., offers 65 head of Shorthorn Cattle for sale. One-third of these are registered, one-third are entitled to registry, and the remaining third are grades. If you want some good stock you had better investigate this offering.

Laidlaw, Mackill & Co. have a half-page ad. of their well-known Sheep Dip and Cattle Wash in this issue.

The Filston Farm increases its space in this issue. There is always something good offered by this well-known firm.

In addition to its Keystone Corn Planter, the A. B. Farquhar Co. is advertising its splendid Threshing outfit.

A three-quarter Hereford Bull is offered by Mr. W. C. Reed.

F. W. Walter & Son will sell you a fine Piano and take stock in payment.

Look up the advertisement of the International Stock Food Co.

A NEAT BINDER for your back numbers can be had for 25 cents. Address the Business Office.

AN EXCELLENT WEEDER.

A weeder that takes a very high rank with the farmer is the "Keystone Adjustable," the advertisement of which appears elsewhere in our columns.



The adjustable feature, which permits it to be used at any extension between 30 inches and 7½ feet, makes

**FOUNDED
1802.**

GOLD MEDALS:
Paris, 1900. Pan-American, 1901.

Thorburn's Seeds

For over a hundred years have been universally recognized as the standard of excellence. They received the **GOLD MEDALS** (the highest award) both at the Paris Exposition of 1900 and at the Pan-American, 1901.

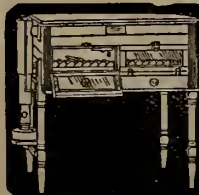
Our Catalogue

—the 102d successive annual edition—contains a more complete assortment and fuller cultural directions than any other seed annual published. It is beautifully illustrated, not with highly colored exaggerations, but with the finest half-tones from life photographs. It contains 128 large size pages, and in addition 16 full page half-tone plates, and is in every respect and without exception the most complete, most reliable, and most beautiful of American Garden Annuals. We will mail it free on receipt of 10 cents in stamps, which amount may be deducted from your first seed order.

Market Gardeners

are invited to send for our special price-list of high-class vegetable seeds for truckers and large market growers. It contains all sorts of approved merit.

J. M. THORBURN & CO.,
36 Cortlandt Street, NEW YORK.



THE HATCHING INSTINCT. The machine that adapts Nature's requirements and for years has been turning all fertile eggs into strong, vigorous chicks, is the **Petaluma Incubator.** Known everywhere by its works. Case of non-shrinking redwood, heaters of copper, self-ventilating, self-regulating. Devices the most sensitive and dependable. Supplies moisture for dry climates. Used all over U. S. with great export demand. Petaluma Brooder have no superiors. Fair prices and freight paid all over U. S. Write for latest free catalogue. **PETALUMA INCUBATOR CO.,** Box 46, Petaluma, Cal., or Box 46, Indianapolis, Ind.

INCUBATORS ON 30 DAYS' TRIAL. THE WORLD'S BEST STANDARD HATCHER.



Thousands of these incubators are in successful operation in the United States, Canada, South Africa, New Zealand, Sweden, England, Holland, and Germany. These machines operate to perfection and always bring off a large brood of strong, healthy chicks. Catalogue with full particulars free for the asking. **THE STANDARD F. C. INCUBATOR CO.,** Dept. 5, Rochester, N. Y., U. S. A.

When corresponding with advertisers, always mention that you saw their advertisement in the Southern Planter.

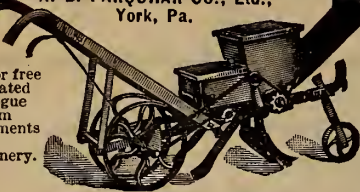
Profitable Planting

always results where a Keystone Corn Planter is used. Drops the kernels in hill or drills any distance apart and sows any kind of pulverized fertilizer with utmost satisfaction. Works well in any kind of soil. Does not crack the grain and plants beans, peas, etc. Frame is steel, making a durable machine which is a pleasure to use. You'll never regret the purchase of a

Farquhar Keystone Corn Planter

A. B. FARQUHAR CO., Ltd.,
York, Pa.

Send for free illustrated catalogue of farm implements and machinery.



Corn Planting

must be well and carefully done, as the future crop depends upon it. For all purposes, in any soil, on all kinds of ground nothing equals the



SPANGLER CORN PLANTER.

It saves time, labor, money and insures the crop. You know when it is working; you can see the corn on its way to the ground. Made with or without fertilizer attachment. New device for sowing peas, beans, ensilage, corn, etc. We also make the famous Spangler Low-Down Grain and Fertilizer Drill. Write for catalog and circ.

SPANGLER MANUFACTURING CO., 501 Queen St., York, Pa.

HENCH'S 20th Century Steel Bali Coupling Cultivator

With Double Row Corn Planter and Fertilizer Attachment Complete on One Machine.



Parallel beam movement, pivoted axle, with lateral beam movement in connection with the movable spindles, or either independent of each other. Centre lever for spreading and closing shovel gangs. The most complete cultivator on the market, having every possible movement of the shovel gangs.

Order immediately and introduce them for next season.

The HENCH & DROMGOLD CO. Mfrs., York, Pa.

Butler Cart

Entirely New Departure. Indispensable to Farmer, Gardener, Dairyman or Merchant.

Steel wheels and frame; sideboards removable; carries 500 pounds.



Tips forward and picks up a barrel or heavy article same as a warehouse truck. No heavy lifting.

First orders from new territory secures agency if desired.

Roderick Lean Mfg. Co.
MANSFIELD, O.



This can be used continuously around the farm, garden or house. Has 26 in. long, 2 1/2 in. wide, 15 in. deep inside. Capacity 50 cubic feet.

it very valuable—more so than a weeder without this feature, inasmuch as the different adjustments of widths permit it to be used for more varied purposes, such as fining and leveling unplanted acres and dragging and loosening the surfaces of grain fields, meadows, etc., as well as between rows, not only as a weed exterminator, but as a shallow cultivator. The absence of shafts make the weeder less cumbersome and enables the operator to work close to the fence. It has a wheel at its front which secures steady and smooth motion, which wheel, by a very simple device, can be made stationery or swivel. As heretofore, round or flat teeth are supplied on this weeder. For the information of our readers, we would say that the manufacturers of the "Keystone Adjustable" have been licensed by the Hallock Weeder Co. to use a flat tooth covered by their patent, 600,782. If interested in weeders, write the Keystone Farm Machine Co., York, Pa., for a little booklet they are distributing. Kindly mention this paper in writing.

MAGAZINES.

Of high importance among the magazine articles of the month is "The Restoration of the White House," written for the April Century by Chas. Moore, clerk of the Senate Committee of the District of Columbia, whose accounts of "The Improvement of Washington City" appeared in the Century for February and March last year. Mr. Moore tells in detail the story of the President's house, its first plans, its occasional remodeling, and all the design and accomplishment of the present restoration, an event full of interest to every American. In illustrating the article the Century has employed its best illustrative resources. The exterior drawings by Jules Guerin and the interior by Alfred Brennan, bring out the intention of the architects to a remarkable degree. The frontispiece of the number is a picture by Jules Guerin of the new East Entrance on the occasion of an evening reception. Mr. Brennan has made, among other pictures, double drawings of the new State Dining Room and of the new Blue Room. Miss Cecilia Beaux's portrait of Mrs. Roosevelt (with her daughter Ethel) is published for the first time.

Ray Stannard Baker follows up his general view of the Great Northwest in the March Century with detailed description in the April number of "Butte City, greatest of copper camps." "Few American towns," he says, "arouse a keener interest in the stranger at first glimpse than Butte City"; and most readers are likely to be surprised, if not thrilled, by the figures proving Butte City's claim to its high rank among the country's great wealth producers. In 1790 be-

GET A GOOD WIND MILL

Don't buy a poor wind mill. Don't pay a double price. Send direct to our factory for catalogue of the

Freeman Steel Wind Mills

and four post angle steel towers. A complete line of pumping and power mills of the highest grade at extremely low prices. We can save you money on a good article.

S. Freeman & Sons Mfg. Co.,
110 Hamilton St., Racine, Wis.

A complete line of Feed and Ensilage Cutters, Corn Shellers, Wood Saws, etc., at low prices.



BUILT TO LAST

Don't Monkey with anything but the **"PEERLESS,"**



If it is clean, unbroken peas you want. The "PEERLESS" is easy to operate, light to handle, strong and durable, elegantly finished. It will clean peas to perfection, also millet, sorghum seed and velvet beans. J. E. Sanders's latest improved, fully guaranteed. We pay freights. Write to-day for prices, address,

PEERLESS PEA HULLER CO., Box V, Dalton, Ga

THE IMPROVED SCREW STUMP PULLER

Write for Prices.



Chamberlin Mfg. Co., Olean, N. Y., U. S. A.

HERCULES STUMP PULLER



Clears an acre of heavy timber land each day. Clears all stumps in a circle of 150 ft. without moving or changing machine. Strongest, most rapid working and best made.

Hercules Mfg. Co., 413 17th St., Centerville, Iowa

Power in the Stream

is used to bring water to your house, barn or lawn by the

RIFE HYDRAULIC ENGINE.

The supply is constant, it needs no attention and runs at no expense. Lifts to any height, carries to any distance. Gives city advantages in country homes. Sold on 80 days trial. Catalogue free.



RIFE ENGINE CO., 126 Liberty St., New York.

THERE IS STRENGTH IN SPLIT HICKORY

SPLIT-NOT SAWED.

That's why we make all our vehicles of this superior material, why they last, wear and look right. No flaws covered with paint and varnish. Everything perfect. Our

Split Hickory Winner TOP BUGGY \$40

we will send you on **30 DAYS' FREE TRIAL**

Hitch up to it, use it freely. When the 30 days are up, if you are not more than satisfied send it back—the trial costs you nothing. Our free catalogue tells all about it and our other bargain offers. Send for it today. A full line of harness.

OHIO CARRIAGE MFG. CO., Station 41 Cincinnati, Ohio.



Our 1903 CATALOG Contains GREATER BARGAINS

145 styles vehicles than offered by any other manufacturer. Our wonderful offers will surprise you. We use the best material and guarantee every rig for 2 years. If the buggy you buy from us is not better in every way than you can get elsewhere then return it and a rubber tire top buggy, \$15.00. —145 other equally big values. Cut out this ad, send it to us and we will mail you catalog free.

MARVIN SMITH CO., Chicago, Illinois.



AGENTS WANTED

In every community to make good money selling our Economy Buggies and Harness. Our vehicles are so good and our prices so low that they will surprise you. Write at once for plan and free catalog. Top buggies, good lookers and serviceable for \$27.50


Economy Buggy Co., Box 3, Cincinnati, O.



The "Weber Junior" Pumper

Is all complete, ready to attach to pump. Equals 30 men pumping water. Uses but little gasoline. Is shipped crated completely erected, all connections made. Easy to start, any one can operate it. Every one guaranteed. Other sizes up to 50 H. P. Send for catalog. Weber Gas & Gas Co., Engine Co., Box 128, Kansas City, Mo.

2 1/2 H. P.



ATEST DEHORNER (Newton's Patent.)

Every Dehorner Guaranteed THOUSANDS IN USE.

Ask your hardware dealer for them or write **E. H. BROWN MFG. CO., DECATUR, ILL.**



gan the taking of the country's first census. Taking the census of these United States even then was not an easy task. To-day; in spite of all the help of modern mechanical invention, to secure the necessary decennial snap shot of the nation is a herculean undertaking. "The Evolution of American Census-Taking" is discussed in the April Century by no less an authority than the director of the census himself, the Honorable W. R. Merriam. There is another of "The Great Business Combinations of To-Day" series, J. D. Kelley, Commander United States Navy, telling the story of "The So-Called Steamship Trust." "A Picturesque Politician of Jefferson's Time," by J. Fairfax McLaughlin, recounts incidents in the life of Colonel Matthew Lyon. Francis E. Leupp's "Some More Humors of Congress" throws amusing sidelights on that august body, and should prove a mine for all who want another good story to tell. Topics of the Times discuss "The Restored White House," "Shocks to National Pride," and "The Genial in Literature;" and the other departments are not lacking.


The leading article in the April-June Forum is a review of "American Politics" by Henry Litchfield West, who deals particularly with the legislation of the last Congress, the fight on the Statehood Bill, the suggested nominations for the next Presidency, and the appointment of colored men to Federal offices. A. Maurice Low discusses the most important "Foreign Affairs" of the quarter, with special reference to the revival of the Eastern Question and to the internal and external politics of Germany. Alexander D. Noyes treats of the events and tendencies of the same period in the world of "Finance." Recent progress in "Applied Science," especially in engineering, is described by Henry Harrison Suplee. Literature is represented by a review of Sidney Lee's "Life of Queen Victoria," contributed by Prof. W. P. Trent. Under the heading of "Music," Joseph Sohn sets forth the "Lessons of the Operatic Season." A paper on "The Educational Outlook" is contributed by Osian H. Lang. Dr. J. M. Rice's "Educational Research" for the current quarter takes the form of a discussion, based on his investigations in public schools, of the respective importance of talent and training in teaching. The special articles concluding the present number are "The Present Estimate of the Value of Human Life," by Prof. Rudolf Eucken, of Jena, "The Scope of a Permanent Tariff Commission," by Albert H. Washburn, and "A Rambling Discourse on Submarine Navigation," by Comdr. F. M. Barber, U. S. N., retired.

It will be difficult to find a more attractive magazine for the entire household than the April "Success,"


Wise Man's Wagon.

The man who has had experience in running a wagon knows that it is the wheels that determine the life of the wagon itself. Our **ELECTRIC STEEL WHEELS**

have given a new lease of life to thousands of old wagons. They can be had in any desired height and any width of tire up to 8 inches. With a set of these wheels you can in a few minutes have either a high or a low down wagon. The Electric Handy Wagon is made by skilled workmen of best selected material—white hickory axles, steel wheels, steel fenders, etc. Guaranteed to carry 4000 lbs. Here is the wagon that will save money for you, as it lasts almost forever. Our catalog describing the uses of these wheels and wagons sent free. Write for it. **ELECTRIC WHEEL CO., BOX 146 QUINCY, ILLINOIS.**



WE'LL PAY THE FREIGHT and send 4 Buggy Wheels, Steel Tire up, - \$7.25 With Rubber Tires, \$15.00. 1 mg. wheels 3/4 to 4 in. tread. Top Buggies, \$28.75; Harness, \$3.60. Write for catalogue. Learn how to buy vehicles and parts direct. **Wagon Umbrella FREE. W. V. BOOB, Cincinnati, O.**



BOSTROM'S IMPROVED FARM LEVEL Pat'd 1902. WITH ANO WITHOUT TELESCOPE

Is no MAKESHIFT, but the best one made for Terracing, Ditching and Drainage. Price \$5 and \$10, including Tripod and Rod. Send for descriptive circulars and Treatise on Terracing, etc., Free.

Bostrom, Brady Mfg. Co., 31 1/2 W. Alabama St., Atlanta, Ga.



STEEL ROOFING

Strictly new, perfect, Semi-Hardened Steel Sheets, 2 feet wide, 6 feet long. The best Roofing, Siding or Ceiling you can use. No experience necessary to lay it. An ordinary hammer or hatchet the only tools you need. We furnish nails free and paint roofing two sides. Comes either flat, corrugated or "V" crimped.

\$2.00 PER SQUARE. A square means 100 square feet. Write for free Catalogue, or a Farm supplies of every kind. **CHICAGO HOUSE WRECKING CO., 7. 35th & Iron Sts., Chicago**



Announcement

We have obtained the Court's decree against two additional manufacturers who have been infringing our patent. The rule of law is: "The maker, seller or user of an infringing device are all liable in damages to the owner of the patent infringed." The Janesville Machine Co. and the Keystone Farm Machine Co. are the only firms licensed to use a flat tooth covered by our patent, and we finally warn sellers and users of all other makes. So admirably have the 60,000 "Hallock" Weeders done the work for which they were designed, that one maker after another sought to copy it. However, by the various Courts' decisions, these makers are compelled to abandon the manufacture of a Weeder having flat teeth, and they are now experimenting with other shapes; but it is the flat tooth that made the "Hallock" Weeder famous, and in view of the manner in which our patent has been sustained, it is dangerous to use an infringing tooth. Write for descriptive circulars and prices.

HALLOCK WEEDER & CULTIVATOR CO., Box 839 York, Pa.





DUST SPRAY.

Write to the
DUST SPRAYER M'F'G. CO.

At

503 Broadway, Kansas City, Mo.

Asking them for information relative to their Dust Sprayer, which has many advantages, and is something every Fruit Grower, Cotton Planter, Tobacco Grower and Truck Gardener should be familiar with.

SPRAYER
THROWS A STREAM 60 FT. OR MORE.

IT is beyond question the most perfect and effective SPRAYER and FIRE EXTINGUISHER ever invented, and supplies a universal want. In variety of service, simplicity of construction and ease of operation, it has no equal. Ask for catalogue and price, which costs you nothing. AGENTS WANTED.

F. B. SMITH MFG. CO.,
333 MAIN ST. BUFFALO, N.Y.

A BIG CROP OF FRUIT
and dollars in your pockets if you spray your trees and vines with the wonderful

HARDIE SPRAY PUMPS

They put the Spray on with such force that tree and vine is covered with a spray as fine as fog and it stays there. Each part of their machine is fitted so accurately that there is no friction. That's why they work so easy. Our catalogue tells the whole story. It is FREE, a postal card will bring it.

A. M. HOLLOWAY Eastern Agent
Builders Exchange, Philadelphia

which has just appeared. It is filled with a variety of good things for people, young and old. The opening article, "Burrowing in the Nether Gloom of the Hudson's Bed," by Frank Fayant, interestingly describes the difficult work now being done in tunneling under the Hudson river, New York, in order to connect New York city with New Jersey by a direct rail route. Owen Kildare, whose life-story, "My Rise from the Slums to Manhood," appeared in the February "Success," creating almost infinite attention, has written a true story of his dog. It is entitled "My Good Old Pal," and is thrillingly interesting. In keeping with Eastertide, is a touching poem, "An Easter Song," by Richard Le Gallienne. The same writer has also contributed a valuable article on "How to Form a Library," which gives some excellent advice on collecting books for a library at a moderate expenditure. Mrs. Charlotte Perkins Gilman, in an article entitled "The Home as a Food-Purveyor," deals with the problem of home-cooking, and attributes many ill effects to the general mode of preparing food.

G. W. Orton, who won the American cross-country championship in 1897, and who is the two-mile world's steeplechase champion, in the April St. Nicholas tells his young readers about "Training for Interscholastic Athletics," with some helpful points for instructors and parents as well.

The same authority will follow this article with another in the May St. Nicholas on pole-vaulting, throwing the hammer, broad-jumping, high-jumping, and other timely athletic sports.

Lippincott's Magazine has won a reputation for its monthly novels. That in the April number, a stunning good one called "The Trifler," is written by Archibald Eyre, an English author of rising fame. "The Trifler," a member of London's smartest society, has a kind heart and an almost too keen sense of humor. He is appealed to by his new sister-in-law to extricate her from an appalling situation. A man to whom she had once been engaged and had jilted for Sir Gerald Trewint has had her love-letters printed "for private circulation only." "The Trifler," having himself felt the brunt of his brother's anger, shows quick sympathy for the bride and rashly promises assistance. In executing a plan to effectually stop the whole thing, he is taken for a thief. This leads to some delicate predicaments and amusing escapades. "The Trifler" shows he can be earnest enough in winning the girl he ardently loves.

The number closes with a laughable story by Elliott Flower. An amateur hypnotist puts up a joke on his sister's lover, which might have been

Feed Your Land

with fertilizers rich in

Potash

and your crop will crowd your barn.
Sow potash and reap dollars.

Our five books are a complete treatise on fertilizers, written by men who know. Write for them.

GERMAN KALI WORKS,
93 Nassau Street, New York.



Fertilizer Chemicals for Home Mixing

Nitrate of Soda

Nitrate, Sulphate and Mariate of Potash, Acid Phosphate, etc. Write us for prices

GENUINE PERUVIAN GUANO

Analyzing 4 to 5 p.c. Ammonia, 18 to 20 p.c. Phosphoric Acid 4 p.c. Potash.
Price, \$28.50 per ton, F. O. B., Charleston or Baltimore.

E. MORTIMER & CO., 9 William St., New York

SAN JOSE SCALE and other insects can be controlled by using

Good's Caustic Potash Whale Oil Soap, No. 3.

It also prevents Curl Leaf. Endorsed by entomologists. This soap is a fertilizer as well as insecticide. 50 lb. kegs, \$2.50; 100 lb. kegs, \$4.50. Half barrels, 270 lbs., at 3 1/2 c. per lb.; barrels, 425 lbs., at 3 1/2 c. Large quantities, special rates. Send for circular.

JAMES GOOD,
939-41 N. Front St., PHILADELPHIA, PA.

AGRICULTURAL and BUILDERS' LIME

Send for Circulars and Price-List.
FELLSWORTH LIME WORKS
REEVES CATT, Agent,
Bodley, Augusta County, Va.

FRAZER

Axle Grease

Best in the world.

Its wearing qualities are unsurpassed, actually outlasting 3 bxs. any other brand. Not affected by heat. Get the Genuine.

FOR SALE BY ALL DEALERS.

MANLOVE SELF OPENING GATE



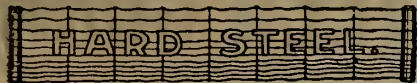
Order Now. It is dangerous to wait until the flowers have pistils and the bulrushes out and the grass springs up.

Catalogue free
MANLOVE GATE CO.
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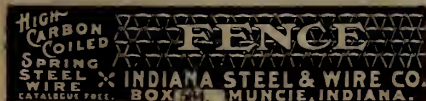
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REPORTS.

U. S. Department of Agriculture, Washington, D. C. Bureau of Animal Industry. Circular 39. The Water Content of Creamery Butter.

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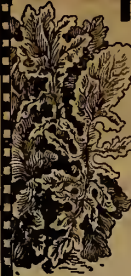
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American Farmers' Manual, 1903. Peter Henderson & Co, Cortland street, New York. Catalogue of Seeds, Grasses, Clovers, Cereals, Forage and Root Crops.

J. B. Watkins & Bro., Hallsboro, Va. Nurserymen. Surplus list of Trees, etc., for spring 1903.

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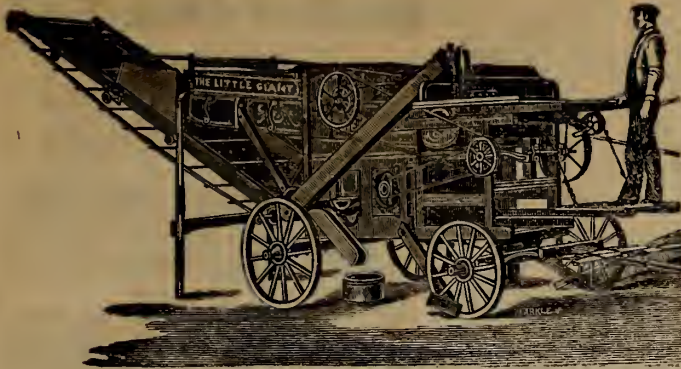
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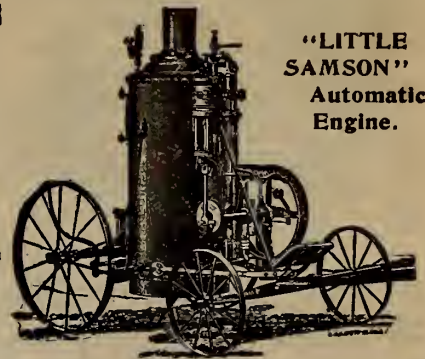
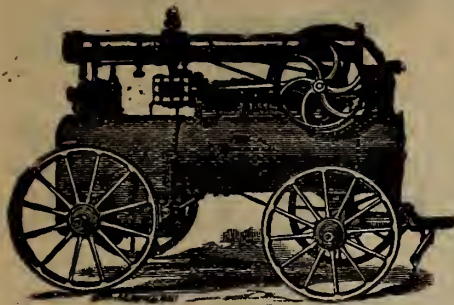
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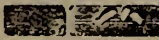
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Price—1 peck 75c.; ½ bus. \$1.50; 1 bus. \$2.50.

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A large eared, deep grained Early White Corn with 16 to 24 rows on a cob and stalks 13 to 15 feet high; usually two ears to the stalk and yielding an abundance of fodder. This Corn is very productive and makes the best table meal.

Price—1 peck 45c.; ½ bus. 85c.; 1 bus. \$1.25.

Early Yellow Variety.

Popularly known as Huron Dent. Most perfect-shaped ear and most reliable Early Yellow Corn ever introduced. Planted May 10th, cut, and in shock by the latter part of August.

Price—1 peck 30c.; ½ bus. 60c.; 1 bus. \$1.00.

Snow White Dent.

It has medium ears, and grows very large, compact close set grains, well filled out, the cob being medium size, very white, and requiring grains to span it, and weighing about 7½ lbs. per 70 lbs. of ears. Another point, Snow White Dent matures a good yield during droughty years, growing along side of other corn that makes little or nothing. Taking all points into consideration, Snow White Dent is the coming white variety for milling and all other purposes. To-day there are more than 30 articles made from white corn, and Snow White Dent is the best one for all purposes.

If you want the best white corn in America, you cannot make a mistake by planting Snow White Dent. The year 1901 was the first time it was offered for sale by any one, when it brought \$5.00 per bus. and no more than one bushel was sold a single customer. We are now able to offer it in quantity, but in any event, solicit early orders, as there promises to be a larger demand for all variety of seed corn during the coming season than for many years past. We reserve the right at all times to decline orders for more than one bushel.

Price—1 peck 45c.; ½ bus. 85c.; 1 bus. \$1.50.

SEED CORN

The Prize WHITE DENT Corn. The seed were obtained last year from Epitomist Experiment Farm, Indianapolis, matures in 90 days, and grows about about like Southern White Corn. A heavy yielder. Price, \$1.40 per bus., 75c. per ½ bus.

W. RUSSELL, Abbyville, Va.

"Feeds and Feeding"

Prof. Henry's Great Book for
Farmers and Stockmen.

Delivered anywhere for \$2.00
With the SOUTHERN PLANTER, 2'25

NO HUMBUG. Three in One.

Fine V. Stock Marker and Calf Identifier. Stops and prevents worming. Makes 48 different ear marks. Extracts Horses. Price \$1.50. Send \$1 for trial. If suits, send balance. Pat'd May 6, 1902. Hog and Calf Holder only 75c.

FARMER BRIGHTON, FAIRFIELD, IOWA.



CONFERENCE FOR EDUCATION IN THE SOUTH.

The Sixth Session of the Conference for Education in the South will be opened in Richmond on the afternoon of Wednesday, April 22d, and will close on the evening of the 24th.

The decision to hold the Conference this year in Richmond was reached only after the Executive Committee had given careful and respectful consideration to the invitations from a number of representative Southern cities. The invitation to Richmond was cordially and earnestly presented by the Richmond Education Association, the Richmond Chamber of Commerce, the Governor of Virginia, the Legislature, the State Department of Education, the University of Virginia, Washington and Lee University, and many other representative institutions of the Commonwealth.

The conference will open for organization in Richmond on the afternoon of April 22d, in the Academy of Music, on Eighth street, between Grace and Franklin streets. The formal opening will occur on the evening of the 22d, at which time the Hon. A. J. Montague, Governor of Virginia, will deliver the address of welcome, and Mr. Robert C. Ogden will present the annual address of the president.

The interest of the programme will continue until its close on the evening of the 24th. Representative educators, statesmen, men of letters and men of affairs will be present from every section of the country. Much importance will be given to such subjects as agricultural and technical education, and there will be opportunity for informal discussion of such topics as the consolidation of schools and the improvement of public school-houses and school surroundings. The conference has always been especially interested in the problems connected with the rural school.

The local arrangements as to the meeting are in the hands of the Executive Committee of the Richmond Education Association, P. O. Box 688, Richmond, Va. The programme, in full, will be published at an early date. The plans for the week will include a public service in memory of Dr. Curry.

Arrangements as to reduced fares over the railroads, and as to hotel and boarding-house accommodations, will be announced within a few days.

M. W. Savage has refused an offer of \$70,000 for Dan Patch. The famous pacer cost Mr. Savage \$60,000 about three months ago. He bought the stallion in New York city, and now eastern men are so anxious to get him back that they telegraphed the offer.

Horsemen doubt whether Mr. Savage would entertain any proposition for the pet of his stock farm. At any rate, the strong increase of \$10,000 in

A Package of the Famous American Stock Food FREE.

Send us the names of ten of the best farmers and stock raisers in your vicinity, and we will mail you, post-paid, a sample package of American Stock Food.

THIS IS THE COMING STOCK FOOD.

Every package guaranteed. Every full-sized package has on it picture of Uncle Sam. None genuine without.

AMERICAN STOCK FOOD CO., Fremont, Ohio.



150 Jacks, Jennets & Mules 150

Best assortment I ever owned. Can suit you exactly. Write for description and prices. Also will sell two Percheron stallions at close figures. BAKER'S JACK FARM, Lawrence, Indiana.

FINE JACKS.

Mules are equal to Gold Dollars, from "youth to old age." Several nice ones and 2 very fine Jennets for sale. Buy Jack now and get him ready for spring. Write your wants to

L. L. THOMAS,
722 W. Campbell Ave., - Roanoke, Va.



JACKS and JENNETS

FOR SALE.

Enclose 2 cent stamp for new catalogue.

W E KNIGHT & CO.,
R. F. D. 5 Nashville, Tenn.

FOR SALE ANGORA GOATS.

Registered and Grades. "One to carload lots." Pairs, \$10.00; trios, \$17.00. Write for carload prices.



JEREMY IMPROVEMENT CO., - Saxe, Va.

ANGORA GOATS are handsome, hardy and profitable. For large circular address E. W. COLE & CO. Bg Clifty, Ky

"HARVEST FOR HULLING AGENTS. Send 30c. for sample corn sheller, just out. Illustrated catalogue of quick selling goods furnished free. Southern Novelty Works, Richmond, Va."

GRANITE POULTRY YARDS.
EGGS! EGGS! EGGS!

From fine laying strain of

Barred Plymouth Rocks

And

Silver Laced Wyandottes.

I will send you nice, fresh layed Eggs, and fill your order promptly. Eggs \$1 per sitting of 15, at express office, Salisbury, N. C. No more birds for sale at present.

Mrs. JOHN D. A. FISHER,

R. F. D. No. 3, Salisbury, N. C.

PURE BRED, PRIZE-WINNING FOWLS

MAMMOTH BRONZE TURKEYS

We have the winning pen of Madison Square Garden Show. Gobbler weighs 45 lbs.; hens, 26 lbs.

PEKIN DUCKS.

Prize-winning drake at Philadelphia and New York Madison Square Garden. Young ducks weigh 14 lbs. per pair.

PLYMOUTH ROCKS, Barred and White. WHITE HOLLAND TURKEYS.

A limited number fowls and Eggs for Sale. Also pure bred POLAND CHINAS, SHETLAND PONIES, HORSES, and RED POLLED CATTLE, the milk, butter and beef bred. ALBEMARLE PROLIFIC SEED CORN.

ARROWHEAD STOCK FARM,

Sam'l B. Woods, Prop. Charlottesville, Va.

HOLLYBROOK FARM

Eggs FOR Incubators

We can name a special low price on Barred Plymouth Rock Eggs, first-class stock, in 100 lots and over, for Incubator use. Write for price, stating number required.

HENRY W. WOOD,

Hollybrook Farm. P. O. Box 330, RICHMOND, VA

We also have a few first-class Pullets of Silver-Laced Wyandottes for sale: Price, \$1.50 each.

The Racket Poultry Farms,

A. S. JOHNSON, Man., Parksley, Va.
Breeder of High-class Land and Water Fowls.
BLACK LANGSHANS, RHODE ISLAND REDS, S. C. BROWN LEGHORNS, TOULOUSE GEESSE, PEKIN DUCKS and BELGIAN HARES.
Geese eggs, 25cts. each Langshans, Rhode Island Reds, \$1.25 sitting, others, \$1.00. Our birds are bred from winners at largest shows, and have the range of three farms. Satisfactory guarantee.

EGGS EGGS EGGS

That will hatch out DOLLARS. Not real dollars, but Turkeys and Chickens of the best strains in this country, which will net the owner more real dollars of profit than any others. I handle "Nothing but the Best" in my line. My prices are higher than some others, but the quality more than makes the difference. National strain, Mammoth Bronze Turkeys, sitting \$2. National strain, Barred Plymouth Chickens, sitting 15, \$1.50.

PIEDMONT POULTRY PLACE,

Miss E. Cal le Giles, Prop., Whittle's Depot, Va.

S. C. W. LEGHORNS. Pure stock. Bred to lay. Eggs, \$1 per 20.
IDEAL POULTRY YARDS, Kopp, Va.

the market price within the short space of 100 days was not too great a temptation.

Tuesday morning Dan Patch will be removed from the Savage private stable on Portland avenue to the International Stock Food Farm on the Minnesota river. An arrival of interest yesterday at the farm from Pleasanton, Kan., was the first Dan Patch colt to be brought to Minnesota. Mr. Savage has bought a half interest in the stud colt and he will live at the farm. The colt was foaled January 6th and \$1,000 was offered for him before he finished his first day. The colt is named "Young Dan." His first dam was Cedar Belle and his grandmother Oleta.

Henceforth "Savage" will be a station on the Omaha road. The officials have notified Mr. Savage that they will call the farm station Savage hereafter instead of Hamilton.—*From Minneapolis Journal, March 14, 1903.*

GOOD ROADS vs. WIDE TIRES.

The question of good road-making is now being agitated pretty generally throughout the United States. In this connection we are glad to note that wide tires are coming into prominence. This is just as it should be, because if there is one thing that contributes to make a good road it is a broad tire.



We reproduce herewith, by the courtesy of the Electric Wheel Co., Quincy, Ill, a cut, which shows the relative advantage of the broad over the narrow tire. The advantage of the former is apparent to all, as, in addition to making good roads, it reduces the draught, thereby making the load much lighter on the horses.

The above company makes all kind of metal wheels, and has some interesting literature, which it will send free to any one requesting it.

Address them at Box 146, Quincy, Ill.

A CHANGE.

"Well," said Noah, as he hunted for a dry spot on the top of Ararat, "a lot of people came down to the pier to josh us when we started, but I don't see any of them around to poke fun at our home-coming."—*Life.*

To make cows pay, use Sharples Cream Separators. Book "Business Dairying" & Cat. 305 free. W. Chester, Pa.

LEGHORN POULTRY YARDS



Have for sale a limited number of Single Comb Brown and White Leghorn Pullets and Roosters. Best layers known. Prize-winning stock. Price, \$1.00 to \$1.50 each. Eggs in season at \$1.00 for 16; \$5.00 per 100. Satisfaction guaranteed. Address

A. T. MATTHEWS, Box 36, Parksley, Va.

BROWN LEGHORNS

(Single Comb.)

Eggs from prize winners and good layers \$1.50 per sitting. Reduction on larger lots.

WHITE PLYMOUTH ROCKS
R. W. HAW, Jr., - Centralia, Va.

EGGS FOR HATCHING

From White Holland Turkeys, White Plymouth Rock and Rose Comb White Leghorns.

White Plymouth Rocks are the best all purpose fowls. My stock is of the finest strains. R. C. W. Leghorns are the champion layers, Neat Rose Combs do not freeze. Send for circular. Mrs. LIZZIE DYER, Versailles, Tenn.

Eggs for Hatching

Toulouse Goose eggs, \$2 per doz.; Barred and White Rocks, S. L. Wyandottes, Brown Leghorns, S. and R. C. S. C. White Leghorns 75c. per sitting of 15. A few more Leghorn Cockrels left, \$1 each.

J. B. JOHNSON,

CLOVER HILL FARM. MANASSASS, VA.

EGGS

BARRED PLYMOUTH ROCK, S. C. B. LEGHORNS.

Biltmore and Thompson strains.

\$1 per 15; prompt attention.

MRS. JNO F. PAYNE,

Clairmont Dairy Farm. University of Va.

Barred Plymouth Rocks

—EXCLUSIVELY—

Strong, healthy, vigorous, farm-raised stock; bled for laying; 75 cts. per setting.

WM. B. LEWIS, Irby, Nottoway Co., Va.

- EGGS -

- FROM -

WHITE HOLLAND TURKEYS.
\$2.25 for 9; \$4.00 for 18.

WHITE PLYMOUTH ROCKS
\$1.25 for 13; \$2.25 for 30.
Packed and f. o. b. Express Office.
JOHN A. CLARK, - SHIRLEY, VA.

Home of High-breds.

Even the best is never too good,
you'd better buy of me.

FANCIERS STOCK AT FARMERS PRICES.
Duroc-Jerseys, the best all-purpose hog;
also Poland-Chinas; B. P. Rocks, M. B.
Turkeys and M. P. Ducks. Eggs in season.
THE CEDARS **WM. G. OWENS,**
P. and S. FARM. Midlothian, Va.

BUFF ORPINGTON EGGS FOR SALE.

This wonderful-laying and general utility fowl is taking the day. Eggs, \$1 per 15. Good hatch guaranteed. Will prepay express on \$3 orders. "OCCONEECHEE FARM," Jeffers, Va

32 Varieties Best Poultry

FINE ILLUSTRATED
CATALOG
for stamp,
if you mention
this paper.
All poultry

keepers should have it. **JNO. E. HEATWOLE,**
Harrisonburg, Virginia.

EGGS FOR HATCHING.

White Wyandottes, Barred Plymouth Rocks, S. C. White Leghorns and Pekin Ducks. Prize winners at New York, Boston, Philadelphia, Cleveland, Hagerstown, Pan-American and Charleston. Some extra fine stock for sale. For prices and description, address

LEWIS E. BENEDICT, Proprietor
Meadowdale Farm, Luthersville, Md.

"HAWKINS"

Barred, Buff and White P. Rocks, Light Brahmas, White Wyandottes, Buff Cochins, Partridge Cochins, Black Langshan, Black Minorca, S. C. Brown Leghorns and S. C. White Leghorns. Stock for sale cheap. Prize winner eggs, \$1 for 15. A hatch of 2, or order duplicated at half price.

OAKLAND POULTRY FARM, Ruffin, N. C.
Box 5. **C. J. Warriner, Manager.**

EGGS FOR HATCHING.

Purebred B. P. ROCK, BLACK MINORCA, S. C. B. LEGHORN. Fine stock, excellent layers. I guarantee eggs to be true to name, fresh, and to arrive in good condition. 75 cts. per 15, \$2 per 45, \$4 per 100.

Miss S. M. HITER, Ellsville, Louisa Co., Va.

WHITE WYANDOTTES and BUFF P. ROCKS.

Beautiful birds, and grand layers.

Cockerels, \$1.50 each.

Eggs, \$1 per 13; \$5 per 100.

EDGEMONT POULTRY YARDS, Liberty Mills, Va.

EGGS FOR SALE

From purebred S. C. B. LEGHORNS,
\$1 per 15; \$5 per 100.

Mrs. B. D. CHANDLER, R. F. D., Charlottesville, Va

NATIONAL AID TO ROAD BUILDING.

BY J. B. KILLEBREW.

There is no questioning the fact that the subject of road building is engaging the attention of the people of the United States to a greater extent than ever before in the history of the country. Not only is the subject discussed in every county, township, and civil district, but the Legislatures of the several States are beginning to listen to the coming storm of public applause or public indignation by devising methods to improve the roads. But by far the most important, because the most comprehensive, movement inaugurated is that of the bill presented to Congress by the Hon. W. P. Brownlow, of Tennessee. In its scope this bill provides for national aid in road improvement to every political division or sub-division of the country. Section 12 of the bill provides "that one-half of the expenses of the construction shall be paid by the Treasurer of the United States upon the warrant of the Comptroller, issued upon the requisition of the Director of said Bureau, out of any specific appropriations made to carry out the provisions of this act, and one-half of the expenses thereof shall be paid by the State or political sub-division thereof making application for the co-operation provided for; provided, that nothing herein shall be construed to prevent the State or political sub-division thereof from distributing the said half so that the State may pay a portion, the county a portion, and the owners of the land abutting upon said road another portion. And provided further, that no money be advanced by the United States in payment of its portion of the cost of construction as provided for, except as the work of actual construction progresses, and in no case shall the payment or payments made thus prior to the completion of the work be in excess of 80 per centum of the value of the work performed, but in all cases 20 per centum must be held until the completion of the work according to the plans and specifications and to the satisfaction of the Director of said Bureau."

This is a wise provision, and will put every community upon its mettle. Those that are imbued with the spirit of progress and improvement will not hesitate to avail themselves of this assistance in building good roads. The passage of this bill will be a distinctive and era-making event in the legislation of the country. To one who properly considers all the benefits that will accrue to the nation and to all its citizens by the passage of this bill, it must be conceded that no other legislation has ever been fraught with so much good for the people and with such grand possibilities. Say what we please about the influence of public schools, the press, the pulpit, the plat-

Cramer's Poultry Yards

Hatching Eggs from my 130 purebred Silver L. Wyandottes at 75c per sitting of 15. \$4.10 per 100 eggs.

JOHN CRAMER, South Boston, Va.

WANTED AT ONCE OLD LIVE PIGEONS

In any quantity.


W. C. LYNHAM, 412 W Marshall St., Richmond, Va.

BLACK MINORCA EGGS

60 cts. per setting of 15.

Mrs. A. G. HILL, Huon P. O., Louisa Co., Va.

EGGS FOR HATCHING.

 From choice, high scoring, B. and W. Plymouth Rocks, \$2 a sitting. From good, purebred B. Leghorns and B. Plymouth Rocks, \$1 a sitting, \$3.50 per 50. H. A. KUHNS, Atlanta, Ga.

EGGS FOR SALE.

M. B. Turkey, \$3 per doz.; Pekin Duck, \$1 per doz.; White Wyandotte, \$1 for 13; B. P. Rock, \$1 for 13; S. C. B. Leghorn, \$1 for 15.

Miss Clara L. Smith, Croxton, Caroline Co., Va.

Barred P. Rocks S. C. B. and W. Leghorns.

15 eggs, \$1; 30, \$1.75. PEKIN DUCKS—11 eggs, \$1; 22, \$1.75. Satisfaction guaranteed.

Rev. J. W. HECKMAN, Spottsylvania, Va.

SILVER WYANDOTTES EXCLUSIVELY.

Famous "Blue Grass" Strain; none finer. Eggs, \$1 per 13; \$2 per 30. 22 years a breeder and shipper. S. P. YODER, Denbigh, Va.

EGGS FOR SALE

From purebred

M. B. TURKEYS, WHITE and BARRED
PLYMOUTH ROCKS.

W. F. FLANAGAN, Christiansburg, Va.

BARRED AND BUFF PLYMOUTH ROCKS.

FRED NUSSEY,

Summit, Spottsylvania Co., Va.

White Leghorns.

Egg RECORD, 2,218 eggs in one year
from eighteen hens.

Eggs, \$2 per 15; \$5 per 60.

Write for circular to-day.

C. G. M. FINK, 1409 W. Leigh St., Richmond, Va.

EGGS From prize-winning matings, BARRED and WHITE PLYMOUTH ROCK, WHITE WYANDOTTE and BLACK MINORCA. Reduced rates to secure widest patronage—\$1.00 per 13.

KENTON POULTRY FARM, Glendale, Md.

BARRED PLYMOUTH ROCK EGGS

From the Sunnyside winter laying strain of ringlets. \$1 per 15, \$1.90 per 30, \$3 per 50. Incubator Eggs, \$3 per 100. No. C. O. D shipments to any one. **SUNNYSIDE POULTRY FARM,**
Reference: Christiansburg, Va
Bank of Christiansburg.

S. C. BROWN LEGHORNS

Long bred for fine plumage, strong vitality and laying qualities. One sitting of 16 eggs. 75 cts.; two sittings of 32 eggs, \$1.25; per 100 eggs, \$3.50. ADDRESS
J. N. HANGER, - Lasley, Va.

PIT GAMES

Red Horses, Eggs, \$1 50 per sitting (15). Also a few RED HORSE and IRISH RED COCKS for sale at reasonable prices.
A. S. CRAVEN, - Greenwood, Va.

PIT GAMES

BLACK DEVILS and RED HORSES. These Cocks won 90 per ct. of battles fought in 1901 and 1902, and have never lost a battle when gameness and cutting qualities could win. Eggs, \$2 per sitting and stock for sale.
THOS. W. JARMAN, Yancey Mills, Va.

M. B. TURKEY EGGS

From extra heavy weights and brilliant plumage, \$3 doz. B. P. Rock and Pekin Duck Eggs \$1 per 15. Pedigreed Scotch Collie Pups \$5 each. 8 mos. male Collie partly trained \$10.
C. H. BENNETT, - Goodman, Va.

WANTED!

ALL KINDS OF
LIVE WILD BIRDS AND ANIMALS.
 Particularly WILD TURKEYS, WHITE SQUIRRELS, DUCKS, SWANS, ETC.
CECIL FRENCH,
 718 Twelfth St. N. W., Washington, D. C.

RIVER VIEW POULTRY FARM.
EGGS FOR HATCHING

From purebred B. P. R. My hens weigh from 8 to 10 lbs. and cocks from 10 to 12 lbs., at 1 yr. old. I handle only B. P. Rocks, and they are farm range. Price per sitting, \$1 for 15, \$1.50 for 30, \$2 for 45.
M. E. ANDREWS, Hurt, Va.
 One-half mile from Depot. On Southern R'y.

HAWKSLEY STOCK FARM.
Large ENGLISH BERKSHIRES
B. P. ROCKS FOWLS,

Eggs from same, \$1 per 13.
J. T. OLIVER, Allen's Level, Va.

FOR SALE.

Large English Berkshire Hogs,
 Barred Plymouth Rock Chickens
BEN. BOLT, 60747, 430 lbs. as a yearling at head of herd. EGGS IN SEASON.
JOHN P. FOSTER, Noreek, Ohio Co., Ky.

...A BARGAIN...
1 DE LAVAL CRANK HUMMING BIRD SEPARATOR,
 275 lbs. capac., in perfect order. Price, \$50.
1 SHARPLES SAFETY HAND SEPARATOR,
 Capac., 300 lbs., in need of slight repairs. Price, \$25.
W. B. GATES, - RICE DEPOT, VA.

form, and other institutions that mark the civilized progress of mankind, yet all these are more or less dependent upon the facilities of intercourse between the people. In fact, it is an undeniable truth that civilization means labor in some form, and labor is the ability to move things from place to place, and its efficiency depends upon the ease with which they are moved. No nation has ever yet achieved permanent renown without good roads, or ever built them and regretted it afterwards. No community in possession of good roads would be willing to surrender them upon the repayment of their cost and maintenance. Of all the expenditures made by aggregated bodies or by government agencies, while it may not be the least felt, it produces the greatest good and the greatest satisfaction to the greatest number. Everybody uses good roads—the millionaire and the beggar, the black and the white, the lame and the blind, women and children—all enjoy and participate in the advantages and blessings of good roads. They are the morning star of progress; they are the fountain heads of trade and commerce; they are the avenues over which pass the main agencies for the dissemination of knowledge and the increase of intelligence, as well as the enjoyments of social intercourse in rural life. They provide the means for the performance of public duty; of reaching local markets or shipping points on the railroads. They serve more country people in the aggregate than the railroads themselves.

This bill of Mr. Brownlow's is most timely. The rapid extension of the rural free delivery system, now covering 300,000 square miles, and destined in the near future to be extended to the 40,000,000 people living in the rural districts, make good roads a necessity. Why should the United States, that has attained supremacy over all other nations in wealth and in a world-wide influence in commerce and diplomacy, hesitate to enter upon a work that will bind its citizens to it with a loyalty exceeding the loyalty of the people of any other nation whatever? Why hesitate to do that which every person desires to be done in some way? Why hesitate, when good roads are the most important factors in carrying out the wise provisions for increasing the intelligence of its citizenship through rural free delivery? No other highly civilized nation on earth has so many bad roads as the United States. England, France, Germany, Spain, Italy—all have good roads.

This government belongs to the people. They instituted it for their own welfare. They are the rulers. Congress is but one of the agencies they have created to provide for their wants and to execute their will. There is no constitutional barrier to the

MARKET-TOPPERS FOR SALE, LOW.



One thoroughbred Angus cow, unregistered, coming 3 yrs., with heifer calf at foot. 4
 Four three-fourths Angus heifers, two coming 3 yrs., two coming 4 yrs., bred to reg. Angus bull.
 Four seven-eighths Angus heifers, coming 2 yrs., bred to reg. Angus bull.
 Three seven-eighths Angus heifers, coming 1 yr.
 Four one-half Angus heifers, coming 1 yr. —
 One bull calf, out of a thoroughbred Shorthorn cow, by a reg. Angus bull.
 One 9-mos.-old reg. Angus bull.
 One 12-mos.-old reg. Angus heifer.
 All of the above cattle are black, and as well pointed as a thoroughbred Angus. 177
 One fine reg. Angus Bull Calf, 5 mos. old. 177
 One pair Bay Mares, with black points, coming 5 yrs. old. Weight, 1,200 lbs. each. Well broken to harness and all farm machinery. An ideal farm team. Heavy enough for farm work and active enough for good drivers, and gentle enough for anybody to handle. If sold very soon, will take \$325., which is very cheap.
 Address **W. M. WATKINS & SON,**
 Cottage Valley Stock Farm,
 Randolph, Charlotte Co., Va.

The RICHMOND, FREDERICKSBURG and POTOMAC R. R. and WASHINGTON SOUTHERN R'Y

Form the Link connecting the
Atlantic Cost Line R. R.,
Baltimore and Ohio R. R.,
Chesapeake and Ohio R'y,
Pennsylvania R. R.,
Seaboard Air Line R'y
and Southern R'y.

Between all points, via Richmond, Va.
 Fast Mail, Passenger and Express Route between Richmond, Fredericksburg, Alexandria, Washington, Baltimore, Philadelphia, New York, Boston, Pittsburg, Buffalo and All Points North, East and West.
W. P. TAYLOR, Traffic Manager, Richmond, Va.

WHISKEY

4 full quarts Corn Whiskey 10 years old, \$3.50
 4 " " " " " 6 " " 2.50
 4 " " " " " Private Stock, loved ones.....6.00
 Or will ship the 12 qts. named above for \$11.00
 Plain packages. Express paid. Purest and Best Whiskey, and Oldest House in America. Established 1768—135 years ago. Just as Corn-bread is more wholesome and palatable than Rye bread—So with the Whiskey—so say all Doctors—try it and be convinced. Nothing on earth so beneficial to weak lungs as this mountain beverage.
THE OLD NICK WILLIAMS CO.,
 Lock Box No. 11. Williams, N. C.

BERKSHIRES

ANNEFIELD HERD

Represents the

Finest Blood Lines

In Eng'and or America.

Stock for sale at all times.

Correspondence Solicited.

Inspection Invited.

EDW. G. BUTLER, Annefield Farms.
Briggs, Clarke Co., Va.

V. P. I. Farm Bulletin

Splendid ANGUS BULL for sale.
1 year old in April.

We are now booking orders for
DORSET RAM LAMBS. No more
BERKSHIRE PIGS now.

O. O. NOURSE, Prof. of Agr.
Blacksburg, Va.

Woodland Farm DORSETS

Of 16 rams, 9 to 14 mos. old, we now have on hand, 4 are not quite good enough to head any herd in the United States. The best ram Harding could find in England now heads our flock. Are buying a few ewes; none to sell, but are booking orders for October dropped ewe lambs.

WOODLAND FARM, Mechanicsburg, O.
(J. E. Wing, Willis O. Wing, Chas. B. Wing.)

FOR SALE—A SLENDY YOUNG HEREFORD BULL.

$\frac{3}{4}$ bred, sired by the finest Hereford bull in Virginia, and probably in the U. S. His dam was also sired by a magnificent big rangy Hereford of royal breeding. This young bull will point with any thoroughbred, and for cross breeding is fully as valuable. He weighed 500 lbs. at 4 mos. and 650 lbs. at 6 mos. He is in perfect condition, having wintered splendidly, and is now 1 year old. For further particulars and price address,

W. C. REED, P. O. Box 26, Richmond, Va

FOR SALE.

8 Reg. HEREFORD BULLS

From 6 mos. to 3 yrs. old.

8 REG. HEIFERS

From 6 to 18 mos. old. At reasonable prices.

HAYFIELDS STOCK FARM, Cockeysville, Md.

DORSETS AND HEREFORDS

H. ARMSTRONG, - Lantz Mills, Va.

building of roads. The same clause in the Constitution that authorizes the establishment of post-offices authorizes the establishment of post-roads. These two constitutional bestowments are co-ordinate branches created for the accomplishment of the same great end—that is, the convenience and happiness of the people. But aside from the necessity of building good highways for the better distribution of the mails through rural districts, it should be borne in mind that the agricultural classes, while doing more to sustain the credit of the government and the financial strength of its people than all other classes combined, have had the smallest appropriations made for their immediate benefit. The urban population have long been provided, at the expense of the government, with messengers for the delivery of mail. The shipping interests have had the harbors and rivers improved to expedite their business. The cities have been provided with post-office buildings, the architectural beauty and cost of which surpass those of any other nation. Railroads have made use of the credit of the government. Iron masters have depended upon the government to construct great locks and dams for facilitating the assembling of the materials at cheap rates for making iron. The tariff laws have been shaped to benefit the manufacturers. No sane man objects to the majority of such appropriations. They are needed to foster and increase the commerce of the nation. But are they more important to the great mass of citizens than good roads through the country? Such roads cheapen food and clothing, extend trade, make many commodities valuable that are valueless without them, save time, and, indeed, improve the opportunities of every citizen, whether he lives in the town or country or is a sailor on the wide ocean. Good roads through the rural districts would relieve the congestion of population in the great cities. Country life, with its moral influences, would be made attractive and pleasant. The dens of vice in the cities would be deprived of much of their malign influence. Homes would be sought after by thousands who now live in squalor in tenement houses in the cities. In short, through government aid in the establishment of good roads, every phase and every feature of business, social and educational life, would be immeasurably advanced.

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Do you suppose that a company, with a capital of \$500,000.00 paid in full and the proud reputation of thirty-six years of continuous success, would make such an offer and not carry it out to the letter? Do you suppose we would jeopardize our standing with the public and our chances of still greater success by failing to fulfil any

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**JERSEY and GUERNSEY CATTLE,
BERKSHIRE SWINE, WHITE WY-
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ROCKS and WHITE LEGHORNS.**

The cattle offered consist of Young Cows, Yearling Heifers, Heifer and Bull Calves and Bulls old enough for service. Berkshires of all ages and both sexes. The poultry is all fine breeding stock and healthy.

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Thoroughbred Horses

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Pure Southdown Sheep
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SHORTHORNS

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Two red heifer calves to be
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Scotch-Topped Shorthorns

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Young Bulls and Heifers for sale. Inspection
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Of Registered Shorthorn Cattle.
Choice young bull, cows, and heifers bred.
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PRICES REASONABLE.

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C. Whites. Fine large
strains. All ages, mated
not akin, 8 week. pigs.
Bred sows. Service boars
and Poultry. Write for prices and free circular.
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**ENGLISH STOCKMEN LIKE
3 FEEDS FOR ONE CENT**

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DEAR SIR:—I have pleasure in handing you remittance to cover your invoice for "International Stock Food." I have given it a thorough trial on my horses, both drivers and draft, and I find it justifies all you claim for it in every way. All my stock are in exceptional condition this year and this I attribute to the use of "International Stock Food." I tender you my sympathy for the loss you have sustained by the death of Online 2:04, a loss which will be felt by the whole of your district. I had great success in my experiment of crossing the French Coach Horse with the American Trotter, the result being a fine heavy harness horse. I am, sirs,
Yours faithfully,

F. J. RIDGWAY.

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We will Pay you \$1,000 CASH to Prove that our Testimonials are not Genuine.

"INTERNATIONAL STOCK FOOD" is Prepared from Roots, Herbs, Seeds and Barks and Won the Highest Medal at Paris Exposition in 1900 as a High-Class vegetable, medicinal preparation to be fed to stock in small amounts as an addition to the regular feed. It is a Great Aid in Growing or Fattening stock because it increases the appetite and Aids Digestion and Assimilation so that each animal obtains more nutrition from the grain eaten. We positively guarantee that its use will make you extra money over the usual Plan of Growing and Fattening stock. "International Stock Food" can be fed in safety to Horses, Cattle, Sheep, Goats, Hogs, Colts, Calves, Lambs or Pigs. It is Absolutely Harmless even if taken into the Human System. You insist on eating medicinal ingredients with your Own food at every meal. Salt is a stomach tonic and worm medicine, Pepper is a powerful stimulating tonic, Mustard is a remedy for dyspepsia, Vinegar is a diuretic. You eat these medicinal ingredients almost with every mouthful of your food, and it is proven that these condiments promote health and strength for people and improve their digestion. "International Stock Food" contains pure vegetable medicinal ingredients that are just as safe and as necessary an addition to the regular feed of your stock if you desire to keep them in the best possible condition. "International Stock Food" is endorsed by Every High Class Farm Paper. It purifies the blood, stimulates and permanently strengthens the entire system so that disease is prevented or cured. "International Stock Food" is sold on a "Spot Cash Guarantee" by Fifty Thousand Dealers throughout the World. Your Money will be Promptly Refunded in Any case of failure. It will make your Pigs or Hogs grow Amazingly and has the largest sale in the World for curing or preventing Hog Disease. Beware of the many Cheap and Inferior Imitations! No Chemist can separate all the Different powdered Roots, Herbs, Barks and Seeds that we use. Any One claiming to do so Must be an Ignoramus or Falsifier.

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\$10.00 CASH, we will send you, IF BOOK IS NOT AS STATED.

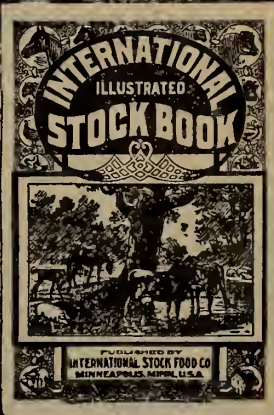
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Capital Paid in, \$1,000,000.
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Swift Creek Stock and Dairy Farm



Has for sale a large number of nice young registered A. J. C. C.

JERSEY BULLS AND HEIFERS.

None better bred in the South. Combining closely the most noted and up-to-date blood in America. Bulls 10 to 12 months old, \$25.00. Heifers, same age, \$35.00. POLAND-CHINA PIGS, \$5.00 each. Send check and get what you want.

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Ayrshires, Berkshires and Oxford-Downs.

Ayrshire calves of both sexes, Berkshire pigs and boar, and 2 Oxford-Down Rams For Sale. MELROSE CASTLE FARM, ENOS H. HESS, Manager, Casanova, Va.

FOR SALE Aberdeen-Angus Cattle

Choice breeding. Registered bulls ready for service. Address A. D. PARR, care A. G. PARR, Jeffersonton, Va.

promise we make? Do you suppose we would make such an offer if we did not have the utmost confidence in the satisfying quality of our goods? We know we can please you and save you money, for Hayner Whiskey goes direct from our distillery to you, carries a United States Registered Distiller's Guarantee of purity and age, and saves you the big profits of the dealers. Read our offer elsewhere in this paper.

THE HAYNER DISTILLING Co.

A DUST SPRAYER.

Among the numerous Sprayers advertised with us from time to time, we do not recall that a Dust Sprayer has ever been offered our readers. This month, however, we have the card of the Dust Sprayer Mfg. Co., and to which we invite attention. This Sprayer will be found useful in applying all dust and powder insecticides to trees, plants, etc.

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Registered and unregistered. Stock first-class, and breeding the best.

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First class yearling rams, and ewes of all ages. Several FINE FARMS for sale.

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ABERDEEN-ANGUS BULL.

"Carlos of the Wells" 27958; Also some nice Cows and Heifers.

WM. B. MACGREGOR - Avon, Va.



O. I. C. PIGS

FROM REG. STOCK.

FOR SALE. PRICES RIGHT.

F. S. MICHIE, - Charlottesville, Va.

FEMALE INVENTORS.

I believe there is a general impression that women are lacking in the inventive faculty, but this impression or theory may be controverted by the fact that the Patent Office has issued one bound volume and two hand-books setting forth separately the inventions of women. True, we do not find in this list a female Arkwright, Whitney, Rumsey, or Morse; nevertheless, these female inventors have contributed to the service of the world many useful and valuable contrivances, saving labor and promoting comfort and convenience; nor are feminine inventions confined solely to household conveniences. Amongst them we find steam boilers, baling presses, fire escapes, car wheels, hospital beds, and improvements in pyrotechnic night signals. Perhaps the most remarkable of the female inventors is Madame Costin, inventor of the famous Costin signals. Her husband had made some experiments on the line of night signals, and after his death she took up the work, and by dint of patient and intelligent labor finally perfected a code containing well defined combinations of three-colored lights—red, white, and green—indicating the numerals, and by this method a number of signals may be conveyed. During the Civil War these signals were employed to advantage, and since then they have been adopted by different European governments. They are also valuable in the life-saving service.

Miss Emma J. Hughes, daughter of the inventor Hughes, seems to have inherited her father's talent, and is not only an inventor, but a practical business woman, visiting the shops almost daily to superintend the making of models and construction and mastering every detail of her work. She has made about ten inventions, not all of which, however, are on the market. The best known of these is the adjustable table attached to the bed for the use of invalids, or to the chair for various other purposes, and this invention is used in the hospitals of the War Department, in the Marine Hospital, and in schools and homes.

The wife of ex-Senator Henderson, writer, artist, and patron of art, is also the inventor of an extremely useful and popular bicycle seat. Mrs. Henderson is a thorough business woman and practical machinist. She was a frequent visitor at the shops while her invention was being constructed, and showed excellent judgment in the selection of forms and materials.

Harriet Hosmer, the sculptor, discovered the process of making marble from limestone, and a Lima girl found the way to extract 1,000 feet of gas from one barrel of Lima oil.

Mrs. Theodore Birney, so well known as the originator of "the Mothers' Congress" movement, has devised and

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Almost anyone can run a
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It's simple; free from needless complications; has handy operating levers; works easily every way.

For over twenty years our experts have studied this machine; planned out a rigid and enduring frame; discovered how to use a lever in place of several cog-wheels; equipped the reel with a self-acting friction clutch which prevents breakage; applied the stored power of a self-regulating fly-wheel to equalize the draft; perfected the simplest Knotter yet devised, one that holds the world's record for accurate tying. In short, they have fitted this machine for the greatest practical field service anywhere.

The Plano catalogue describes it, and tells about some other interesting cash and labor savers; ask for a copy.

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SUNNY HOME HERD OF
ABERDEEN-ANGUS CATTLE.

BARON ROSEBOY (The great son of the world-famous
GAY BLACKBIRD) in service.

Nearly all the leading families of the breed represented by females sired by the most famous bulls of the age. We challenge comparison on both as to individual excellence and pedigree. Another car of grand cows just arrived, personally selected from one of the best herds in central Illinois. The tops out of one hundred head. Six animals of the same family and strain as ROSEGAY (for two years the champion of America), others equally good. All young stuff of weaning age sold; am booking orders for future delivery.

Write your wants; we are bound to please you.

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Products are Good

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Choice Bred A. J. C. C. Bull Calves

Write for descriptive circular.

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patented something for the comfort of the little ones—the "catch-all bib." It was a woman (naturally and properly) who invented the baby carriage, realizing about \$50,000 from her invention; but, I am sorry to say, I have not been able to ascertain her name. Doubtless, too, it was a woman who invented the safety pin, which has been such a boon to babies and saved their little tender flesh from so many cruel scratches which common pins would have inflicted.

The first native born American woman to take out a patent was Agdalene Goodman, of Florida, who devised an improvement in broom brushes.

The first female name that occurs on the records of the Patent Office is that of Mary Kies, inventor of the art of weaving straw with silk or thread, but she was foreign-born. The straw industry was founded in 1798 by Miss Betsy Metcalf, and tradition says she wove the first bonnet from only seven straws. A Chicago woman invented the paper water pail, and a clever woman made a fortune by the invention of a glove buttoner. Miss Carrie Hurlbut, of Washington city, is the inventor of an accordion pleater, and is now engaged on an invention destined to be of great use to the shoe trade.

Amongst recent female inventors, honorable mention should be given to Mrs. E. C. Bell, of Washington, who has invented a telephone mouthpiece and holder, and to Mrs. Mary Baker, who has invented a practical fire escape.

At the Atlanta Exposition there was a special department for the inventions of women, and this was not the least interesting feature of the occasion. Edison has been quoted as saying that "he prefers women machinists for the details of his electrical inventions, as he thinks they have a more delicate perception of machinery than men."

The female inventors who have gone on record are about 200 in number.

Errata to be corrected in my two articles on "Inventions Which Brought Wealth," published respectively in the February and March numbers of *The Southern Planter*:

Dr. Bell offered a half interest in his telephone to John A. Logan for \$2,500.00 (twenty-five hundred dollars), not \$25.00.

W. M. Jenne, of Iliou, N. Y., was the inventor of the typewriter, not W. M. Jenrie, of Iliou, N. Y.

MARY WASHINGTON.

COLLIE PUPS!

By prize-winning imported sires and trained dams. Eligible. Fit for bench, ranch or farm. Price, \$10, either sex. Also a book on the care and training of the Collie for all practical uses. Price, 50c. Copy of book free to purchaser of Collie.

Stock Farm, "MAPLEMONT," Albany, Ver.

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Don't pay retail price for carriages or harness. Write for our catalogue and learn about our system of selling direct from factory to customer. Two profits are saved to you. Satisfaction is guaranteed, or you can return the purchase and we will pay freight charges both ways. We have the largest assortment of buggies, surreys, phaetons, carriages, and other high grade vehicles, as well as harness, horse rugs and other horse accessories, in America. Write for the catalogue to-day.

THE COLUMBUS CARRIAGE & HARNESS COMPANY,
Factory and General Office, COLUMBUS, O. } Write to
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No. 719—Driving Wagon 1/2 in. Kelly Rubber Tires. Price \$55.50. As good as sells for \$40 more. Large Catalogue FREE. Send for it.

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JERSEY CATTLE

Bred from high-testing St. Lambert Cows.

LARGE YORKSHIRE HOGS.

The BACON BREED now leading all other breeds for making high-priced bacon.

INDIAN GAMES—The king of table fowls.

WHITE WYANDOTTES—The best general-purpose fowl.

WHITE LEGHORNS—All sold out.

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Berkshire Boar Pigs

READY FOR SHIPMENT, AND OTHERS SOON TO BE READY.

THEY ARE FINE, AND FROM PROLIFIC SOWS 7, 9 AND 13 TO LITTER.

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HOLSTEINS THAT PAY.

Purchasers are offered selections from our herd, both male and female; our cows are of the leading strains, including De Kols, Pauline Pauls, Mechthildes, Hengervelds, Netherlands, Aggies, etc., etc. They are all well bred and milking from 40 to 65 lbs. per day. Herd headed by Ury ALWINA Count Paul De Kol and DeKol 29 Butter Boy 3rd No. 2.

THOS. FASSITT & SONS, Ury Stock Farm, Sylmar, Md.

When you write to an advertiser, always say you saw the advertisement in THE SOUTHERN PLANTER.

THE JOY OF WORKING.

Think not, Sir Man-of-Leisure, as you peep lazily through your heavily curtained window at the scurrying 7 o'clock crowd on the way to its daily toil, that you have the best of it because you can snuggle back beneath your luxurious covering and sleep until Jeems or Meadows brings your morning coffee and paper and asks if you prefer the Yellow Dragon or the Green Devil for your forenoon spin.

Do not lay the flattering unction to your soul that yours is the happier lot.

Yonder youth with swinging step, with fists dug deep into the pockets of his thread-bare coat and a cold luncheon wrapped in paper tucked beneath his arm, tastes a finer, sweeter joy than all your luxury can bring.

His is the pleasure of incentive—the glory of work.

For there is a zest to it all. The quick spring from bed at the alarm clock's summons, the hastily-swallowed breakfast, then out into the wine-like air of early morning. To work—vigorous work of brain or brawn, whether it be pegging away at a desk or directing the eternal grind of clanking machinery.

It is occupation—accomplishment!

Do not pity these work-a-day folk. Save your sympathy for the hapless and hopeless idle fellows—the unfortunates or unwillings, alike commiserable.

Joy goes with the working masses. There is joy in the noonday luncheon, whether in a gilded cafe or a cold snack hastily devoured "before the whistle blows."

The evening meal is a feast to the weary man, and his well-earned rest is the greatest joy of all.

Hard work is the best of all cures for insomnia.

Thank God you can work!

Though your office labor strains your nerves and racks your brain; though the "shop" takes the best of your strength and vitality, be glad to be living, an active part of the working world.

You must earn your amusements before you can enjoy them. *Ennui* has no part in the strenuous life.

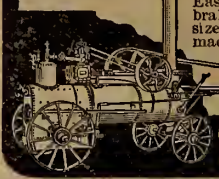
Be glad, for conscience sake, that you are not one of those most miserable of all men, a fellow without a job—a human machine standing idle, rusting and losing its value from disuse.

Thank God you can work!

When sorrow and grief come, when you seek to forget, to crush out cruel thoughts, thank God that you can absorb yourself in your occupation, plunge deep into the details of your duty.

Thank God that you can work— that you can grasp your pay envelope and say: "This is mine—the rightful pay for the labor of my brain, the just earnings of my strong right arm."

There is no record of a FARQUHAR BOILER having exploded



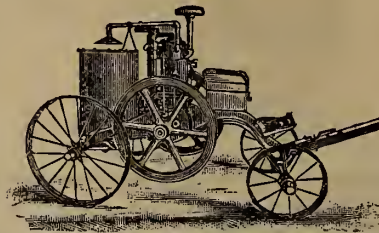
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for a thresherman to buy and for a farmer to use is the Farquhar Celebrated AJAX THRESHING ENGINE and the FARQUHAR SEPARATOR. Engines made in sizes 4 h. p. and up, and combine the advantages of all successful engines. Easy steamers and develop more than rated horse-power. Have driver's seat, foot-brake and two injectors. SEPARATORS of all styles and sizes for merchant threshing or farm use. Farquhar machines have all late improvements, they thresh and clean all kinds of grain perfectly.

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number of purest-bred Imported and American Sows, not akin to my old herd, and most of them now in farrow to Imported Berkshire Boars of a new strain.



HUNTING DOGS and PUPS FOR SALE.

A DURHAM BULL CALF, a picture, cheap. Write for particulars.

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EGGS for HATCHING

From Fowls of High Merit, Fresh, and a Good Hatch
Guaranteed of the following varieties:—

PLYMOUTH ROCKS, BROWN LEGHORNS, WHITE LEGHORNS
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Great Danes and three Fox Terrier Puppies.

M. B. ROWE & CO., FREDERICKSBURG, VA.

EASTERN SHORE POULTRY FARM.

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THE EGG MACHINES OF POULTRYDOM.

The record at such shows as Washington, D. C., Philadelphia and New York proves the quality of my stock is second to none. I always breed my winners.

Correspondence cheerfully answered.

A. C. VAN DEMAN, LEGHORN SPECIALIST, PARKSLEY, VA.

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GOLDEN LAD'S SUCCESSOR, First and sweepstakes over all at the Pan-American Exposition, the champion JERSEY BULL OF AMERICA, and out of Golden Ora, our great prize-winning cow, both born and developed on these Farms, is among our service bulls.

Biltmore Jerseys are a combination of large and persistent milking qualities with an individuality that wins in the show ring.

SPECIALTY. Write for descriptive circular of the best lot of young bull calves ever offered, both for breeding and individuality. They are by noted sires and out of large and tested selected dams. Many of these calves are fit to show and win in any company.



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IMPERIAL FRUIT AND POULTRY FARM

Is now booking orders for Eggs from the best strains and careful matings of

**Barred Buff and White Plymouth Rocks,
Silver-Laced and White Wyandottes,
S. C. B. Leghorns and Mammoth Pekin Ducks,**

AT \$1.00 PER SITTING.

EGGS FROM BLACK DEVIL PIT GAMES,

Never known to run. The grittiest of all games. **\$2 per Sitting.** We give 15 Chicken and 13 Duck Eggs for sitting.

Offer Fifty Barrels White French or Jerusalem Artichokes at \$2.50 per 3 bus. bbl.

The cheapest of all hog feeds. I raised 500 bushels on one acre of only fair land. Order at once. Write name and address plainly. Remember, the express is no more on 2 or 3 sittings than on one. Refer to Augusta National Bank and former patrons. Satisfaction guaranteed or money refunded.

P. H. HEYDENREICH, = Staunton, Va.

Be thankful, employer as well as employee, for the joy of working.

You know the pleasure of it. Do not deceive yourself by the promise (nine times in ten a pleasant little fiction) that by-and-by you will retire, ease up, end your life in idle luxury.

The business game is not alone for the pleasure of the spoils, but for the joy of playing it.

What the world may call greed and avarice you know to be the fascination of success—the intoxication of accomplishment; and it will keep you untiringly at it—on your mettle in the battle—till the end of life.

For life is work. And work is life.—D. Herbert Moore, in *Judicious Advertising*.

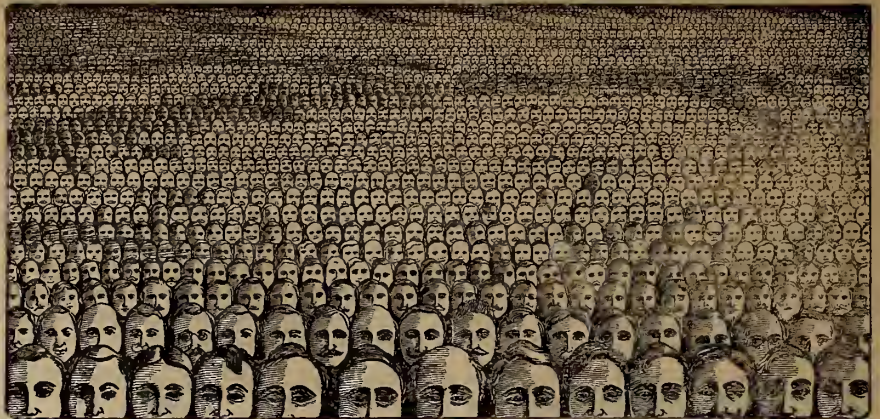
We present herewith a cut of the Empire King Spraying Pump, which is manufactured by our advertising patrons, the Field Force Pump Co., of Elmira, N. Y. These people are manufacturers of a large and complete line of machinery, apparatus, and appliances devoted to the very essential and necessary practice of spraying. They have about everything anybody could wish in this line, from the small bucket sprayer to their Orchard Monarch, which is a large mounted power machine. The outfit, however, which is something of a specialty with them, is shown here. This



is due to several things, among which may be named its ready adaptability to all conditions and to all classes of work. It is small enough and low enough in price to fit the needs of the man having only a small orchard, and yet, if properly handled, it will fit the requirements of the large fruit grower.

We cannot take the space to further describe it, hence recommend that all those who are interested in spraying write the manufacturers for their printed matter on this subject. They will be glad to mail this to you, without cost, if you mention this paper in writing.

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AN ARMY OF 15,000 DEERING AGENTS AT YOUR SERVICE

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All stanch, reliable machines for the harvest

Binders Headers Header-Binders Mowers Reapers Corn Binders Corn Shockers Huskers and Shredders Rakes Binder Twine Oil

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65 Head of SHORTHORNS (Durham)

1-3 Registered; 1-3 Eligible; 1-3 Grades.

CALVES, YEARLINGS, TWO-YEAR-OLDS, COWS.

The head of the herd is a **FANCY BRED BULL.**

The lot will be sold to a breeder at a bargain. Cattle in perfect health.

THOS. S. WHITE, - LEXINGTON, VA.

"THE OAKS" SHORTHORNS FOR SALE

2 Reg. Bull Calves; 2 Reg. Cows; 1 three-year-old Reg. Bull (immune) raised south of Petersburg, Va. All right in every particular.

B. B. BUCHANAN, Bedford City, Va.

* VIRGINIA DIVISION. *

Farmers Mutual Benefit Association.

A Fire Insurance Association, chartered by the State of Virginia, for farmers, under an amended and well protected plan.

Insures in counties surrounding and accessible to Richmond, against Fire and Lightning, only country property—no stores or unsafe risks. Policy holders amply secured—all legitimate losses paid. Average cost per year less than other plans, and a great saving to farmers. Amount of property now insured, \$330,000, and increasing yearly. Estimated security in real and other estate, \$750,000.

For further information, address, **CHAS. N. FRIEND, General Agent, CHESTER, VIRGINIA.**

MENTION THIS JOURNAL.

THISTLE



BRAND.

L A I D L A W ' S

CONCENTRATED TOBACCO POWDER, Sheep Dip and Cattle Wash.

A SURE CURE FOR THE EXTERMINATION OF

SCAB AND TICK IN SHEEP.
LICE ON HOGS.

LICE ON HORSES AND CATTLE.
MANGE ON DOGS.

Kills all vermin. Allays all irritation. Promotes growth of wool. Makes animal feel well and take on flesh.
ABSOLUTELY NON-POISONOUS.

PRICES: 5-lb. bag, 75c.; 10-lb. bag, \$1.25; 25-lb. bag, \$2.60; 50-lb. bag, \$5.00.

One 50-lb. bag makes 500 gallons Dip for Scab, and 1,000 gallons for Tick, etc.

SOLE MANUFACTURERS,

L A I D L A W , M A C K I L L & C O . , Limited, Richmond, Va., U. S. A.

To be had at all leading Drug stores.

Hackney Stallion Cismont,

A. H. S. B. 399.

IN THE STUD AT CISMONT FARM,

One and a half miles from Keswick, Va., on the C. & O. Railroad.

Telephone Connection with CHARLOTTESVILLE and RICHMOND, VA.

For approved mares, \$10.00 the season with return privilege, or
\$15.00 to insure.

G. S. LINDENKOHL, Owner, Keswick, Albemarle Co., Va.

UNEXPECTED ANSWERS.

A man who answered advertisements in cheap "story papers" has had some interesting experiences. He learned that by sending \$1 to a Yankee he could get a cure for drunkenness. And he did. It was to "take the pledge, and keep it." Then he sent 50 two-cent stamps to find out how to raise turnips successfully. He found out: "Just take hold of the tops, and pull." Being young, he wished to marry, and sent 34 one-cent stamps to a Chicago firm for information as to how to make an impression. When the answer came, it read: "Sit down on a pan of dough." It was a little rough; but he was a patient man, and thought he would yet succeed. Next advertisement he answered read: "How to double your money in six months." He was told to convert his money into bills, fold them, and he would see his money doubled. Next he sent for twelve useful household articles, and he got a package of needles. He was slow to learn, so he sent \$1 to find out "How to get rich." "Work like the devil, and never spend a cent." And that stopped him; but his brother wrote to find out how to write a letter without pen or ink. He was told to use a lead pencil. He paid \$1 to learn how to live without work, and was told on a postal card to "Fish for suckers, as we do."—*From an Exchange, in Our Dumb Animals.*

THE HEALTH OF YOUR HORSE.

A valuable little book to horsemen is published by the Newton Horse Remedy Co., of Toledo, O., in which symptoms are described whereby ailments can be recognized, and in which remedies and treatment are given for specific diseases. The proprietors have built up a reputation that is famous on Dr. Newton's Heave, Cough, Distemper, and Indigestion Cure, and they will be pleased to send the book free to all who make a request for it.

Farmer Brighton, of Fairfield, Ia., is just entering upon an advertising campaign in this paper. In his combination tool—the Swine V to prevent hogs from rooting, Cattle Dehorner, and Stock Marker—Farmer Brighton has something which other farmers want and buy liberally, else he could not afford to advertise it. His ad., headed, "No Humbug," and accompanied by a cut, shows the tool and a hog's snout operated upon to show how it works. Look up this ad., if you keep hogs or have occasion to mark or dehorn.

BUGGIES FOR THE MILLION.

The opportunity to get one of the famous Split Hickory Vehicles at the low prices at which they are now offered to the public by manufacturers is one that it is the part of wisdom to take advantage of. Especially is this



TWO CROP ESSENTIALS

are cultivation and keeping down weeds. More important than deep cultivation is keeping the surface stirred, breaking the crust due to rains, and allowing the light, air, moisture and warmth to penetrate quickly to the roots of the growing plant. For doing just these things the ideal implement is the

KEYSTONE Adjustable Weeder and Shallow Cultivator.

It kills the weeds at first showing, the top soil is pulverized and kept mellow, the plant roots are not disturbed and the moist soil is not brought up to dry in the sun. Adjustable in width. Narrows to 30 inches, widens to 7½ feet. Strong, runs steady, no cumbersome shafts. Furnished either with round teeth or with flat to suit different soils, as we are licensed by the Hallock Weeder Company to use their famous flat teeth. Weeder booklet mailed free. We also make 10 styles Corn Planters, 12 styles Cultivators, 20 styles Corn Shelters, hand and power, Harrows, Field Rollers, Feed Cutters, etc. Write for catalogue C.

KEYSTONE FARM MACHINE CO., 1554 N. Beaver St., York, Pa.

Reg. HOLSTEIN-FRIESIAN

CATTLE of the Netherland, De Kol, Clothilde, Pietertje and Artis families. Heavy milkers and rich in butter fat. Stock of all ages for sale.

Reg. BERKSHIRES From noted strains, Imported Headlight, Lord Highclere and Sunrise.



B. PLYMOUTH ROCK CHICKENS, Fifteen Cockerels for sale.

N. and W. and Southern R. R.

T. O. SANDY, Burkeville, Va.

POLAND-CHINA BOARS

THE KIND THAT GETS BIG.

Send your check and we will send you as good a pig as money will buy anywhere, sired by a son of "Proud Perfection." We pay the expressage. No guesswork what the cost will be. If you don't like the pig, give it a good feed, send it back, expressage prepaid, and we will return your check.

We are careful in selecting animals and would not sell a poor one at ANY PRICE, for it would spoil our trade. PRICES:—2 months old, \$10; 3 months old, \$11; 4 months old, \$12. No more sows or sow pigs for sale.

BULLFIELD FARMS, - Doswell, Virginia.

SPRAYING IS EASY

and you have an outfit always ready at a moment's notice for a small or large job in the

GARFIELD KNAPSACK SPRAYER.

Best sprayer made for nine-tenths of all work, as Cotton, Tobacco, Potatoes, Gardens, Shrubby, etc. Easily carried and worked, simple and durable. Copper tank concealed to fit back, and all brass pump. Nothing to corrode. We also make the Empire King and Orchard Monarch, mounted sprayers for large operations, and others for all purposes. Fully described in free catalog. Write for it. FIELD FORCE PUMP CO., 223 Eleventh St., Elmira, N.Y.



SLUG SHOT

Kills Insects on Melons, Potatoes, Cabbage and Flowers.

SOLD BY SEEDSMEN EVERYWHERE.

Used 22 Years.

Send for Free Booklet on Bugs and Blights to

B. HAMMOND, FISHKILL-ON-HUDSON, NEW YORK.

true in view of the fact that thirty days are allowed every purchaser, who desires it, to try the buggy on his own premises and ascertain by actual use and inspection how good the vehicle actually is. The first step is to send your address to the Ohio Carriage Mfg. Co., Station 41, Cincinnati, O., for their illustrated catalogue and price list. The rest of it is easy. Their catalogue illustrates and quotes prices on vehicles, harness, and saddles of every description also, and will be found interesting to all horse owners.

"OLD HICKORY'S" FAIRNESS.

Andrew Jackson has two sorts of reputation. He is credited, on the one hand, with being the father of the spoils system; but, on the other hand, he is said to have been staunch and stubborn against wire-pulling. A story told in the *Washington Post* throws light on the best side of Jackson's character.

When Jackson was President, Major Gibbon, a New Jersey man, was postmaster at Richmond, Va. A delegation from Richmond waited on Jackson to demand the postmaster's place for a Democrat.

"Isn't Major Gibbon an old soldier of the Revolution?" asked Jackson.

"Well, yes."

"Any charges against his official character?"

"No-o; but he stumps up and down the streets of Richmond abusing you and your administration."

"Does he?" said Jackson, grimly.

"Yes; and, besides, he's an old-time Federalist."

"Well," said Jackson, seriously, "you call to-morrow morning and you shall have an answer."

When the delegation had withdrawn, Jackson sent promptly for the Auditor of the Post-Office Department.

"Mr. Auditor, what sort of an official is Major Gibbon, postmaster at Richmond?"

"A model postmaster, Mr. President."

"Any charges against his official integrity?"

"None whatever, sir. His accounts are scrupulously correct and always rendered on time."

"That will do, Mr. Auditor. Good morning!"

The next day the delegation called promptly, expecting to receive Major Gibbon's head.

"Gentlemen," said Jackson, "you admitted yesterday no charge lies against Postmaster Gibbon's official character or conduct. This is verified by the accounting officer of the Treasury. But you dwell on the fact that he villifies me and openly opposes my politics. For that you would have me turn adrift and penniless an elderly

Registered HEREFORD CATTLE.

Service Bulls; Imported Salisbury 76059 19083). Lars Jr. 85297.

FOR SALE—A choice lot of bull calves and yearling bulls. The bull calves sold recently weighed 600 lbs. at 6 mos old. Call and make your own selection Prices right.

MURRAY BOOCOCK, OWNER, KESWICK, VA.

HEREFORD CATTLE

Annefield Herd Richly Bred in "Anxiety" Blood and Headed by the Sweepstakes Winner at Kansas City 1901,

PRINCE RUPERT No. 79539.

FEE, \$25.00 FOR THE SEASON OF 1903.

CORRESPONDENCE SOLICITED. INSPECTION INVITED.

ANNEFIELD FARMS,

Briggs, Clarke Co., Va.

BACON HALL FARM.

HEREFORD REGISTERED CATTLE

"TOP" BREEDING, CALVES NOT AKIN.

MOTTO—Satisfaction or no Sale.

E. M. GILLET & SON, - Glencoe, Maryland.

RUPTURE CURED while you work
You pay \$4 when cured,
No cure, no pay. ALEX. SPEIRS, Box 84,
Westbrook, Maine.

C. C. Taliaferro,
NASONS,
VA.
1903

"MOUNT SHARON STOCK FARM."

REG. and Grade HEREFORD CATTLE *
REG. and Grade SHROPSHIRE SHEEP
REG. and Grade POLAND-CHINA PIGS.

BRONZE TURKEYS * MUSCOVY DUCKS

NOW OFFERS FOR SALE



HEREFORD CATTLE.—Calves, entitled to registration, \$75 to \$100. Grade Calves by "Sir Edward" \$25 to \$40.

SHROPSHIRE SHEEP.—Bucks, one year old and over, \$15 to \$20. Buck Lambs, July delivery, \$10. and \$12. Ewe Lambs, July delivery, \$8. and \$10.

POLAND-CHINA HOGS.—Pigs, six weeks old, \$5. Pigs, two or three months old, \$7.50. Pigs, five months and over, \$15 to \$20.

M. BRONZE TURKEYS.—Toms, \$4. Hens, \$3. Eggs, per sitting of 12, when in season, \$4.

MUSCOVY DUCKS.—Pure White Drakes, \$1.25. Pure White Ducks, \$1. Pairs, \$2.25; trios, \$3.

BARRED PLYMOUTH ROCKS.

ROUEN GESE.—Ganders, \$2.50. Geese, \$2.50. Eggs, per sitting, \$3.00

WILLIAM L, Jr., No. 21058, half brother of Axtell, will serve a limited number of mares for \$25 the season. Mares boarded at lowest figures per month.

man—the man who led the forlorn hope at Stony Point, and left his right leg there.

"Such a man, gentleman, has bought the right to entertain his opinions and speak them, and to abuse me as much as he pleases. While Andrew Jackson holds the White House, Major Gibbon shall not be disturbed in his little office. You have my answer. Good-morning!" — *Youth's Companion*.

INSURING THE HARVEST.

The harvesting of grain has been from the most primitive times until the present an object of solicitude on the part of the farmer.

Upon the successful harvest is dependent the feeding of the world.

The farmer who uses the Deering line of harvesters, however, is free from worry so far as the prompt and effective gathering of the crop is concerned. These ideal machines are always ready when needed, and can be relied upon.

GOOD FOR ALL EXTERNAL TROUBLES.

ELKTON, VA., Dec. 6, 1902.

The Lawrence-Williams Co., Cleveland, O.:

I have used Gombault's Caustic Balsam very successfully for a number of years on my horse for swelling, stiff joints, abscesses, etc., I consider Gombault's Caustic Balsam the most valuable external remedy and liniment I have ever seen or used, and keep it on hand all the time.

W. S. SOUTHALL.

The Pasteur Vaccine Co. have just moved their headquarters to more commodious and convenient premises at 219 Randolph street, Chicago. They occupy the whole building, and it is located in the center of the drug business. The Pasteur Vaccine Co. is very well known to all stock owners who have had any trouble with anthrax or blackleg, as they introduced the vaccines for these diseases into this country in the early part of 1895. The extent and success with which the Pasteur Vaccines have been employed are too well known to need comment. It will be interesting to note that up to the end of 1902 about forty-five millions of animals have been vaccinated with the original vaccines. This is a wonderful showing, and speaks volumes for the success of the Pasteur Company's remedies.

Messrs. W. M. Watkins & Son, proprietors of the Cottage Valley Stock Farm, Randolph, Va., reports that their sales have been good during the year 1903. Among recent sales are as follows: W. G. Rogers, Warrenton, N. C., 2 horses; C. F. & J. Button, Walker's Ford, 1 mare; J. A. Lang,

MRS. LEA'S MILK AND BUTTER PURIFIER.

Removes all Weed, Garlic, Vegetable and Animal Odor and Taint from the milk and in no way injures the cow to which it is fed.



Dr. Jacob Michaux, Richmond, Va., and Dr. W. L. Robinson, Danville, Va., Ex-Presidents of The Virginia Medical Society, write as follows:

Gentlemen:—Having been consulted by you with regard to your "LEA'S MILK and BUTTER PURIFIER," we beg leave to state after many careful experiments that we are most favorably impressed with its value.

From the standpoint of physicians, we have no hesitation in saying that the milk from cows to which it is fed is acceptable to the delicate palates and stomachs of the sick in cases where ordinary milk is not borne. We, having a knowledge of the formula, further state that it is not in any way injurious to either the stomachs or systems of the animals to which it is fed, nor to the stomachs or systems of persons using the milk from such animals. We

further believe from our knowledge of your preparation that it so favorably influences the digestion of the animal that it will prevent those abnormal fermentations which produce injurious chemical reactions in the secretions and milk of said animals.

We advise that Sanitary Dairies be encouraged to use this product, as it furnishes a milk not only devoid of all vegetable animal odors and flavors so objectionable and so frequently found in milk not thus treated, but that it is a sweet and pure article for the table and for the use of invalids

(Signed)

{ JACOB MICHAUX, M. D.,
W. L. ROBINSON, M. D.

M'f'd. by VIRGINIA CATTLE FOOD COMPANY, Danville, Virginia.

Write us for prices and further information.

CISMONT DORSETS..

CISMONT STOCK FARM offers well developed young Dorsets of the best blood of England and America.

Prices reasonable.

G. S. LINDENKOHL, Keswick, Albemarle Co., Va.

Where to Sell Your WOOL

WE ARE THE LEADING DEALERS IN THE WOOL TRADE IN VIRGINIA.

HIGHEST MARKET PRICE PAID, and no Commission, Freight, &c., charged SACKS FURNISHED FREE. Checks remitted promptly. Correspond with us when ready to sell.

THE WALLERSTEIN PRODUCE CO.,

19 and 21 So. 13th St., RICHMOND, VA.

REFERENCES:

American National Bank and Richmond merchants generally.

"BRED-IN-THE-PURPLE."

DUNTREATH BERKSHIRES

Extra choice lot of Young Pigs for sale: ready for shipment after April 20th, 1903, all eligible to registry, and sired by our famous boar,

BARON SYLMAR OF DUNTREATH.

Our advance bookings have been so great that we can only accept a limited number of orders.

DUNTREATH STOCK FARM, Box 666, Richmond, Va.

IVANHOE POULTRY YARDS-----

Breeders of



Exhibition Barred Plymouth Rocks

ENGLISH CARRIERS AND HOMING PIGEONS.

For information, address

Ivanhoe Poultry Yards, Box 258, Richmond, Va.

THE TRAP HAS BEEN SET, BUT THE FARMERS "ARE ON TO IT."

IN 1903

THEY ARE GOING TO BUY **THE WALTER A. WOOD MACHINE.**

WHY?

Because it is the Best Machine Made.

Because it Belongs to no Combination.

Because its Repairs Cost Less.

The Wood Binders, Reapers, Steel Hay Rakes, Tedders, Corn Harvesters, Knife Grinders the world knows and the world endorses.



SEND FOR SPECIAL CATALOGUE.

WALTER A. WOOD MOWING and REAPING MACHINE CO., Richmond, Va.

Haw River, N. C., 1 mare; W. D. Grimes, Washington, N. C., 1 mare; A. C. Canada, Lynchburg, Va., 1 pair mules; the County of Mecklenburg, 1 mule; C. A. Williams, Ringwood, N. C., 1 3-year-old cow, 1 6-months-old calf; D. L. Berry, Abingdon, Va., 1 6-months-old bull calf; B. L. Gill, Rehoboth Church, Va., 1 bull calf; R. Turnbull, Lawrenceville, Va., 1 bull calf; J. F. Jones, Laurel, N. C., 1 bull calf; J. E. Connell, Irwin, Va., 8 sheep; H. A. Black & Bro., Stuarts, N. C., 1 ram lamb; J. W. Smith, Stuarts Draft, Va., 6 ewes, 3 lambs, 3 old ewes; W. R. McKenney, Petersburg, Va., 3 milk cows. Look up this firm's advertisements in this issue.

THE BUSINESS EYE.

It requires a business eye to see an opportunity when it presents itself. The ability to see things as they are is the one thing which agriculturists should possess, if they mean to make a success out of whatever they undertake to do. It is the power of discernment that enables them to keep up interest in their work, and it is enthusiastic interest in what one is doing that gives life its zest and enables one to do his best. In the purchase of a binder, for example, a good business eye is needed. There are many details in the construction of the machine that should be carefully examined, and where this is done the farmer, in the great majority of instances, buys the McCormick, because it is pre-eminently the machine for the man with an eye for business.

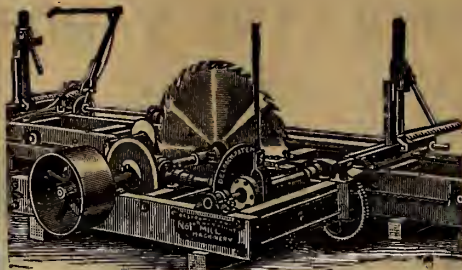
The Southern Farm Magazine of Baltimore has compiled from official reports of the government the statistics of grain crops of the South in 1902. The total values are as follows:

Corn	502,487,609	\$276,553,894
Wheat	48,872,127	38,069,619
Rye	1,352,892	975,514
Oats	56,178,672	26,252,265

In addition to grain, the South raised 21,897,555 bushels of Irish potatoes, valued at \$14,116,169; 3,905,423 tons of hay, valued at \$46,734,706, and 630,258,898 pounds of tobacco, valued at \$63,843,025. The total for these three items added to the total for grain makes \$466,545,192, or, approximately, about one-half of the total value of the agricultural products of the South. In this report no mention is made of the cotton crop, of sweet potatoes (the yield of which in the South is much larger than the yield of Irish potatoes), of sugar, rice, and fruit crops. These figures show that the grain crop of the South—corn, wheat, oats, and rye—is about the same in value as an average cotton crop, but the growth of diversified farming in the South promises within a few years to make the value of these crops much larger than that of cotton.

The DeLOACH SAW MILLS ARE SURE WINNERS.
Eight sizes, from Farmers' 4 h p up to 200-h. p.

If interested, write for large illustrated catalogue of DeLoach Patent Saw Mills to suit any power from 4 to 200-h. p.; Shingle Mills, Planers, Edgers, Trimmers, Stave and Lath Mills, Boilers, Corn and Buhr Mills, Water Wheels, etc. To introduce our **New Farmers' Saw Mill**, fitted with DeLoach Patent Variable Friction Feed, we make this special offer:



We will deliver on cars at factory our **No. 0 Pony Farmers' Saw Mill**, with Duplex Dogs, Improved Head Blocks and Ratchet Set Works, complete as shown in cut, except it has Carriage made in two 4-foot sections, with Rope Drive instead of Rack and Pinion, without Saw or Belt, for **\$115.00 Spot Cash!**

With 36" Solid Saw, \$127.50; 40", \$132.50; 44", \$140.00; 48", \$150.00.

With 36" Inserted Saw, \$147.50; 40" \$152.50; 44", \$160.00; 48", \$170.00.

Best Rubber Belting, 4-ply, 6", 20 cents per foot; 8", 30 cents per foot, net.

No discount from these prices.

Our Warranty: This mill is warranted to be made in a workman like manner, of first-class material throughout, and to give perfect satisfaction if operated according to our printed instructions, which are so simple that a boy can understand them. **Any one with ordinary intelligence can set and operate** without the assistance of an experienced sawyer; will easily cut 2,000 to 2,500 feet of first class board lumber per day with only 4-h. p.; 3,000 ft. with 6-h. p.; 4,000 ft. with 8-h. p; is adapted to any kind or size power up to 15-h. p.

DeLOACH MILL MANUFACTURING CO , Box 600, ATLANTA, GEORGIA, U. S. A.

The DeLoach is the only mill made that is shipped to all parts of the world. Over 10,000 in use.

FRUITS and VEGETABLES

ARE LARGELY INCREASED IN YIELD AND, GREATLY IMPROVED BY THE USE OF

SPRAY PUMPS.

Write for new catalogues and price-lists.

Our pumps are used by the Virginia and North Carolina Agricultural Departments.

SYDNOR PUMP AND WELL CO., Inc.,
Box 946, RICHMOND, VIRGINIA.

GASOLINE ENGINES. WIND MILLS, RAMS. TANKS WATER SUPPLY CONTRACTORS. ARTESIAN WELL DRILLERS.

Cut shows a Kerosene Sprayer which can be used for any other mixture.



CHARTERED 1870.

Merchants National Bank

OF RICHMOND, VA.

Designated Depository of the United States, City of Richmond and Commonwealth of Virginia.

Capital Stock, \$200,000.00

Being the Largest Depository for Banks between Baltimore and New Orleans, this Bank offers superior facilities for direct and quick collections.

Surplus and Profits, \$628,000.00

JNO. P. BRANCH,
President.

JNO. K. BRANCH,
Vice-President.

JOHN F. GLENN,
Cashier.

DIRECTORS.—John P. Branch, B. B. Munford, Chas. S. Stringfellow, Thos. B. Scott, B. W. Branch, Fred. W. Scott, Jas. H. Dooley, Jno. K. Branch, A. S. Buford, Andrew Pizzini, Jr., J. P. George, Alex. Hamilton, Sam'l. T. Morgan.

WAGONS and BUGGIES



MADE
RIGHT HERE
AT HOME
BY



The *BARBOUR BUGGY CO.*,
The *HUGHES BUGGY CO.*,
The *VIRGINIA WAGON CO.*

All of Virginia.

These vehicles are guaranteed to be as good as can be bought elsewhere; material and workmanship unsurpassed; all sizes and styles, prices low. We can save you time, money and freight by purchasing our vehicles. Send for our illustrated catalogues. Drop in our warehouse and inspect our stock. Inquiries cheerfully answered.

RICHMOND BUGGY & WAGON CO., 1433 E. Main Street, RICHMOND, VA.

J. T. DUNN, Manager.

AINSLIE CARRIAGE CO.,

Nos. 8, 10 and 12 Tenth St., RICHMOND, VA.

Building Carriages to order is our special business. Repairing and Repainting done, and best material used. A full line of all the latest styles. Orders for all classes of Vehicles solicited.

1903. IN THE STUD AT LAUREL HILL FARM. 1903.
THE FINE HACKNEY STALLION

✦ HEIDRIK ✦

Bay horse, foaled 1898; 16 hands high. This horse has great natural action, and is capable of getting the highest class harness horses.

FEE, \$10 00 the Season or \$15 00 to Insure.

Address **C. F. & J. BUTTON, Walker's Ford, Va.**

WHALEBONE, 7872.

Sired by Abdallah Wilkes, son of George Wilkes, 2:22. Dan Maggie O., by Abdallah, 15, sire of Goldsmith Maid, 2:14; second dam Viley Filley, by Pilot, Jr., sire of dam of Maud S., 2:08½.

NOTE.—Whalebone is a richly colored bay horse of fine size, handsome and well formed. His disposition is perfect. He has sired Visitor, 2:26½, and other winners.

FEE, \$15, with usual return privilege.

Address **W. J. CARTER,**
P. O. Box 229, RICHMOND, VA.

1903.

IN THE STUD

1903.

WEALTH, 29579.

RACE RECORD, 2:17½, Pacing.

Timed separately in 2:08 in a race at Indiana State Fair, 1902.

Bay horse, foaled 1897; 16 hands high. weight, 1,200 lbs. Sired by Gambetta Wilkes, 2:19½, dam Magnolia, by Norfolk, 3670. Wealth is grand individually and in appearance.

FEE, \$20 the Season with return privilege, or \$25 to insure.

Address **S. F. CHAPMAN, Gordonsville, Va.**

GREAT STAKES, 25521.

RACE RECORD, 2:20, Trotting.

Bay horse, by Billy Thornhill, 2:24, dam Sweetstakes, by Sweep Stakes, 298. Great Stakes has sired Captain, 2:16½; Foxhall, 2:19½, and four others in the list.

FEE, \$25.00 for the Season of 1903.

W. H. NELSON, - 1417 E. Franklin St, Richmond, Va.

Pedigrees traced and tabulated. Catalogues compiled and circulars prepared. Special attention given registration matters pertaining to thoroughbred and trotting horses

..BY..

W. J. CARTER (Broad Rock),

P. O. Box 929, RICHMOND, VA.

Representing the

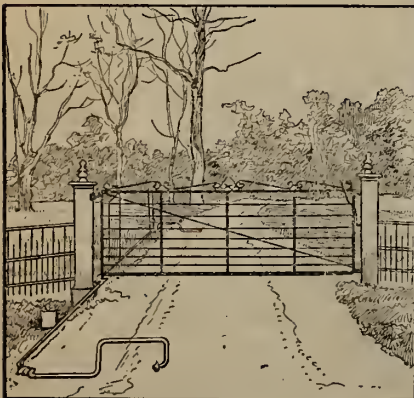
THE TIMES-DISPATCH, Richmond, Va.
SOUTHERN PLANTER, Richmond, Va.
SPORTS OF THE TIMES, New York.
KENTUCKY STOCK FARM, Lexington, Ky.
BREEDER AND SPORTSMAN, San Francisco, Cal.

RIGHT VEHICLES AT RIGHT PRICES.



The illustration shows a standard, well-made, serviceable, stylish buggy, which the Marvin-Smith Company are selling for \$58.20. Local dealers would probably claim to be making a rare bargain on this same vehicle at \$100. This is but one of a long line of vehicles, comprehending every purpose and style which this house is selling at such prices as readers have doubtless noted from their advertisements regularly seen in our columns. Dealers agree that by patronizing them you have the opportunity to examine and make choice before buying. This does not compensate for the high prices charged. The fact is, that the Company named ships anything you may select from their complete vehicle catalogue showing many times over the varieties and styles the local dealer carries, without any payment in advance, and permits full and free examination without obligation to purchase if not satisfactory. They make it possible for every one to own a good conveyance by paying only reasonable prices. We commend the house to readers who have under consideration the purchase of a conveyance of any sort.

THE MANLOVE SELF-OPENING GATE,



Shown in the above cut strikes us as being a very valuable and sensible device. The ease of operation and the time and trouble saved by its use makes it invaluable to every thoroughly up-to-date farmer. See the advertisement elsewhere in this issue.

A NEAT BINDER for your back numbers can be had for 25 cents. Address the Business Office.

Mention the *Southern Planter* when corresponding with advertisers.

Uncle Sam says it's all right

Uncle Sam, in the person of ten of his government officials, is always in charge of every department of our distillery. During the entire process of distillation, after the whiskey is stored in barrels in our warehouses, during the seven years it remains there, from the very grain we buy to the whiskey you get, Uncle Sam is constantly on the watch. We dare not take a gallon of our own whiskey from our own warehouse unless he says it's all right. And when he does say so, that whiskey goes direct to you, with all its original strength, richness and flavor, carrying a UNITED STATES REGISTERED DISTILLER'S GUARANTEE of PURITY and AGE, and saving the dealers' enormous profits. That's why HAYNER WHISKEY is the best for medicinal purposes. That's why it is preferred for other uses. That's why we have over a quarter of a million satisfied customers. That's why YOU should try it. Your money back if you're not satisfied.

Direct from our distillery to YOU
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4 FULL QUARTS \$3.20 EXPRESS PREPAID

We will send you FOUR FULL QUART BOTTLES of HAYNER'S SEVEN-YEAR-OLD RYE for \$3.20, and we will pay the express charges. Try it and if you don't find it all right and as good as you ever used or can buy from anybody else at any price, send it back at our expense, and your \$3.20 will be returned to you by next mail. Just think that offer over. How could it be fairer? If you are not perfectly satisfied, you are not out a cent. Better let us send you a trial order. If you don't want four quarts yourself, get a friend to join you. We ship in a plain sealed case, no marks to show what's inside.

Orders for Ariz., Cal., Col., Idaho, Mont., Nev., N. Mex., Ore., Utah, Wash. or Wyo. must be on the basis of 4 Quarts for \$4.00 by Express Prepaid or 20 Quarts for \$16.00 by Freight Prepaid.

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Don't hesitate to write us for any information desired; we will cheerfully answer any correspondence.

We furnish no sample copies of other periodicals.

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"Whatsoever One Soweth, That Shall He Reap."

We sell strictly reliable **FIELD AND GARDEN SEEDS** of every variety at **Lowest Market rates**, included in which are **RAGLAND'S PEDIGREE TOBACCO SEEDS.**

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Our Own Brands of Fertilizers

For Tobacco, Corn, Wheat, Potatoes, &c.
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Parties wishing to purchase will find it to their interest to price our goods. Samples sent by mail when desired.

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| Apples, | Nectarines, | Pecans, | Ornamental and |
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CALIFORNIA PRIVET, for Hedging.

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LABOR-SAVING IMPLEMENTS AND MACHINERY.



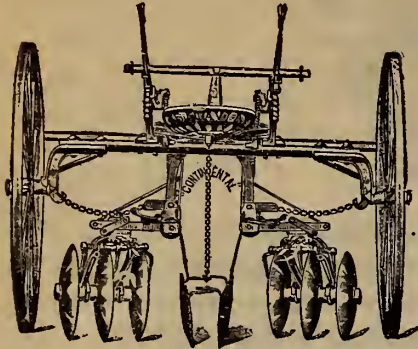
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Corn Planter.

Spring tooth attachments for Cultivator. RODERICK LEAN steel lever harrows for one, two and three horses.

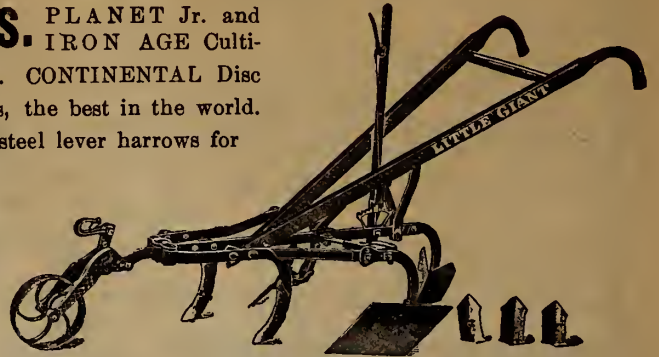
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Wood or Steel beam ; all sizes. Guaranteed equal to any made.

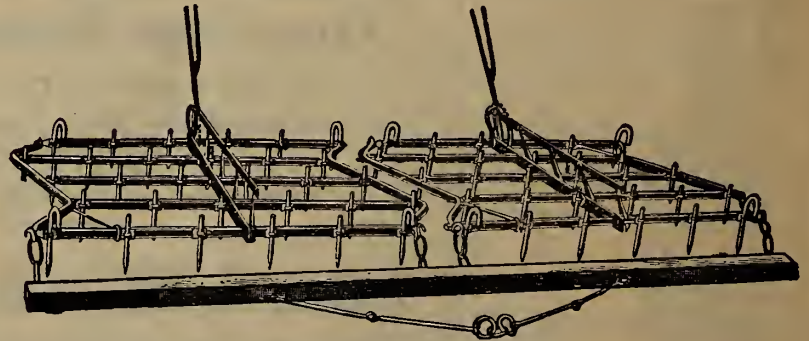
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Single or Double Disc.



DISC HARROWS—All Sizes.



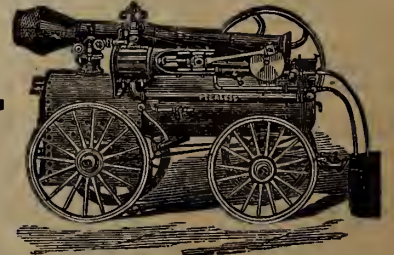
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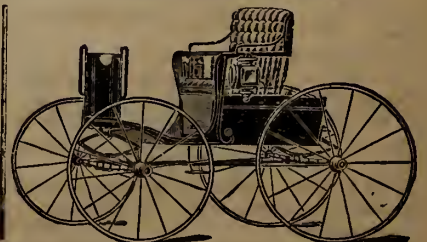
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The FISH, The WEBER and The CHAMPION Wagons IN ALL SIZES.



General agency for the Columbus Buggy Co., Columbus, Ohio. A. Wrenn & Sons, Norfolk, Va., and other celebrated makers of vehicles. All grades in stock.

Harness, Robes and Whips, Pittsburg Perfect Wire Fencing, welded by electricity. Circular for the asking, Correspondence solicited.



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Seasonable Implements of Latest Patterns.

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The WATT, CROWN, and CRES-
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Especially adapted to the Corn
Grower. Equally adapted to the To-
bacco Planter, the Cotton Planter and
the Gardener.

DISC HARROWS—All sizes.

Independent Flexible Ganges, oper-
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DUST PROOF BEARING BOXES.
Flexible Scrapers. Steel Shanks.

All Steel Lever Harrows. Made up
of sections of 25 teeth each. We have the
Continuous frame with spring trip,
which relieves all strain on the teeth, or the
U Bar, by means of the lever instantly
changed to a straight or slanting tooth
harrow.

The DEERE SINGLE and
DOUBLE ROW CORN PLANTER.

The Corn Drop works on the "edge
selection principle. Simple in construc-
tion and next to impossible to get out of or-
der. These Planters have features not
possessed by any other, and are fully de-
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The EMPIRE SINGLE ROW
CORN PLANTER with the celebrated
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Combination Planter made.

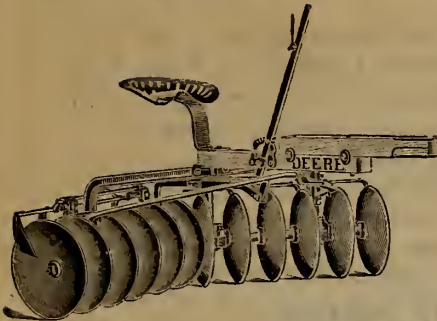
The EUREKA CORN PLANTER.
Known so long as to require no special
description.

The DEERE DISC CULTIVATOR
is made almost entirely of Steel and Mal-
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strength. High solid steel arch.
Wheels adjustable in width. Pivoted
Tongue. Dust proof bearing boxes. Con-
vertible into an Eight Disc Harrow or a
Spring Tooth Cultivator.

The DEERE RIDING and WALK-
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six shovels or spring teeth. Possesses
features not found in any other.



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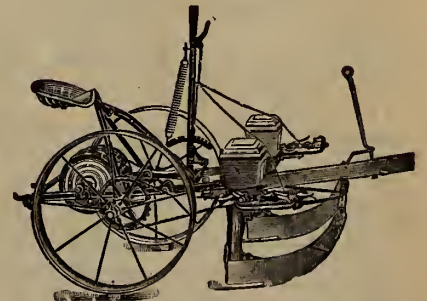
DISC HARROW.



LEVER HARROW.



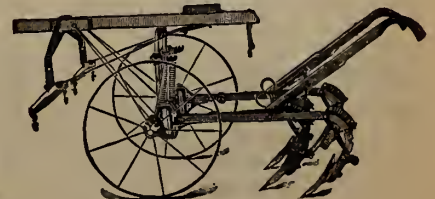
DEERE SINGLE ROW PLANTER.



DEERE DOUBLE ROW PLANTER.



DEERE DISC CULTIVATOR.



WALKING CULTIVATOR.

Iron Age Cultivators, Iron Age Combined Cultivator and Harrow. Double
Shovel Plows, Feed and Ensilage Cutters, Pea Hullers, Threshers, Engines,
Saw Mills, Grain Drills, Hoe or Disc. Farm Wagons, Buggies, Road Carts.
Implements, Machinery and Vehicles for all purposes.

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Between Main and Cary.

RICHMOND, VA. THE CALL-WATT CO.

“THE EARLY BIRD” You Know the Rest.

I mention this well-known adage, because so many of my customers have proved the old and true saying about the early bird—what he caught. He got the best, and he got there first. Now, you must do the same thing. You know our prices all “change without notice”—so send your orders in on time, and you will get the pick and choice of everything—though we keep nothing but the best. We buy at the market and sell at the market. Write for prices and I will be delighted to send them to you as fast as your mail service can carry them. I have at this writing but I don't know how long they will last :

10,000 bushels Feed Oats.....	40	50,000 lbs. Rock or Lump Salt for stock.	
6,000 bushels Mixed Corn.....	50	Take 1,000 lbs, and I will make it for	7 50
Both of these are big drives, and you should order at once.		500 bbls. North Carolina Cut Herrings....	4 75
500 kits of Large Mackerel, per kit.....	1 25	500 bbls. Lime, Cement, Plaster, at cost.	
5,000 bushels Early Rose Potatoes.....	70	Paints, Oils, Nails, and everything that is needed by a Farmer we keep, and will sell at actual cost to reduce our stock.	
4,000 bushels Burbank Seed Potatoes.....	75	Drop me a line, keep in touch with headquarters, and by doing this you save money.	
10 large bars Laundry Soap.....	25		

READ CAREFULLY THE FOLLOWING PRICES

Wines, Liquors and Cordials.

Gibson's fine old Rye Whiskey, six years old—Quarts, 75c., or gallon, jugs free.....	\$3 00
Bumgardner's fine old Rye Whiskey, six years old, per gal.....	2 75
Fine old Anderson County gal. (this is four years old).....	2 00
Clemmer's fine old Rye, three summers (it is thick and drinks like nectar), quart.....	40
Fulcher's old Mountain Dew, quart, Imported Juniper Gin. For Kidney and kindred troubles it gives instant relief, and you should get a quart—only.....	45
346 bottles, quarts, imported Three Star French Brandy.....	75
McDermott's Pure Old Malt Whiskey, quart.....	85
Pure old Northampton Apple Brandy, 7 years old, strictly choice, gal.	2 00
Old Rye Whiskey, 4 years old.....	2 00
Pure Old Virginia Apple Brandy.....	2 00
Blackberry Brandy, per gallon.....	75
Good Holland Gin.....	1 50
Duffy's Malt Whiskey.....	85

Flour.

Pillsbury Flour, per bbl..	4 90
Pillsbury, per bag.....	32
Graham Flour, per bag.....	25
Dunlop Patent Flour, bbl.....	4 50
Dunlop, per bag.....	29
Byrd Island Flour, per bbl.....	4 40
Jersey Lily Flour, per bbl.....	4 00
Fine Fairy Flour, per bbl.....	3 85
Best Family Flour.....	4 25

Seeds.

Sapling Clover Seed, per bushel.....	\$7 50
Alfalfa Seed, “.....	7 40
Alsyke Seed, “.....	9 50
Timothy Seed, “.....	2 75
Orchard Grass Seed, “.....	2 10
Tall Meadow Oats, “.....	2 00
White Clover Seed, “.....	13 00
Potato Onion Sets, “.....	2 00
Black Spring Oats, “.....	52
Rust Proof Oats, “.....	65
Turf Oats, “.....	70
Fine Winter Turf Oats (seed).....	75
Prime Winter Seed Oats.....	60
1,000 bushels Seed Rye.....	68

10,000 bushels Choice Seed Potatoes, all varieties—Early Rose, Burbanks, Beauty Hebrons. Am prepared to make very low prices.

I have everything that is required by a Farmer, from a 1,000 Acre Farm to a Mouse Trap. Write for my Price-List that will give you more information than a gossiping woman.

Sugar.

Best American Granulated.....	4 3/4
White A Sugar, per lb.....	4 3/4
Cut Loaf.....	6
Powdered.....	6
Light Brown Sugar, 6 lbs.....	25

Bacon and Lard.

Best Sugar Cured Hams, lb.....	15
California Hams, per lb.....	10 1/2
Breast Bacon, per lb.....	13

Good Lard.....	9
Genuine Smithfield Hams, lb.....	15
4-lb. Can Cottolene.....	44
Country Cured Bacon Sides.....	12
10,000 lbs. Nice Family Pork.....	9

Feed.

Oats, per bushel.....	46
Ship Stuff, per 100 lbs.....	1 10
Brown Stuff, per 100 lbs.....	1 05
Good Corn, per bushel.....	52
Coarse Meal, per bushel.....	65
Best City Meal, per bushel.....	70
Linseed Meal, per 100 lbs.....	1 75
Cotton Seed Meal, per 100 lbs.....	1 40
510 tons Cotton Seed Hulls—an excellent Winter Food, cheap and nutritious—as good as Coarse Meal for Stock, per 100.....	50
70,000 lbs. Rock Salt for Stock, per 100 lbs.....	1 00

5,000 Bales of Fine Shucks.

Coffee, Tea, Soap, &c.

Arbuckle's Green Coffee.....	11
Best Mocha and Java Coffee, roas'd.....	18
Fine Gunpowder Tea.....	40
800 barrels White Oil.....	12
7 boxes Axle Grease.....	25
10 Large Cakes Fancy Soap.....	25
Crystal Washing Soda, light, smooth and durable—makes washing easy	30
Washing Powder, 8 for.....	25
Large Fat Mackerel in nice buckets or kits, about 15 lbs.....	1 25

D. O'SULLIVAN, 18th and Main and 502 E. Marshall Sts., Richmond, Va.

THE WONDER OF THE 20 CENTURY....

THE ACME CHURN, MILK AERATOR and CREAM SEPARATOR.

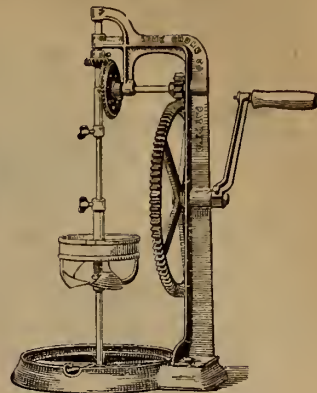
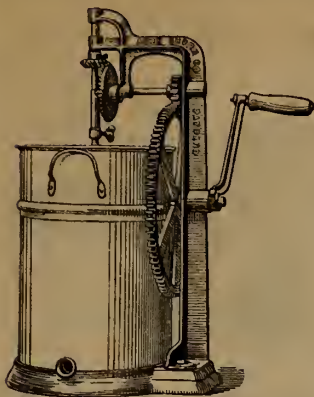
Guaranteed to make butter from sweet or sour cream in from three to ten minutes. The manufacturers offer \$100 to any one who can beat this machine on time, quality and quantity on any given amount of sweet or sour cream. Made of the very best materials and is guaranteed.

It will pay for itself in six months. It will interest and please father, and lessen and lighten the labor of wife and daughter. It is a pleasure to churn with this machine. I have used the churn, as shown in this cut, daily since July, 1902, and it is as good now as it was then. It shows no wear, and the more I use it, the better I like it. In 3, 6, and 10 gallon sizes. Correspondence solicited. Information circulars furnished on application.

Make a note of this and continue to watch SOUTHERN PLANTER.

ADDRESS

THE ACME CHURN, Lock Box, Richmond, Virginia.



ZESTFUL FRANKNESS.

Unexpected frankness now and then gives a special zest to the humor of a situation in Congress. When "Gabe" Bouck was the Representative from the Oshkosh district of Wisconsin, a pension bill came before the House, to his great vexation of spirit; for, while his personal convictions were directly opposed to it, his political interests were strong enough to whip him into line. On the day the bill came up for final disposal a fellow-member met Bouck in the space behind the last row of seats, walking back and forth and gesticulating excitedly, bringing his clenched right fist down into the hollow of his left hand, to the accompaniment of expectatives which would hardly look well in print.

"What's the trouble, Gabe?" inquired his friend. "Why all this excitement?"

"Trouble?" snorted the irate lawmaker. "Trouble enough! That pension bill is up, and all the cowardly nincompoops in the House are going to vote for it. Its sure to pass—sure to pass."

"But why don't you get the floor and speak against it—try to stop it," suggested the other.

"Try to stop it?" echoed Bouck. "Try to stop it? Why, I'm one of the cowardly nincompoops myself!"—Francis E. Leupp's "Some More Humors of Congress," in April Century.

Representative Hilborn, of California, after a vote in the House unseating him, retired to the cloak-room, where he held a levee as friends crowded in with expressions of sympathy and good will.

"Well, Hilborn," said one of them, "you are certain to come back, so you ought not to feel so bad."

"Yes," said Hilborn, in his dry way; "we all cherish the Christian belief in the resurrection, but I don't think that it entirely reconciles us to death."

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OFFERS
PROFITABLE
INVESTMENTS

THE MANUFACTURER,
THE STOCK RAISER,
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THE FRUIT GROWER,
THE TRUCKER.

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WHERE YOUR LABOR IS NOT IN VAIN.

Would a country where work can be carried on the entire year and where large profits can be realized interest you?

The SEABOARD Air Line Railway traverses six Southern States and a region of this character. One two cent stamp will bring handsome illustrated literature descriptive of the section.

J. B. WHITE, EDW. F. COST, CHARLES B. RYAN,
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Insures Against Fire and Lightning.

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AGENCIES IN EVERY TOWN AND COUNTY.

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ANGORA GOATS

550 HEAD of registered and high-grade
Angora Does and Kids for sale.



Clean your land of brush and filth and double your money invested. I HAVE DONE IT. Come and see for yourself; if not satisfied, I will pay your R. R. fare and expenses.

See Bulletin No. 27, Bureau Animal Industry, Department of Agriculture, for information about the Angora.

M. M. SUTHERLAND, Wytheville, Va.

Latest Improved FARM IMPLEMENTS.



Aspinwall Potato Planter.

Automatic, Accurate and Reliable. Used by thousands of practical growers the world over. Over twenty years on the market. Don't be fooled by imitations and make-shifts, but write for attractive illustrated catalogue.



Steel and Iron Rollers, All Sizes and Kinds.

Special prices given on Studebaker and Brown Wagons, Buggies and Carts. Studebaker Buggies, all styles, Studebaker Carriages, Studebaker Carts, Studebaker Runabouts.



Bement Disc Cultivator, with 6 or 8 Disc.
Built entirely of steel, steel forgings and malleable iron. The most simple and easiest adjusted cultivator on the market to-day. Write for circulars and testimonials.



Steel Lever Harrows.

Wood Harrows—All sizes.
Disc Harrows—All sizes.
Spring Tooth Harrows—All sizes.
Acme Harrows—All sizes.
Harrows of all styles kept in stock at lowest net prices.

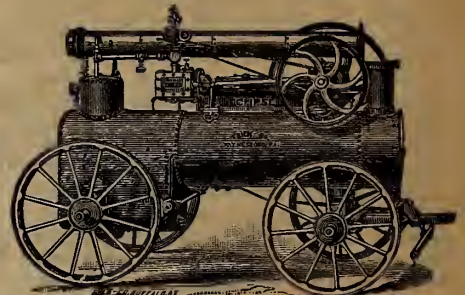
Buckeye Force Pumps. Porcelain Wood Pumps. Wood and Steel Wind Mills.

ELI BALING PRESSES.

58 styles and sizes. For horse or steam power. Write for prices and catalogues.

The SCIENTIFIC Grinding Mills.

The Improved Foss Gas and Gasolene Engines.



Frick and Aultman and Taylor Engines, Saw Mills and Threshers.



19. S. B.



Cahoon Seed Sower.

Michigan Wheelbarrow Sower. Three sizes.

DON'T FORGET! All the merchants in town who claim to sell Oliver Plows and Repairs only sell the Imitation, Bogus, Cheap Goods. The only place in Richmond, Va., to buy Genuine Oliver Plows and Repairs is at 1436 and 1438 East Main Street.

CUMBERLAND VALLEY CORN SHELLERS, One and Two Hole.

The frame is made of thoroughly dry hard wood. The joints mortised, tenoned and bolted. The bearings are bolted on to the frame instead of screwed. The iron work is made from the very best material, and ever piece is carefully inspected before being put on. This machine is high-grade all the way through. It is handsomely painted, striped and varnished.

Write for special catalogue and price on any implements wanted.

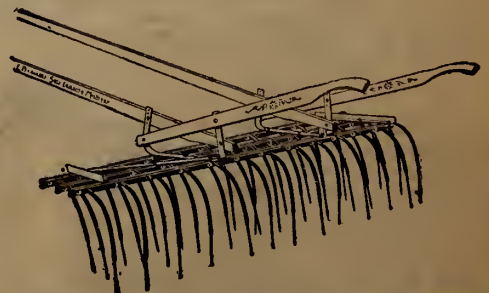
Superior Grain and Fertilizer Drills. Hoe and Disc.



Kemp's Improved Manure Spreader, Three sizes.



One and Two-Horse Planter, Plain or with Fertilizer Attachment.

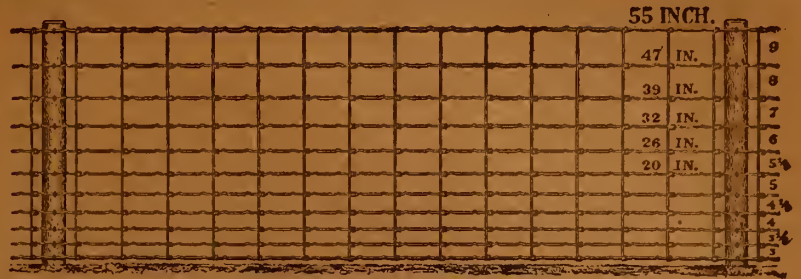


"Bement" Improved Duplex Tooth Weeders.
Write for circulars and prices.

HENING & NUCKOLS, Successors to CHAS. E. HUNTER, 1436-38 E. Main Street, RICHMOND, VA.

WHY USE DANGEROUS BARB WIRE

WHEN AN
ATTRACTIVE WOVEN
WIRE FENCE
CAN BE BOUGHT AT EVEN
LESS COST?



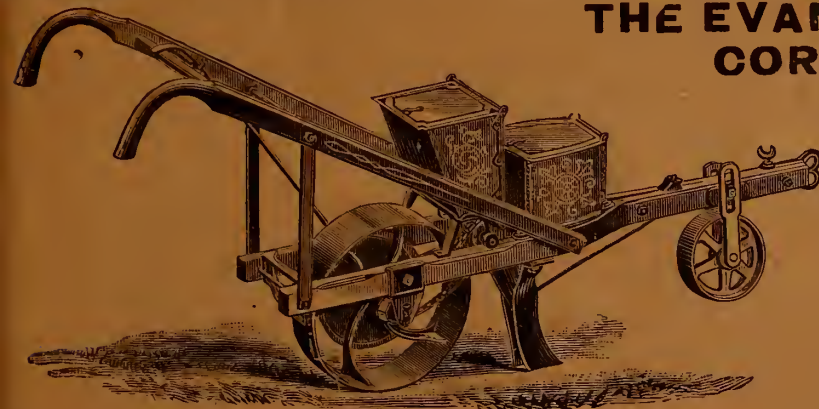
THE AMERICAN FIELD FENCING Is made in many heights and styles for turning the smallest to the largest animal. Write for special catalogue and prices.

THE EVANS STEEL-FRAME CORN PLANTER

Will drop accurately any desired distance, and any quantity fertilizer. Extra Plates for Peas and Beans at small cost. Use one and be convinced it has no equal.

EVANS TWO ROW CHECK OR DRILL PLANTER is made entirely of Steel, and fertilizer attachment is so arranged as to prevent the distribution of fertilizer when it is not needed. Special cat. mailed on application.

THE EUREKA CORN PLANTER Is noted for its simplicity. Write for our price.



PEA HULLERS.—It will pay to inspect the "STAR." Will hull and clean from 10 to 15 bus. of peas every hr
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