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# Southern Planter

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DEVOTED TO

Practical and Progressive Agriculture, Horticulture,  
Trucking, Live Stock and the Fireside.

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# The Southern Planter.

DEVOTED TO

PRACTICAL AND PROGRESSIVE AGRICULTURE, HORTICULTURE,  
TRUCKING, LIVE STOCK AND THE FIRESIDE.

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

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

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63d Year.

Richmond, December, 1902.

No. 12.

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## Farm Management.

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### WORK FOR THE MONTH.

The closing month of another year has come round and with it time for a retrospect of the results of the year's labors on the farm. To Southern Coast State farmers this retrospect should afford satisfaction. Whilst the wheat crop was a deficient one, mainly as the result of a very trying winter upon the crop, yet all the other staple crops have given yields in excess of the average, and the weather has been on the whole good for the saving of them. Corn has, throughout these states, given a yield in excess of the 10 years' average. In Virginia, the 10 years' average for corn is 19 bushels to the acre. This year the crop is over 21 bushels. In North Carolina, the 10 year average is 12 bushels; this year's crop is over 14 bushels. In South Carolina, the 10 years' average is 9 bushels. This year's crop is over 10 bushels. Of all the Southern States, only Georgia, Alabama and Louisiana have to complain of a less yield than the average. The tobacco crop in Virginia is placed at 750 lbs. to the acre against a 10 year average of 622 lbs. In North Carolina, the crop is placed at 650 lbs. against a 10 year average of 518 lbs. In South Carolina, the crop is placed at 734 lbs. against a 4 years' average of 700 lbs. The Irish potato crop is in excess of the average, whilst the Sweet potato crop is nearly up to the average. Hay also has given a crop in excess of the average. The cotton crop, whilst not yet fully reported on, is likely to be somewhat below the average. In all cases, the quality of the crops is above the average,

and, what is better, the price also is in excess of the average. Whilst much of this greater production may no doubt be attributed to climatic causes, yet we think that at least a part of it may be set down to better and more scientific methods of farming, deeper plowing, and more perfect preparation of the land, and to the increasing growth of leguminous and forage crops. If only greater attention is paid to these points, we see no reason why the average yields of all crops may not be yet made much larger. The South rarely suffers from either drouth or excess of rain—and in the absence of these there is no reason whatever why the yield of crops should not be as great here as anywhere else in the country.

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Whilst it is too late now to sow any crop except Canada peas and oats, it is not too late to plow and subsoil all land intended to be cropped next year. A great many Southern farmers are opposed to plowing land in the fall and winter unless it is to be seeded with some winter crop. They contend that as we have not the severe frosts which in the North do so much to ameliorate the conditions of fall plowed land, that it is here unwise to plow until nearer the time when the land is to be seeded. We are not of that opinion. Whilst we heartily coincide in the view that it is better to plow early enough in the fall for the land to be seeded with a winter-growing crop, yet when all is plowed and seeded that can be done before it is too late to seed, we would still go on plowing as long as

the weather would permit. Let this late plowing be so deep as to bring up some of the subsoil on to the surface, and, as far as possible on all clay subsoils let the subsoil plow follow the turning plow. The subsoil so brought up and loosened will be so aerated and acted upon by atmospheric influences as to make its plant-food largely available for the growth of crops in the coming year. If turned up in spring, this will not be the case, and as we most strongly need to have a greater depth of soil available on nearly all our lands, this is the way and the time to secure it. Another advantage also secured is that this winter plowing makes the land capable of absorbing the rain-fall and storing it in the depths of the soil for the later needs of crops. If not plowed, very much of this rain-fall is lost, as the surface of the soil is too hard baked to allow of more than a very partial absorption of the rain, and it passes off into the creeks and rivers. Wherever possible let this late plowing be followed by the top dressing of the land with barn yard manure and mineral fertilizers. In this way very much time may be saved in the spring in preparing the land for a crop. All that will then be needed will be to cultivate the land with the disc or spading harrow or a heavy three-tooth cultivator, and then fine the surface soil with a tooth harrow and roller. Even if it should be found necessary to re-plow in the spring the winter plowing will not be labor thrown away. Nearly all our crops suffer from want of more perfect preparation of the land before seeding. The fine open winters of the South ought to be fully utilized in preparing the land for crops and thus relieve somewhat the great pressure of work in the spring.

The work of clearing up new land, or land which has been out of cultivation for some years, calls for attention at this season. Let what is done be well and thoroughly done. Remove all stumps and stones and do not have to plow round these hindrances to good work for years. Dig them out or blow them to pieces with dynamite. Whilst left in or on the ground they are not only a constant source of trouble and cause of many broken implements, but they are the breeding places of insect and fungus pests and sure means of spreading weeds and briars over the land. The stones should be hauled away to repair the roads on the farm or the adjoining public road. In this way the labor of hauling crops home or to market can be materially lightened and the appearance of the farm be greatly improved. Let all old fences be straightened and made good or new ones be built. In doing this work see that the fields are so laid out as to fall easily into a good system of rotation, and that provision is made for access to each field without having to cross over other fields. Have gates hung at the entrance to each

field so that crops can be properly protected.

The work of draining and ditching land needing this should now receive attention. In putting in drains see that they are put in deep enough. No drain should be less than three feet deep, and three feet six or four feet is often better. It is not the water that falls on the surface that needs to be got away, but that which is stagnant below the surface. Make provision for this to get away and that which falls on the surface will do no harm. See that drains have sufficient fall to clear themselves quickly and that a good open out-fall is secured. In draining a hill side do not run the drains around the hill but straight up and down the face of the hill. Put in in this way they will draw the water from both sides of the drain, whilst a drain run round a hill will only take water from one side.

Have the ice pond cleaned out and made tight before impounding the water to be frozen, and see that all sources of pollution of the water are cut off. Freezing water does not purify it as many think. If the water be impure the ice will not be fit for use. Impure ice is more dangerous than impure water, as the impurity of it is so much more likely to be overlooked in the hot weather.

Have the ice-house cleaned out, and if necessary thoroughly repaired and drained. If no ice-house already exists now is the time to build one, if it is to be of any use this winter. We have so frequently given instruction as to the building of an ice house that we do not think it necessary to repeat this. The best ice-house is one built above ground, and is practically nothing more than a house within a house with good drainage from the bottom and good ventilation over head. Let the space between the outer wall and the inner wall be 12 inches, and pack this well with sawdust, and the ice will keep, with good drainage. This drain should be trapped by having a bend in the pipe which will always stand full of water so as to prevent the access of hot air.

See that provision is made to have an abundance of feed stored convenient for feeding to the stock. Labor usually becomes very disorganized about Christmas or before, and the work of feeding may have to be done without all the usual help.

Have all implements and tools not in use gathered up and placed in the tool house. Clean them thoroughly and grease the bright parts. On wet days repairs that are needed can then be made and a coat of paint be given to the woodwork. Farmers are usually most careless of their tools and implements and in-

volve themselves in expense every year for new tools and implements, very much of which could be saved with a little care and forethought.

See that you have a good supply of seasoned wood stored in the wood shed, and that the pathway to it is made good, so that on a wet day it will not be necessary for the women folks to wade through mud and water to get fuel to keep the house warm and cook the meals.

That all our subscribers and readers may enjoy a happy, merry Christmas is our heartfelt wish and desire.

### ROTATION OF CROPS.

The winter months present a most convenient time for the consideration of this most important question of the rotation of crops. In it is involved all the difference between "farming" and "planting"—between retaining and improving the fertility of the land and wasting and ruining it, and between profitable and unprofitable farming.

Whilst we do not go to the extent of saying that no system of merely "planting" can be made profitable, we do say that such a system can only be made so for a limited period of time, and at a great outlay for purchased fertility, and that it is absolutely incompatible with the conditions existing on the majority of farms and affecting the majority of farmers. The condition of the plantations and planters of the South is abundant evidence of the truth of this position. A comparison of the condition of the land and the financial position of the farmers in the South, where planting has been the rule, and the condition of the land and the financial position of the farmers in the Middle States, or in Pennsylvania, and even in New England, where true farming has been practiced, and where a systematic rotation of crops is practiced, is eloquent of the failure of the planting system to maintain fertility or to build up prosperity, even when the crop produced is, like cotton, peculiarly adapted to the climatic conditions of the section, and is a crop for which there is a world-wide and almost unlimited market and demand, and which practically encounters but little competition in the world's markets. Here, outside the river bottom lands, we find wasted and gullied land and a general condition of chronic poverty amongst the farmers. There is an absence of live stock, and the corn crib and meat house of the farmer is in the West. There is no reason whatever why this should be the case. Here and there throughout the whole Southland are to be found farmers with lands as fertile and productive as land in any other State in the Union, or in the world, and farmers as

well to do. Wherever these are found, a system of farming and not of planting is there found to be in operation. Live stock of all kinds are raised and fitted for home consumption and the markets of the world. These farms are run under systems of rotation of crops more or less lengthy and more or less intensive in their call upon the productive capacity of the land. These farms are themselves evidence that there is no natural difficulty in establishing and maintaining a system of rotation on Southern farms in general. Rotation of crops is, in truth, nature's method of retaining and enhancing fertility. Cut off the oaks from a piece of forest land, and pines will take the place. Each particular crop takes from the soil an excess of one particular form of plant food. Grown successively on the same land, this soon exhausts the available fertility of the soil in that particular element, and the crop fails. Each particular crop has, again, a different root system. One is surface feeding; another seeks its food in the deeper soil. One crop searches widely for its food; another takes only that to be found just around the stalks of plants. One crop adds an element of fertility to the soil, whilst another crop utilizes this and exhausts the soil.

Rotation of crops is most valuable in that it permits, nay, requires, the production of humus making material to be added to the soil, and this of itself is the highest recommendation it can have for Southern lands. Lack of productiveness in Southern lands is more caused by the absence of humus in the soil than the absence of plant food. It matters not how rich soil may be in plant food—whether naturally present or added in the form of chemical fertilizers—it can never produce to its full capacity whilst it lacks humus—vegetable matter—in its make up. All plant food must, to be available for the production of crops, be in a state of solution. This requires that the soil shall be capable of holding water in its texture. Humus is the great means by which water is held in the soil and stored for the use of the crops. Humus changes the texture of the soil, rendering it friable and easily penetrated by the minute rootlets of the plants which are their feeding mouths. Again, humus is the means whereby insoluble plant food in the soil is rendered available for the crop, the acid formed by it, humic acid, being a powerful solvent of mineral plant food. Rotation is also a great factor in preventing loss and injury to crops from insects and fungous pests. The loss from these two causes amounts to millions of dollars every year. Where crops are rotated, the particular insects and fungoid pests which find their natural home and habitat on one crop die out the following year when another kind of crop is grown, from absence of food and conditions necessary to their existence. Rotation of crops is the great

means whereby the South is to become a live stock producing section, and thus be not only rendered independent of the West for its meat, but to become a potent factor in supplying the great markets of the East. The presence of great herds of cattle, flocks of sheep and herds of hogs to convert the crops of the South into meat and dairy products, is what is needed to make the production of crops profitable, and at the same time add to the fertility of the soil. In our last issue we showed how possible it was for every farmer who had stock to make manure to keep up and enhance the fertility of the soil. With live stock well fed, and the manure carefully saved and applied to the land, gullied and wasted land will cease to be a characteristic of the South. Rotation of crops lies at the root of all this much to be desired change. Rotation means diversity of crops. Diversity of crops means a much more stable prosperity. Where success depends on one crop, a failure of that crop means ruin. With a variety of crops, failure rarely affects all of them.

What should be the system of rotation is a local problem which each section must work out for itself. In the coast and middle sections of the Southern States it will probably be found that a short rotation, say three or four years, will be the best, whilst in the Piedmont and Mountain sections a longer one will be found more desirable. In the Coast sections, where a grass sod will not hold well, cow peas, soy beans, and other forage crops, will have to be the humus-making and fodder-producing crops, whilst in the Piedmont and Mountain sections grass and clover will largely supply this factor. We invite farmers to give this subject their careful consideration during the winter months, and be prepared, when spring opens, to inaugurate and establish a fixed system of rotation for the working of the farm, so that no crop in the future shall directly succeed a crop of the same character on the same land.

#### CANADA PEAS.

Frequently in discussing the question of crops for hogs we have mentioned Canada peas as being one of the earliest and best forage crops for that purpose. This season of the year is the time for commencing the seeding of the crop in Eastern and Middle Virginia and North and South Carolina. In the Western sections of those States, they should be sown in February and March. Canada peas are essentially a cool weather crop. They make and should mature their growth before the warm weather sets in. As soon as the heat comes, they begin to mildew and quickly perish. The land should be well prepared, and, whilst needing to be in good heart, should not be too rich. If lacking

in fertility, an application of 300 or 400 lbs. of acid phosphate should be given broadcast. One of the requisites of success in growing Canada peas is that they should be deeply covered, and the best way to secure this is to sow broadcast and plow down so as to give them a cover of at least 4 or 5 inches. Sow 1½ bushels to the acre, plow down, and then sow half or three quarters of a bushel of winter or rust-proof oats, and harrow these in. In the Eastern and Middle sections of the Southern States this crop should not be seeded later than February, and the crop will be ready to graze and make into feed in May. Like the other legumes, Canada peas take nitrogen from the air, and thus improve the land, which they leave in fine condition for a corn crop, with which they may be followed in June.

#### FALL AND WINTER FERTILIZING.

Most farmers make a great mistake in not utilizing the late fall and winter months in the application of fertilizers and manure to their land. They will tell you that the value of the application will be largely lost if applied so long before the crop is planted. This is an entirely erroneous idea except in the case of nitrate of soda. For the application of barn-yard manure no season is so proper as the winter. The process of decomposition will go on quite as well in the field as in the yard or pen, but will be slower. Nothing of the value of the manure will be lost by leaching. The soil will absorb the dissolved plant food and hold it until called for by the crop. Few realize what a wonderful effect the application of barn-yard manure has in rendering available the inert fertility of the soil. In our last issue, we pointed out how valuable it is in rendering more available the phosphoric acid and potash in commercial fertilizers. It has precisely the same effect in acting upon the inert phosphoric acid and potash in the soil. In a recent experiment made at one of the Experiment Stations, two boxes were filled with soil identically the same except that to one was added 20 per cent. of its weight in cow manure. These boxes were treated exactly alike for 12 months, the soil receiving an occasional stirring. At the end of this period, an analysis showed an increase of 30 per cent. in the soluble plant food of the soil to which the manure was added after making allowance for what was contained in the manure, whilst that which received no manure showed a loss in soluble plant-food of 4½ per cent. The effect of applying the manure in the fall or winter is also seen in the greater capacity of the soil to hold moisture and to get rid of the surplus water beyond what the soil requires to make it work freely and become a good seed bed. In the case of the mineral commercial fertilizers, except nitrate of soda, they all require time to become assim-

ilated with the soil and dissolved before they can give up their food to the crop. There is no danger of this food being lost by leaching. This is also true of all the organic nitrogenous fertilizers, like cotton-seed meal, blood, blood and bone, and tankage. Until decomposed, they cannot become food for the crop, and this takes time. Nitrate of soda being so highly soluble, and the nitrogen being in the form in which plants use it, should not be applied until the crop is ready to use it.

### CURING PEA VINES AND SOY BEANS.

*Editor Southern Planter:*

I see in the *Planter* for November that Mr. Rickers failed in his attempt to cure pea-vine hay after the plan advised by O. W. Blacknall. Perhaps your readers would be interested in my attempt to cure Soy bean hay in the same way. I used the ordinary peanut stakes about seven feet long. The first lot tried were slightly cured, not much more than nicely wilted, when they were raked up and stacked around the stakes to the full height of stakes, and from two and a half to three feet in diameter. The lower half of these stacks became moldy, some not being fit to use.

The second lot were about half cured when they were raked up and put up in cock without stakes and left three or four days when they too were put around stakes, in larger stacks than the former lot, averaging perhaps four feet in diameter. These stacks cured out better than the first, but most of them were found damp and moldy in the bottom, amounting to half of the stack in some cases. Sticks were placed under a part of the second lot, but could see but little if any difference between those with sticks under them and those without. The first lot was stacked on sticks or short poles, as was also the third lot, which was put up the same as the first, except that the beans were pretty well cured before stacking, say two thirds cured. The last lot came out in fine shape and is as good feed as I have ever used.

These "Soys" were cut when the leaves were turning yellow and beginning to shed. We had a couple of showers during the process of curing, but the weather was on the whole good hay weather.

As some agricultural writers advocate the curing of cow pea hay in the barn—that is, putting the partially cured vines in the barn and allowing them to complete the curing process there—I will give the result of my efforts in this line. I have frequently come across an article in the agricultural press advocating this plan, and, like the man in the fable, not wishing to pay two francs for advice and not follow it, I have been determined to cure cow-peas in this way, but have met with failure in every case. This last season I cut a small piece and left them in the field seven days, the

last five of which were good, clear days; part of this time the vines were in the swath, part in windrows and balance of time in small cocks; the cocks were turned over, recocked, spread out to sun and air, and then cocked again, until the leaves were pretty well shattered off and the vines were dry enough so that scarcely one could be found that could be twisted hard enough to moisten the finger, and still the hay damaged in the barn. The outside and bottom—it having rails under it—cured all right, but the centre was moldy when opened out for feeding.

No, I have not "caught on" to the short cut for curing cow pea hay. It may be I cut them at the "wrong time of the moon," that the sign wasn't right or something of that sort, but I am inclined to believe that failure has been due to the fact that the vines were not thoroughly cured before they were put in the barn; for this reason I prefer Soy beans to cow peas since they don't shed their leaves so much as cow-peas, and then they are much easier handled than the running sort of cow-peas.

*Surry Co., Va.*

J. A. MOORE.

### BLACKNALL'S PLAN OF CURING PEA VINES.

*Editor Southern Planter:*

I have seen a good deal of criticism of my plan for curing pea-vine hay published several weeks ago. Since then I have, too, encountered the worst season for curing pea vines in my long experience as a strawberry and pea grower. Still I see no reason to doubt the advantage of the plan I advocated.

The plan was to rake and stack the vines as soon as mowed on poles about ten feet high (one foot of pole being in the ground) in stacks not over four feet in diameter. About one foot above the ground there was to be nailed crosswise to this pole two strips of wood or poles, which serve to keep the pea vines from lying on the ground.

As I have before stated, this season was the most unfavorable for curing pea vine hay that I ever saw. Constant rain scarcely gave time to stack vines dry even right behind the mower. Several of the rain storms were exceedingly heavy and accompanied by wind so high that the water was driven sideways almost clear through the stacks. Right upon the heels of the storms followed such drizzly, foggy weather that the vines had no chance to dry even on the outside.

The result was that when fair weather at length came we had to tear down and sun a good many stacks and the vines in a few rotted and were lost. But those which we allowed to sun after mowing and before stacking fared far worse.

My experience does not allow me for one moment

to doubt that the best way to cure pea hay is to stack it as fast as cut. It is almost impossible to cure it properly in the sun. If partially cured in the sun and then stacked it settles very close and is apt to injure. Stacked before it wilts, the vines lie more open and loose and accessible to the air, curing out well and affording, when shredded, hay not approached in practical value by any other kind that grows.

I find that in very wet and unfavorable seasons like the past one that it is very necessary to give more ventilation in the stacks. To be on the safe side I shall always hereafter stack as follows: Instead of two strips of wood nailed cross-wise to the stack pole one foot above the surface of the ground I shall have six strips nailed in pairs, one a foot above the ground, another pair one third the way to top, and another pair two-thirds the way to the top of pole.

These strips placed thus at intervals prevent the vines from settling too close; allow the passage of air through them and greatly facilitate curing. The rain which was driven into those ventilated in this way dried out quicker when fair weather came and did far less harm. But for a part of our curing season this fall it was simply impossible to cure vines undamaged by any method.

I hope that we shall never have another such. If the stacks are properly topped off so as to shed water, and, what is better, capped with a little crab grass hay, they can shed very heavy rain storms and sustain little damage. It is only when they encounter continuous and driving rains with no fair weather for weeks, that this method of curing fails, but even then it is less liable to failure than any other of the methods now practiced.

It is possible to do away with the cross pieces on poles by having the poles very low—not over four feet high. But this is not only a less economical, but what is far more important, less effective mode of curing. It costs less to have a pole nine feet above ground with six crosswise strips of wood nailed to it than to have to plant three poles four feet high. And one ten foot stack will hold three times as much as three four foot ones.

When we come to the value of the hay cured in the small stacks and in the large ones, we find a great difference in favor of the latter. The pea-vine, though ever so carefully stacked, is exceedingly pervious to rain. The small stacks have a far larger proportion of surface exposed to the action of rain than the larger ones. More vines in proportion get weather beaten and depreciated in value in the smaller ones. Vines cured in the larger stacks contain a much smaller proportion of blackened, deadened forage and are sweeter and of higher nutritive value.

*Kittrell, N. O.*

O. W. BLACKNALL.

## CURING PEA-VINE HAY.

*Editor Southern Planter:*

I want to express my thanks for the article written for the *Planter* by one of your correspondents a short time ago on curing pea vine hay. I am sure it has helped the farmers in Southside Virginia to solve the problem of curing this hay. I will give my experience this fall: One field of peas and sorghum was cut just before the wet spell of weather we had in September. The stakes round which the stacks were put up were set about eighteen inches in the ground and ten feet high; cross pieces were tacked on the poles about twelve inches from the ground. The peas were put up right behind the mower. Stacks were ten feet high, and about four feet across. I found where they were more than four feet across there were some dark peas in the centre of the stack. The rainy spell came on when these peas were green in the stack; with the weather warm and wet, still they were in good condition when housed. The second lot was cut about October 10th, and put up in the same way. The stacks were larger, some of them five feet across. We had very little rain after these were put up, and the vines cured perfectly from bottom to top. No better hay could have been made. With pea vine hay, that can be made in ninety days from seeding, and corn ensilage in about the same length of time, there is no excuse for farmers in the South not having fat cattle, and the farm should increase in value each year.

To my mind, there is no country more blessed than this. A variety of crops can be raised for man and beast.

*Nottoway Co., Va.*

T. O. SANDY.

## SHEEP SORREL AND SOUR GRASS.

*Editor Southern Planter:*

Having noticed various articles in the *Planter* relative to sour grass and sheep sorrel, attributing same to acidity of the land, I desire to say that land is not necessarily sour to grow sour grass, provided there is plenty of moisture, as wet ground is the natural home of this grass. As to sheep sorrel, sour land is not a necessary accompaniment, for one of the best corn crops I ever raised was on an old fallow where the sorrel came up so thick that it was a difficult task to clean the corn so that it had a chance to grow.

Some years ago I was riding with a highly educated gentleman, who, by the way, was a good farmer, and we went by a field with the largest growth of sheep sorrel on it I ever saw, and he remarked that field is no good, that land is sour. Next year I happened to come by that field, and there was as fine a crop of wheat on it as I could expect to see in that section of the country, and I have good reason to believe that



the land had no preparation except being well plowed and thoroughly harrowed.

It would be just as reasonable to say that land is bitter because dogwood and blackoak grow upon it as to say that it is sour because sheep sorrel grows upon the land.

Goochland Co., Va.

D. KNAPENBERGER.

**PLANT FOOD OF THE IRISH POTATO CROP.**

*Editor Southern Planter :*

One of the best methods to study the manurial needs of soils is the actual plant food removed by crops grown. We all understand that manures or fertilizers help the growth of plants from the fact that they supply plant food—that is, more or less nitrogen, potash and phosphoric acid. No one of these plant food ingredients can help the growth of plants by itself, nor in fact any two of them. All three must be present, and in certain definite proportions, best shown in a general way perhaps by the chemical composition of the crops removed from the soil.

Irish potatoes are of general cultivation, and it is useful as well as interesting to figure out just what will be the probable exhaustion of the soil after a crop of potatoes. A fairly good crop of potatoes, say, 200 bushels per acre, will contain plant food as follows :

	Nitrogen.	Potash.	Phosphoric Acid.
Tubers .....	36 lbs.	76 lbs.	7 lbs.
Tops.....	31 lbs.	28 lbs.	10 lbs.
Rootlets. ....	2 lbs.	6 lbs.	2 lbs.
	69 lbs.	110 lbs.	19 lbs.

The tops and vines, and the rootlets may largely be returned to the soil, but the plant food suffers considerable loss in the decay of the vegetable matter. The tubers themselves are practically completely removed from the farm, and the plant food they contain a certain loss. This means per acre 36 pounds of nitrogen, 76 pounds of potash, and 7 pounds of phosphoric acid. The equivalent of 3 to 4 tons of farm-yard manure to supply the nitrogen, or 7 to 8 tons of same to supply the potash, or 1 ton to supply the phosphate.

It is quite true that more or less nitrogen may be supplied the soil by growing clover, cow peas, or plants of that type, but what about the potash and phosphates? Suppose a crop of corn is to follow the potatoes, and the usual 4 tons of farm manure is applied. Now, if we get a fair crop of corn, that crop will take from the soil about 100 pounds of nitrogen, 78 pounds of potash, and 58 pounds of phosphoric acid. We now have removed from the soil in the corn and potato crops some 136 pounds of nitrogen, 154 pounds of potash, and 65 pounds of phosphoric acid; and we have applied in the shape of farm-yard manure some 40 pounds of nitrogen, 40 pounds of

potash, and 20 pounds of phosphoric acid. Of course the clover nitrogen may help out here, but how are we to make good the drain of potash and phosphates?

Even if the farm-yard manure applied amounted to 10 tons per acre, and no farm can keep up such an application except special stock farms, we have 100 pounds of nitrogen, 100 pounds of potash, and 50 pounds of phosphoric acid. Still far short of the plant food actually taken from the soil—in actual figures, 36 pounds of nitrogen, 54 pounds of potash, and 15 pounds of phosphoric acid. All this may not be serious in a single season, but we have been doing just this for years, and in many cases our parents before us. Is it any wonder that the acre yields begin to fall off, and that top dressings begin to show large yields, though not even complete manures are used in these top dressings. It is a good plan for farmers to study the probable shortage of plant food ingredients in the soil, by a systematic account kept with the crops removed. It is simply a matter of common arithmetic.

S. P. Cox.

**BERMUDA GRASS—JOHNSON GRASS—PEA-VINE HAY.**

*Editor Southern Planter :*

Mr. Allison is right in regard to his estimate of Bermuda grass in Fauquier county, Va. It is there merely out of its latitude, and can only be a nuisance. But if he lived in the coast country of the Carolinas or in central and lower Georgia he would realize that what Blue grass is to Kentucky Bermuda is to the South, and where it belongs it is just as valuable as Blue grass is in Kentucky. It is merely out of place in Fauquier county.

But I cannot agree with you that many sections of the South would have little hay without Johnson grass. My own opinion is that they would have more and better hay from Bermuda and Crab grass, both of which have a far higher feeding value than Johnson grass. The Southern farmer can make all the hay he needs from peas and other legumes without filling the whole country around him with an unmitigated nuisance. I live among the Johnson grass and know all its good and bad qualities. Its introduction has been a curse to the South.

I note that the pea vine hay question comes up again in your November issue. It has always been a matter of wonder to me to see people going to so much trouble in the making of pea vine hay when it is so easily made without all the bother of stakes and bushes. I have a barn full of it now, all green in color and full of leaves, and all of it, except one lot which was caught by rain, was put in the barn the third day after it was cut. I would like those who

make such a bother over cow-pea hay to take a look at this barn. The hay is even better than the sample I sent you several years ago, and which you said was as fine as you had ever seen in the old country. Cow-pea hay is about as easy to handle as any other legume hay, and I have been trying to convince the Southern farmers of this fact for the last twenty years.

W. F. MASSEY,  
Editor of *Practical Farmer*.

### CHEMICAL PLANT FOODS.

*Editor Southern Planter :*

Best results by and from the use of chemical fertilizers need never be expected when and where the one who uses them is in utter ignorance of their functions or capabilities when rightly handled.

In the upbuilding of a perfect plant and in the perfection of its seed, each of the chemical plant foods—nitrogen, phosphoric acid and potash—have a specific duty to perform; hence, the one cannot be made to take the place of the other. There is no substitution in nature; hence, again, aside from supplying known deficiencies in any given soil, one-sided fertilization is not profitable. Fertilization is "one-sided" whenever either one of the plant foods are applied separately, or a combination of any two of them to the exclusion of the other, except the latter is already present in the soil in quantity sufficient to amply supply the demands of the crop or crops to be grown. The only exception to this being in the case of the leguminous crops, which, as they are abundantly able to obtain their needed supply of nitrogen directly from the atmosphere, need nothing but phosphoric acid and potash to be artificially applied to them, except on extremely poor soils, where the application of a small amount of nitrogen helps even them. In this instance, potash phosphate fertilization is complete within itself.

If, when season is normal, plants are small, undersized, weak or spindling, the soil needs both nitrogen and potash, as it is the special province of these two foods to induce a luxuriant habit of growth. Nitrogen is supposed to promote a vigorous and general development of all parts of the plants; but while this is true of nitrogen, it is also largely true of potash—both tend to induce a luxuriant habit of growth, while both seem, equally, to prolong the period of growth, making the plants live longer.

Phosphoric acid conduces to the development of seed, inducing fructivity. It also tends to force an early maturity, thereby tending to make plants die faster. While precocity and prolificacy are due to phosphoric acid, this same prolificacy seems to have reference more to the number of fruits set or seeds developed than it does to their size or quality; while

the credit for size, quality, flavor, color and general attractiveness is due to potash—it acts as an improver of the quality of the fruitage of the plant, whether that be cereal, tuber or fruit.

Three years ago (1899), I had occasion to apply potash liberally in conjunction with phosphates to several plots of land. This year (1902), these plots, with contiguous lands, are sown down to cow peas for hay. The peas tell the tale by the superluxuriance of their growth and dense dark green color as compared with the land immediately beside it, but to which no potash was applied, in spite of the fact that it is three years since said potash was applied, and no application of any kind has been made to said land since. No nitrogen has ever been applied at any time either before or since.

I have been forcibly struck with the longevity of the residual effects of sulphate, as compared with the other salts of potash—seeing the effects of a liberal application of it by the superluxuriance of growth for five years after it was applied.

Though a little higher in price, I most decidedly prefer the sulphate to any of the other potash salts, it having done the best work all around for us, as well as showing its beneficial effects the longest.

At the Experimental Farm of the State Horticultural Society of North Carolina, located at Southern Pines, N. C., a series of careful and painstaking experiments have now been carried on for several years; the object in carrying on said experiments being to determine more particularly the relative quantity of plant food required for the proper development of fruit trees and plants and garden vegetables of almost all kinds. It would pay every horticulturist, market gardener or truck farmer throughout the length and breadth of this broad land to keep posted as to the results obtained from said experiments, as they are pre-eminently reliable, strictly accurate, and up to date.

We are all most intensely interested in the relative agricultural values of each and every substance that we use as manure. The best is none too good. Speaking for myself, I have no way of judging of the value of any single manurial substance used as plant food except from the actual visible increase obtained by and from its use. I want to know just how much benefit may be reasonably expected in a normal season from a ton of stable manure, a ton of nitrate of soda or of cotton-seed meal, a ton of phosphate, a ton of sulphate or muriate of potash, or of kainit, or from a crop of clover or cow peas, or other leguminous crops turned under, said benefit to be evidenced and determined in each individual case by the increased yields obtained from their use either singly or in any desired and required combination. I want to know which is best—

i. e., most profitable; whether nitrate of soda, cotton-seed meal, dried blood or tankage, as a source of nitrogen; acid phosphate, Thomas' slag, floats or bone as a source of phosphoric acid; or sulphate, muriate or kainit as a source of potash. At the Experimental Farm above referred to, and under the conditions specified in their report for 1896, equal quantities of potash in the different forms indicate an agricultural value of the first rank for sulphate; second, for muriate; third, double manure salt; fourth, carbonate of potash magnesia, and fifth, kainit.

Placing the fertilizing power of muriate at 100, the comparative fertilizing power of sulphate would be 104. This is their experience; but with me, I believe the difference in favor of the agricultural value of the sulphate as compared with the muriate would be greater even than this.

This Experimental Farm of Southern Pines, N. C., has been very aptly termed the "Rothamstead" of America, as the principal object in view in the establishing of said Farm was to determine by a series of actual experiments on the farm the best quantities and relative proportions for using the various fertilizing substances in order to produce the largest crops at the least expense. As these said experiments have now been carried on for the past seven years, the supervising committee will very shortly be in a position to supply the fruit and vegetable growers the country over with data so accurate and information so definite and reliable that all those who are sufficiently interested to avail themselves of the information obtainable from this source, will be able to obtain gratis what it has cost others thousands of dollars to find out—to wit, the safest and most economical way for chemical fertilizers to be used, so that the time, labor and money of the farmer shall be wisely and properly expended in buying and using fertilizing materials adapted to the wants of his soils and his crops.

After obtaining all information possible from extraneous sources, it still behooves us to study our soils for ourselves; watch the crops growing thereon. If stalk growth, leafy growth, or woody growth be deficient, supply the plants or trees liberally with nitrogen and potash. If the foliage, under normal conditions, is of a pale, sickly yellow color, when it should be of a dense dark green, apply nitrogen and potash without stint. If, on the other hand, the growth of foliage, stalks or wood be excessive, omit the nitrogen and potash, and be liberal with the phosphates; and more especially is this the case where the fruitage of the plant is deficient and out of all proportion with the superluxuriance of leaf or stalk growth. If fruitage is abundant but undersized and of inferior quality, and decidedly off in color or flavor, then be sure that your soil needs potash, and plenty of it.

*Burgess, Miss.*

G. H. TURNER.

## PRINCIPLES OF SOIL MANAGEMENT.

### 3. Sandy Soil.

*Editor Southern Planter:*

There is little danger that the farmer may apply too much manure on these soils, for the scant growth of most crops, especially on the lighter soils, forbids this. Generally there is a chronic lack of manure on farms with these soils, and to make it reach out is one of the greatest puzzles that confronts the farmer. In rolling land, pockets are sometimes found in the lower places containing deposits of vegetable mold, washed down in former years from the higher places when the land was covered with trees. The contents can easily be dug out, hauled to the barn yard and mixed with the manure, if this should be desirable. Where such deposits do not exist, sometimes leaves, moss, or peat may be obtained and used to swell the manure pile. If deep gutters are back of the cattle stands, this loose material may be dumped in these, it will readily absorb the urine, and when saturated can easily be removed and replaced by fresh material. If leaves are used, they should be plowed under immediately after the manure has been spread, as they dry out quickly, and hence, the first wind that rises scatters them in all directions. On farms with light soils it is sometimes impossible to obtain impervious clay for coating the bottom of the barnyard to prevent the leachings from the manure from being lost. In this case, from four to six inches of good soil should be put in the barnyard to absorb these leachings, and when the manure is hauled out this soil should be taken with it and be replaced by fresh material. This will not only answer the purpose, but will be a valuable addition to the manure. All manure applied on sandy soils should be well decomposed. Especially in spring straw manure must be avoided, because on these loose and porous soils it may easily cut off the capillary connections with the soil water below. A very good way to apply manure in spring is to spread it as evenly as possible, sow the seed broadcast, and plow both under together as shallow as possible. The plow has to be followed by a roller, and if the roller is smooth, by a very light harrow. Sandy soils rolled with a smooth roller have a tendency to crust as well as to blow. I have seen the best results from this method on the lightest kind of sandy soils.

#### GREEN MANURING.

Green manuring has been practiced for probably 100 years or more but has become more prominent during the last 30 years. Used in conjunction with crude chemical fertilizers it has been the means of improving in a comparatively inexpensive way the light soils and enabled millions of acres of land to be farmed profitably which not so many years ago were almost considered worthless.

Green manuring can be carried out in four different ways. The green crop can be sown:

1. In spring, without a nurse crop, to be plowed under in fall.
2. It can be sown under another crop.
3. It can be sown between two crops.
4. It can be sown in fall to be plowed under in spring, as is customary in the Southern States.

Which of these methods is to be chosen depends upon circumstances. If the green crop grown without a nurse crop remains on the soil all summer the land cannot be used for any other purpose, but the advantage of later growing a heavier crop may more than compensate the loss of a grain crop. This method can be recommended on poor and hilly soils, also on fields a good distance from the barns.

The second method, that of sowing the green crop under another crop, has the advantage in that a grain crop can be obtained, but it can only be carried out successfully on a less poor soil and in regions where at the time of sowing, rains can be reckoned on, otherwise the seed will not sprout. It may also happen on a more fertile soil, that the green crop grows too strong and injures the main crop, or that when the latter is harvested and the green crop suddenly exposed to the rays of the sun, it may be seriously affected.

The third method, that of growing the green crop between two crops, requires favorable weather for sprouting when the first crop is harvested and sufficient help to prepare the soil as quick as possible. Considering that help is scarce at harvest time, it is questionable if this method can be successfully carried out, though it probably is the best of the three.

In the South, in consequence of the mild and short winters, crops for green manuring can largely be grown during the winter or at least be well established. In this respect the Southern States have a great advantage over the Northern and Western States.

As all leguminous crops are strong consumers of potash and phosphoric acid, the farmer should not rely upon the possibility that the plants, through their extensive root system, may obtain the necessary food from food which probably may have accumulated in the subsoil, but supply these crops with the necessary food in form of suitable fertilizers.

#### CROP ROTATION.

Very little has to be said about the crop rotations on these soils. It is a well established rule that the poorer the soil the shorter the rotation must be; the oftener the soil should be laid out in pasture, and the more necessary does the growing of modest crops become. Only by continually improving these soils, through the growing of green crops, fertilizing, liming or applying marl—using everything which will help to swell the manure pile—can the better and more profitable crops be grown. Rye is the best grain crop on these soils. Corn, peas, mixed fodder, buckwheat, potatoes, sorghum, Kaffir corn, some varieties of clover, some grasses, seradella, lupines, and a few others do pretty well on these soils.

The following six field rotations give good results on light and poor soils:

- |                         |                         |
|-------------------------|-------------------------|
| 1. Pasture.             | 4 Rye.                  |
| 2. Pasture.             | 5. <i>Fodder crops.</i> |
| 3. Lupines, fertilized. | 6. Spring rye.          |

All of the available manure is applied to the fodder crops. If the soil has somewhat improved, the lupines can be dropped and buckwheat substituted.

- |                      |                                 |
|----------------------|---------------------------------|
| 1. Pasture.          | 4. Rye, followed by catch crop. |
| 2. Pasture.          | 5. <i>Fodder crops.</i>         |
| 3. <i>Buckwheat.</i> | 6. Rye or oats.                 |

In this rotation the manure should be divided be-

tween the buckwheat and the fodder crops; fertilizers applied wherever necessary. One of the best crops which can be grown after the rye, is turnips, sown broadcast. They are turned under late in fall, and it is astonishing to see the effect which they have on the following crop.

With the increasing fertility of the soil, clover and grass crops can be cut the first year:

1. Clover and grass, once cut.
2. Pasture.
3. Pasture until June, green crop fertilized.
4. Rye.
5. *Fodder crops.*
6. Spring rye or oats.

I simply name these crops to discuss the rotations. The selection of crops depends so much upon the soil and the climate, that no rules can be given. Buckwheat, for instance, will make a good seed crop pretty regularly in some sections; in others, with apparently the same soil, it is just as regularly a failure. Spring rye does well on a light soil in a dry climate; in a moist climate, oats are generally to be preferred. Peas, grown in some sections, are excellent for market, bringing high prices; in others, they are almost unfit for this purpose. Lupines, one of the best crops for green manuring on sandy soils, will not grow well on calcareous soils unless heavy applications of potash fertilizers have been made. By experimenting on a small scale, we can easily find the crops which give the best results and the manner in which they are most successfully rotated.

#### MANAGEMENT.

The poor water holding power of sandy soils, and the general lack of plant food, require the foremost attention of the farmer in managing these soils. These disadvantages can, to a certain extent, be overcome, as already stated, by turning under green crops, fertilizing, growing modest crops, pasturing in short succession, and by selling mostly farm products which contain little mineral matter. These are the fundamental rules which govern the management of sandy soils. On large farms, where the soil is seldom uniform, it is advisable to divide, for economy's sake, the different soils into groups—each group containing soil of a uniform character. If a farmer comes into possession of a large farm of light soils—say from 1,000 to 2,000 acres or more, and, as is often the case, the soil not being in the best condition—it requires an enormous working capital to commence an equal improvement of the total area at the same time. By dividing the soil into groups—one containing the better and the other the poorer soils—a different management of each group can be followed. One can be more intensively and the other more extensively treated. Whether this has to be done from the outset or later on, depends upon circumstances. If I had to take charge of such a farm, I would proceed in the following manner:

As experience has shown that these soils do not respond to the application of fertilizers unless the soil has been limed, each field, in the order in which it is taken up, should be limed with the milder form of the carbonate of lime at the rate of 1,500 to 2,000 lbs. per acre. If the soil is thus prepared, the cheap crude mineral fertilizers may be applied to the green crops if high freight rates do not prevent their application.

To sow these crops without fertilizers is not advisable, because they will only benefit the soil if they make a good growth; and this cannot be expected without a sufficient amount of available plant food placed at their disposal.

As soon as a fair number of live stock can be kept, and the disposition of the produced manure demands some consideration, it may be of advantage for the further rapid improvement of the better soils without going to too much expense, to treat these soils more intensively and the poorer soils in a more extensive manner. This arrangement has the advantage that all the produced manure can be applied to the better soils, and that these soils on which the farmer depends for the better and more valuable crops, can be brought in a shorter time to a higher state of fertility than would otherwise have been possible.

For the poorer soils, the following rotations may be adopted:

1. Pasture.
2. Pasture.
3. Green crop, fertilized, turned under.
4. Rye.
5. Buckwheat, etc., followed by catch crop fertilized.
6. Spring rye.

This is a very modest rotation. The crops require little plant food. The pasture and the two green crops will enrich the soil in humus and nitrogen; and if moderate quantities of fertilizers are applied, the soils will not only hold their own, but will gradually be improved. The crops from these soils come in handy to supplement the crops from the better soils, especially the rye straw is very valuable for bedding and producing manure.

Whilst the clay soils produce the best sugar beets, clover and wheat; the loam soils the finest barley, good cattle pastures and fine dairy products; the sandy soils produce good crops of starchy Irish potatoes and the healthiest pastures for the lighter breeds of sheep. According to Western Agriculturist, sorghum and kaffir corn, two drought resisting crops, do well on these soils, and their culture is very much recommended. As long as these crops are grown on a small scale only, they may be fed with advantage; if their culture should prove, however, to be profitable, on a large scale, it may be a greater advantage to use the potatoes, or the seed of the other crops for manufacturing purposes.

I know of hundreds of large farms, with light loam and sandy soils, the profitableness of which, viewed by a stranger not familiar with the manner of farming, would seem to be rather questionable, made comparatively very profitable by growing large quantities of Irish potatoes. The starch of the potatoes is converted in small distilleries into alcohol, leaving all the mineral matter the potatoes contain in the by product, the slop, on the farm, to be returned to the soil in the manure. In conjunction with the slop and the rough fodder, considerable quantities of bran, middlings and oilcake are fed, permitting the keeping of a large number of live stock, the producing of large quantities of manure, thereby obtaining a fertility of the soil which would be, by any other management, very difficult to accomplish. We find a similar management of the heavy soils on the large sugar beet farms in California and of the other Western States.

This kind of management requires, however, plenty of help and a large working capital; and as this is not always at the disposal of the farmer, a simpler management must often be resorted to. As the pastures on these soils are better adapted to sheep than to cattle, and the crops which are grown are also better liked by sheep, a good many farmers have made sheep husbandry their main source of income. Of the different breeds of sheep, the lighter breeds, the Merinos, deserve the preference. They like the short and dry grass growing on these soils. The blood of the Merinos is thin; and succulent feed, to which the English breeds are accustomed, will easily thin their blood and cause sickness.

The pastures can be still more improved by sowing with the grass seed small quantities of the seeds of spicy plants with astringent properties, as, for instance, yellow clover, caraway, pimpnel, etc. A sprinkle of these plants is very much to the liking of the sheep, and greatly helps to preserve their health. For the lambs, a small field with a dense sod should be reserved. The heavy down-beating rains occurring in connection with thunder storms sometimes on a less dense sod, splash fine sand on the plants, which, if eaten by the lambs, may cause sickness. Even a small field, with a dense sod, on which the lambs can be turned for a while, will prove to be of great benefit.

In the small space which is allotted to the different contributors of agricultural papers, I have tried to give a description of the management of different soils. The main object has been to show the application of the manure on the different soils, and how the crops should be arranged in the rotation accordingly. The principles which underlie the management of the different soils are the same everywhere; for the same crops will remove on the same soil the same kind and very near the same quantities of plant food everywhere. The same crops will also leave the soil in the same mechanical condition everywhere, and manure, green crops, lime, marl and fertilizers will have the same effect on the same kind of soil everywhere. The difference noted in the management of the same kind of soil in different countries is due to the climatic conditions; to the help that can be obtained; to the price of labor and land, and to the many other factors which influence or control the management of a farm.

*District of Columbia.*

H. W.

#### Hairy Vetch—English Winter Vetch.

Will you kindly advise me, through your columns, as to raising Hairy vetch and English winter vetch for seed? The best time and manner to plant. Can it be sown in spring for seed? amount of seed per acre to sow, how to harvest and cure, average yield of seed, etc., etc.

SUBSCRIBER.

*Westmoreland Co., Va.*

Both these crops should be seeded in the fall. The English winter vetch will do no good here seeded at any other time. Hairy vetch, however, makes a late summer crop seeded in the spring, and produces a good yield of seed. There has been so little experience had with the crop here that we are unable to say what would be an average yield of seed. We only know of one gentleman who has raised the crop for seed, and he said that it made a good yield. He cut the crop when mature and cured it like clover hay and threshed the seed out with a separator.—ED.

## 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*.

## Walnuts—Persimmons.

Please tell me in the December *Planter* if the following are suitable for planting in Virginia:

1. The English walnut?
2. The Japan red persimmon?
3. And in what time they reach the maturity?

*Dinwiddie Co., Va.*

JOS. SEDIVY.

1. English walnuts grow well in Virginia. They will not bear many nuts before they are ten years old.

2. The Japan persimmon will also grow well, but whether it will be a profitable tree we cannot say, as it has not been introduced long enough for any one to know.—ED.

## Timothy in South Carolina.

1. Will you please tell me in the next number of the *Planter* if timothy grass will grow down in our country?

2. Is it too late to sow it, and if not, when and how much should be put to the acre?

3. Have about two acres of good river low grounds which would like to try it on. Had it in oats last year, then in peas, and have oats in it again, but did not get a good stand. Think it will have to be drilled over.

4. Can it be drilled in with oats?

5. What makes me ask you about the timothy, I saw some about a mile from me where a negro had bought timothy hay and some seed came up, and it grew about three feet high on poor land.

6. If you think alfalfa would do better, please tell me how it should be planted.

J. B. ROBERTS.

*Lexington Co., S. C.*

1. Timothy will, no doubt, grow well on suitable land in your State.

2. It ought to have been sowed in August or September, or even in your section in October, but it is now too late to sow it this year. It may be seeded in February or March, but will not be so certain to make a stand as if fall sown.

3. If the oats do not make a stand, plow the land and work fine, and then in February or March sow one peck of timothy seed to the acre without any oats or other grain, and you will probably secure a stand. The seed may be sown broadcast or be drilled in with a proper grass seed drill.

5. We have no doubt but that alfalfa would grow well in your State on good land, but it is too late now to seed it this year. It should be sown in August or September.—ED.

## Plowing Sandy Land.

I have a piece of land that was in peas this year. Would you advise plowing it deep this fall, as I intend to put cotton on it next year? The land is light sandy land, with yellow sand subsoil. The soil is not

over six or eight inches deep. It is old land, having been cleared nearly thirty years, and very poor, too.

*Leaflet, N. C.*

JOE BULLARD.

We would plow the land now, but not deeper than the soil. As the land is already sandy, the addition to the soil of any of the yellow sand subsoil would not be an improvement. After plowing, give it all the farm yard manure and other vegetable matter you can get, and apply acid phosphate and kainit along with these, and then you may expect to produce cotton.—ED.

## Legumes and Atmospheric Nitrogen.

Has it been proven positively that leguminous plants obtain their nitrogen from the atmosphere? If so, please give some of the strongest proof. As a practical farmer, I know that clover, peas, etc., increase the available supply of nitrogen for succeeding grain crops, but has the actual quantity of nitrogen in the soil been increased?

M. S. R.

*Lincoln Co., N. C.*

Whilst it is not yet known exactly by what process the leguminous plants secure nitrogen from the air, yet it is positively known that they do so, and that the principal medium through which it is secured is by means of little microscopic plants which dwell in the nodules or swellings which form on the roots of these plants. An analysis of these nodules shows that they store nitrogen, and in their decay give it up to the soil. That this store is not obtained from the soil is proven by analyzing the soil and the fertilizer applied before a leguminous crop is grown, and then analyzing the same soil after the growth of the crop. A great addition of nitrogen will be found to have taken place, whereas if the crop grown had been a non leguminous one, the supply of nitrogen would be found to have been decreased. It is essential to the nitrogen gathering action of these crops that the soil shall be stored with the specific microbe peculiar to the particular leguminous crop to be grown, as in the absence of these the crop will make but a puny growth and the nitrogen storing nodules will not be found on the roots, and little, if any, addition to the nitrogen content of the soil will be made.—ED.

## Fertilizer for Orchard.

I have some young Winesap apple trees on a red clay ridge, a part of which had been an old orchard. The trees have never done very well, the fruit falling off in large quantities before it matures. Last spring some unleached wood ashes were put around several of these Winesaps and an old pippin tree. The apples on these trees were very fine this year, and did not fall off. Do you think it was due to the ashes? Are wood ashes considered good food for apple trees?

I have some very fine Winesap and Johnson's fine winter in rich mountain loam which do not bear. Can you suggest any reason for it?

Can you recommend a practical book on apple growing in this section of Virginia. (MRS) S. C. W. Ivy, Va.

No doubt the ashes had a good effect on the trees. Wood ashes are one of the best fertilizers for an orchard, though it is usually well to also apply some acid phosphate. It is probable that the young trees have not yet become sufficiently matured to bear. It may be that the rich land (too much nitrogen in it) is causing them to make too much wood. A dressing of wood ashes or 100 lbs. of muriate of potash and 200 lbs. of acid phosphate applied might start the trees to bearing if of sufficient age. Send to the Experiment Station at Blacksburg, Va., for the Bulletins issued on apple growing in Virginia.—ED.

#### Chaff as a Fertilizer.

I have a lot of wheat chaff and straw that I want to put on my land. I have chaff off 600 bushels and I am thinking about putting it on a lot that I will cultivate in tobacco next year. I never heard of any put on tobacco land. But my land is gravelly and "close natured." Do you think it will be advisable to put it on tobacco land or corn land? Would it be best to do so right away and follow with a big plow deep? The land is deficient in nitrogen, and I should think that chaff rotted would aid in that way as well as in humus making.

Wheat was grown on the land this year.

Pittsylvania Co., Va.

J. W. GILES.

The chaff, if plowed down, will add some humus to the soil, but little beyond this. If fed to stock and the manure placed on the land, or if used in the stables as an absorbent and then applied to the land, it would be a much better course than to apply the chaff at once.—ED.

#### Sheep-Killing Dogs, and Compensation.

Will you please inform me the proper place to apply to to secure compensation for sheep which I have had killed by dogs? I understand there is a law in this State to that effect. I have had some 90 head killed by dogs in this county since about April. I think if there is any compensation to be had I am entitled to some.

James City Co., Va.

THOMAS SHOOSMITH.

The act providing for the levying of a tax on dogs was passed in the spring of the present year. The proceeds of the tax are to be applied in making compensation for sheep killed or maimed. The commissioners of revenue of the county are to levy the tax and the treasurer is to pay compensation on their orders. The amount of compensation is to be fixed by three discreet persons to be appointed by a justice of the peace. The act was published in full in the July 1902 *Planter*.—ED.

When corresponding with advertisers, say that you saw the advertisement in the *Southern Planter*.

#### Disease in Sheep.

Last winter and spring I lost about thirty sheep and lambs. Some of the old sheep began in the fall previous with a soft lump apparently full of water under the chin, and would dwindle away and die in about a week or two. Some did not have the lump, but would stand and lay around for a month or more and finally starve to death. I gave them plenty of nice fodder and crushed corn. This summer and fall I killed several of the sheep, and found their entrails full of small, hard knots. Will it be safe to keep the rest of flock through winter for breeding, or would it be best to market?

M. E. ANDREWS.

Pittsylvania Co., Va.

The sheep are infested with a parasite known as *Esophagostoma*, a worm which will be found in each of the little nodules. There is no known means of destroying these worms, and therefore the proper course is to feed the sheep before the disease obtains too strong a hold upon them and sell them to the butcher. Do not put other sheep on the same land on which the diseased flock has grazed for at least a year.—ED.

#### Grass for Meadow Subject to Overflow.

Please let me know what grass is best to sow on rich bottom land well drained (but subject to overflow in winter and spring) for meadow. Timothy does very well, but would like something which would make a heavier crop and stand overflow better. There is a good stand of white clover on now.

Bland Co., Va.

LENA CRABTREE.

Herds grass (very frequently called red top) is the best grass to seed on land subject to flooding. It will do better on wet land than any other grass, and makes a heavy crop of hay. It makes an excellent mixture with timothy.—ED.

#### Standard Weights of Agricultural Products.

Will you please print in the next issue of the *Planter* the weight (Virginia Standard) for a bushel of the undetermined farm products and oblige:

In the November number you gave size of boxes to hold different amounts, but the bushel box is not exactly correct, as one bushel contains a little over 2150.42 square inches. A box or crate 14 by 15 inches square inside and 12 inches deep, will, level full, contain one bushel of potatoes, so that one can be set on top of another without bruising.

I have been a subscriber to your valuable paper for six years, and would not be without it, as I think it is the best farm journal for the South.

Surry Co., Va.

J. M. HUGHES.

Irish potatoes, 60 lbs.; sweet potatoes, 56 lbs.; turnips and ruta bagas, 55 lbs.; onions, 57 lbs.; green apples, no standard fixed; Virginia peanuts, 22 lbs.; Spanish peanuts, 40 lbs; navy or white beans, 60 lbs.; cow peas, 60 lbs.; millet seed, 51 lbs, clover seed, 60 lbs.; timothy seed, 45 lbs.; buckwheat, 52 lbs.; shelled corn 56 lbs.; ear corn, 70 lbs.; rye, 56 lbs.; and oats, 32 lbs.—ED.

## Trucking, Garden and Orchard.

### WORK FOR THE MONTH.

The fine open weather we have had up to the date of this writing (24th November) has been very favorable for the setting out of cabbage and lettuce plants. Perhaps if we had had a little more rain, these and the kale and spinach crops would have made more growth, but such growth as they have made is firm hard growth and better able to withstand the later frosts and severe weather than quicker and more succulent growth would have been. The planting out of cabbage and lettuce crops may still proceed, but provision should be made for protecting lettuce in case of severe weather by mulching with straw or covering with bushes or canvass.

Lettuce plants in cold frames should have air given freely as long as the weather is mild, but the sash should be kept over the plants at night and on cold days. As the plants are cut, fill up with other plants from the seed-bed.

Pruning and cleaning up of orchards, vineyards and small fruit plantations should be done so long as the weather is fine and mild. Burn all prunings and trash.

The planting of strawberry beds and orchards should be pushed on whilst the land is dry and the weather mild.

In the Tidewater and Middle sections of the Coast States, Irish potatoes for a very early crop may be planted. We have very satisfactory reports from parties who have planted this crop for several years. The crop to succeed must have special care in planting. Select a piece of dry sandy loam land, and lay off the rows 3 feet apart after breaking the land deeply and working it fine. Run the plow twice in each row, thus throwing out the soil to a good depth. Apply a good potato fertilizer in the bottom of the rows, and mix with the soil by running a cultivator through it. Then plant the sets the usual distance apart. Cover lightly with soil. On the soil put a good covering of farm-yard manure, and plow a furrow on to this from each side, thus making a ridge over the sets. Early in spring harrow this ridge down. If the potatoes show signs of coming through the soil before danger of hard frost is past, plow a light furrow onto them.

Mention the *Planter* when corresponding with advertisers.

### LOOK AFTER THE WINTER APPLE.

*Editor Southern Planter :*

Recently I assorted a fine lot of winesap apples and was forcibly impressed with several things. In gathering the fruit, first of October, I used a method of my own in getting the fruit from the trees. A few specimens were slightly bruised, and in every instance decay had started, hence the lesson of careful picking was most forcibly impressed upon my mind. When fruit is plentiful and other work very pressing at the time of gathering winter apples, this work is not always as carefully done as it should be. The mistake is realized when fruit sells high and becomes scarce in winter. The unusual warm fall weather has tended to induce decay. One decayed specimen may soon start decay in several other contiguous specimens. Hence, the importance of carefully assorting now before the fruit is placed in permanent winter quarters. This will not only save more fruit from spoiling but will enable one to make use of fruit just starting to decay. The refuse in such cases will frequently pay for the labor. I noticed also that the cool nights and warm days had caused much moisture to be deposited upon the fruit. This fact reminded me of the importance of giving the fruit ventilation during the middle of the day, or keeping the air off entirely after the fruit has gone through what is frequently called the first sweat. These remarks apply, of course, to fruit commonly kept on the farms.

Apples being scarce in the State this year, it will pay to look after the winter crop closely.

*Montgomery Co., Va.*

R. H. PRICE.

### WINTER PROTECTION OF STRAWBERRIES.

*Editor Southern Planter :*

Winter protection of strawberries is a necessity at the North or in any part of the country where the thermometer falls below zero or is liable to stand near it for any length of time. There has been much controversy whether or not it pays at the South and intermediate section of the country. Here in central North Carolina I have known winter protection in some seasons to add materially to the growth of berries borne the following spring. Again, in some soils I can see no beneficial effects from it.

It would seem to be reasonable that it would pay best here during winters with little or no snow, snow being a great protection from cold to low growing plants like the strawberry. But my experience is not in accord with this. Of the many tests that I have



made in this line I found that winter protection paid best in the winter of 1887-8. The winter was not unusually cold, rather the reverse, according to my recollection. But there was a good deal of rain and a great many sharp sudden changes of temperature. These changes, accompanied each by freezes and thaws, no doubt broke the roots of the plants and severely impaired their vitality, rendering them unable to bear a good crop the following spring.

Taking it one year with another I would not advise winter protection of plants set south of the Mason and Dixon line, except under certain conditions. On very wet stiff soil, much given to heaving and lifting under the action of hard freezing, it will pay in any section where the winters are hard enough to freeze the soil to the depth of three inches or more. And in mountainous regions where the thermometer falls abnormally low for the latitude, it will pay. Even at the South in all very exposed situations like the side of a wind-swept hill, it will always be likely to pay.

All young plants set in very stiff and naturally wet soils in midwinter, it is always best to protect as soon as planted. Heaving and lifting of the soil by freezing has a tendency to uproot these yet unrooted plants partially out of the ground before they have chance to take hold. I do not find any protection of newly-set plants necessary at the South, except on stiff naturally wet soils, and not on these except when the the planting is done in winter. Strawberry plants grow even in winter whenever the temperature rises above 45 degrees, as a little observation will convince any one.

I have never known winter protection to do any harm. Some growers complain that it harbors crickets and other insect pests which feed on the foliage of the plants. I have never known this to be the case, though it is doubtless true as to the far South and probably in a few localities elsewhere.

Almost endless varieties of materials can be used to cover plants. The idea is to cover them just deep enough to materially lessen but not to entirely prevent freezing. Hay, grass, oats, wheat, or rye straw, cornstalks, forest leaves, pine straw, all are used. Coarse stable manure forms a most excellent protection as it both protects and enriches. Of all these materials pine straw, where it can be obtained, is probably the best. The objection to forest leaves and long straw or grass is that they are apt to be blown off. This is largely prevented by weighting the leaves with a little earth or by chopping the straw or grass very short. The objection to stable manure is that in increasing the yield and size of the berry, it has a tendency to soften them somewhat, rendering them less fit to be shipped long distances.

Whatever covering is used it should be applied just as

hard freezing weather sets in—about December 10 here. When practicable, enough of the covering or mulch should be used to entirely cover the bed or field, middles and all. If the supply is limited, then cover a strip along the rows of plants for about one foot wide. In this latitude pine straw, which lies closer than most coverings, can be applied to the depth of a half inch after settling. Stable manure at the rate of 20 loads an acre can also be safely used. The plants should be examined from time to time, and if the covering is too deep, part of it should be removed. This will be indicated by a tendency of the plants to bleach or whiten a little.

As plant growth begins in the spring, part of this mulch can be raked off the plants and left in the middle of the rows. Enough of it should be left around them to prevent the ripe berries from getting gritty. Any weeds that come up through the mulch should be promptly pulled out. These will give very little trouble until the warm days of early spring promotes their growth, making them large enough to do harm, but also fortunately large enough to be got hold of to destroy them.

*Kittrell, N. C.*

O. W. BLACKNALL.

## PECAN AND OTHER NUTS IN VIRGINIA.

*Editor Southern Planter:*

Your comment on the letter on Pecan Culture from Mr. Peek, published on page 635 of the November issue of the *Southern Planter*, again illustrates the fact that experience does not always agree with theoretical considerations and deductions. You say that pecans are not suitable for planting in any part of Virginia, and yet I have several pecan trees flourishing on my farm in Prince William county, Va., about ten miles south of Manassas, and I have never seen finer looking trees, for their size, in Mississippi or Louisiana. I planted these trees about seven years ago, and at first it seemed that they would speedily die, but I am now satisfied that they are firmly established. Whether or not they will bear remains to be seen; but the point I want to make is that the pecan (of a hardy variety) will grow, and grow well, in Virginia, and that, too, under conditions that seem to differ radically from those in the Gulf States; for my trees are on the top of a hill in rather dry soil.

Eight years ago, I began planting various kinds of nuts on my farm; Persian (commonly called English) and Japanese walnuts, improved chestnuts, filberts, etc. My friends thought me crazy. I was cheered with all manner of voluntary advice. The blight would kill the filberts; the walnuts would never bear, even if they did grow; the chestnut weevil would

attend to the chestnut trees, and so on. I had to do a good deal of expensive experimenting the first few years, but now that trees and bushes are coming into bearing, and I can see my way out of the woods, I not only note the absence of the croaker, but find my neighbors quietly asking for slips, grafts, etc. While, therefore, I am not prepared to advise any one to plant pecans on a commercial scale in Virginia, I can most strongly urge Virginians to plant extensively to filberts, and, except in the mountains, to Persian walnuts as well. The filberts will bring splendid returns inside of four years, and that, too, with a minimum outlay of capital and labor.

Keep up your good work for good roads in Virginia, and for a compulsory school law.

*Alleghany Co., Md.*

JOHN S. SIEBERT.

### PECANS IN VIRGINIA.

*Editor Southern Planter:*

I cannot agree with you when you say pecans are not suitable for planting in any part of Virginia. I have a neighbor in my own county of Norfolk, Va., who has two pecan trees, which are the grandest of all trees for shade, beauty and profit. After reading your remarks I went to see my neighbor, and told him I would like to have a history of his pecan trees. He said the nuts were planted thirty years ago, and the trees, when two or three years old, were set out in the yard. When ten years old, they bore about one peck of nuts, and have been bearing well ever since. He got between \$50 and \$75 worth of nuts the year before last, and expects to get between \$75 and \$100 worth this year from them. We took a string and measured around the trunk of one of the trees, and it was seven feet in circumference. We then measured around the top, and that was 225 feet, or 75 feet in diameter. The limbs spring from the trunk about seven or eight feet from the ground all around the tree, with all the beauty any one could picture or imagine, and they have not shed their leaves yet (November 17th), and will not until we have a heavy frost.

I asked my neighbor what he would take for the two trees. He said he would not take \$1,000 for them; for, said he, I have as good shade as any one could wish for, and they pay a good interest on \$1,000 now, and I think they will do better every year. If the trees were mine, I would not take \$1,000 for them. I think so much of my neighbor's pecans, that I have fifty trees raised from them now, and expect to have 500 next year.

I send you a few of the nuts to let you see that pecans will grow in Virginia.

W. H. WILSON.

*Norfolk Co., Va.*

[The nuts have come to hand, and are fine ones. Norfolk county, and, indeed, all Tidewater Virginia, is exceptional in climatic conditions. It more nearly approximates the climate of the further Southern States—say, at an elevation of 300 to 500 feet—a climate in which the pecan, as we pointed out, will succeed. We have had numerous failures in growing pecans reported us from Middle and Piedmont Virginia.—ED.]

### PECANS.

*Editor Southern Planter:*

When all the pecan trees now being planted in the South get to bearing, what will be done with the nuts? I agree with you as to the advisability of not planting in the cotton sections, except as shade trees. I once had an immense pecan tree in Northern Maryland. It was, I suppose, not less than fifty years old, and was a fine shade tree. But in the six years it was in my charge it matured a few nuts but once. A tree of same size in Eastern North Carolina would make many bushels annually.

W. F. M.

### BIRD PROTECTION.

The French naturalist who declared that, without the insectivorous birds, man could not inhabit the earth after nine years, would rejoice at the international agreement just made for the protection of the feathered friends of man. On March last, in Paris, representatives of France, Belgium, Switzerland, Sweden, Spain, Portugal, Austria and Greece, and several principalities, signed an agreement to protect the birds useful to agriculture. Germany is expected to join the league soon. The protection in the case of the most useful birds is to be absolute at all seasons, covering eggs and nests as well as birds. Ravens, magpies and jays, however, must look out for themselves. Where stands the United States of America in this matter?

### DIRECTIONS FOR SPRAYING ORCHARDS.

As a result of much experimentation in Maryland orchards, Prof. A. L. Quaintance, State Entomologist, informs us that the lime, sulphur and salt mixture referred to as the California wash, has been very successfully used during the past year. Through the efforts of American agriculturists many leading fruit growers in various parts of the country used this wash early last spring, and the results have been very satisfactory in all cases. In some places it has been shown that the final value of this wash is not apparent early in the spring, but shows itself later in the summer. In addition to its effect on the scale, the material remains on the trees in sufficient strength to cause death to a very large percentage of the young insects developing from individuals which were not destroyed by the treatment.

## CROWN GALL ON APPLE TREES.

*Editor Southern Planter :*

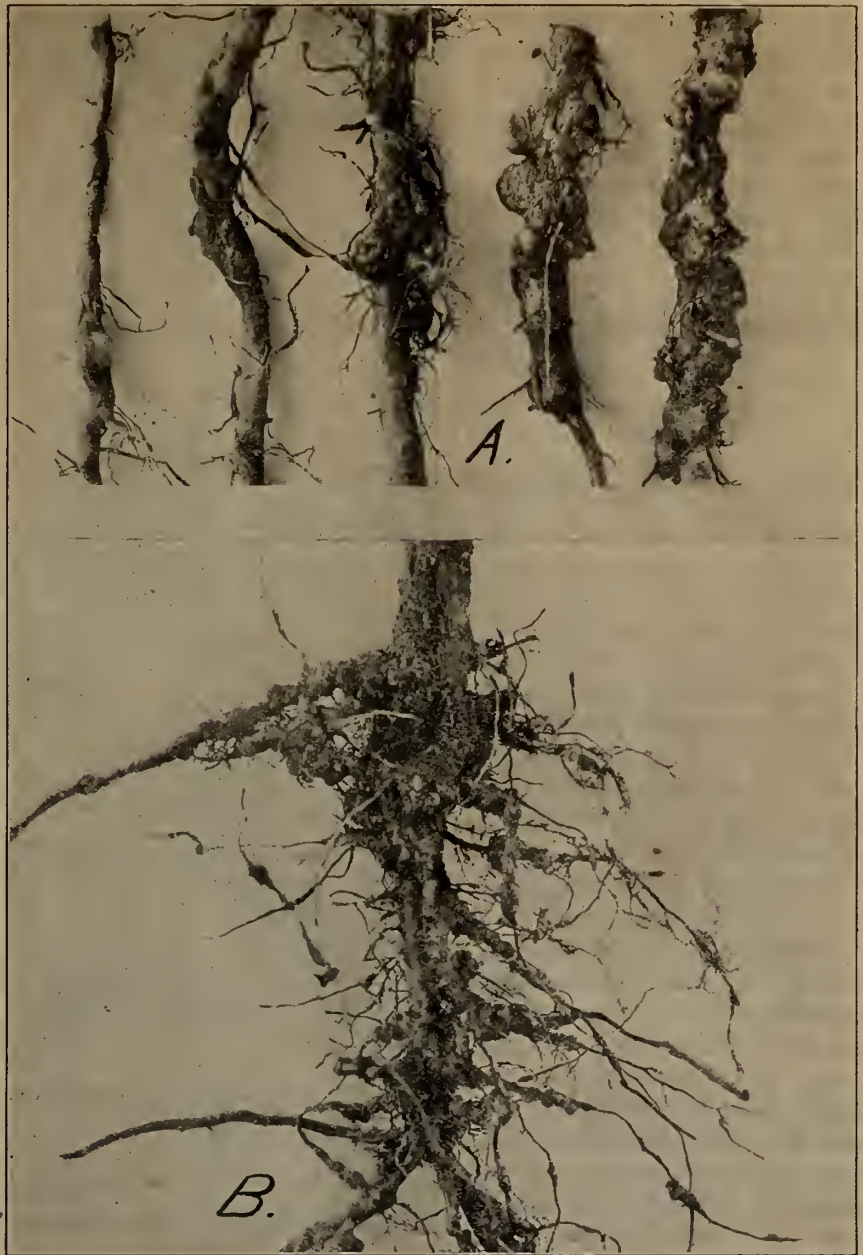
In your issue for November, there is some correspondence in relation to Crown gall on apple trees, and as some of my published matter is cited by you, I think it opportune to write a few words in regard to Crown gall in general, and this case in particular.

Mr. Arnold wrote me a letter worded the same as yours, and I replied to him, that from his statements I did not believe he had Crown gall, because it did not appear that he had been introducing nursery stock recently to his grounds; and suggested to him that the trouble was doubtless galls, caused by the common woolly aphid. In a later letter, he acquiesced in this opinion, but did not furnish me material.

After seeing the matter published in the *Planter*, I wrote Mr. Arnold for specimens, and on examining these my supposition previously formed proved to be correct. The trouble with Mr. Arnold's trees, so far as the specimens submitted show any trouble, is caused wholly by the root louse. It is not at all uncommon for persons to confound these two troubles; hence, I am sending you two illustrations, which show very clear cases of these two injuries, and will probably be of service to your readers.

The Crown gall has become a very serious disease in Virginia, especially on the apple. Six or seven years ago, I could hardly find a case of it, but now it has become so common in the nurseries, that I think it will likely cause serious loss in the near future. It was first found in this State by us on nursery plants from other States, but through interchange of stocks, our nurseries have become to some extent infected. It is not uncommon for us to find shipments from the Southern States in which one half of the trees are quite worthless.

In this connection, it may not be amiss to call attention to the fact that the illustrations which are used in the last report of the Commissioner of Agriculture,



A. Portions of roots. B. Entire roots of apple, showing injury by Woolly Aphid.

to which Mr. Arnold refers, are taken from other trees than the apple; these are, in fact, copies from Prof. Tournay's work on Almond and Peach, etc.; consequently, those which show large knots on small roots are not at all characteristic of the apple Crown gall, and may mislead some persons, as these knots on the roots at some distance from the crown, are very similar to the knots caused by the root louse. This distinction ought to be carefully observed, because the root louse is everywhere present, and we cannot hope to check its spread or eradicate it. It is only necessary to avoid planting roots which are so badly attacked that decay will spread to the main stem. For

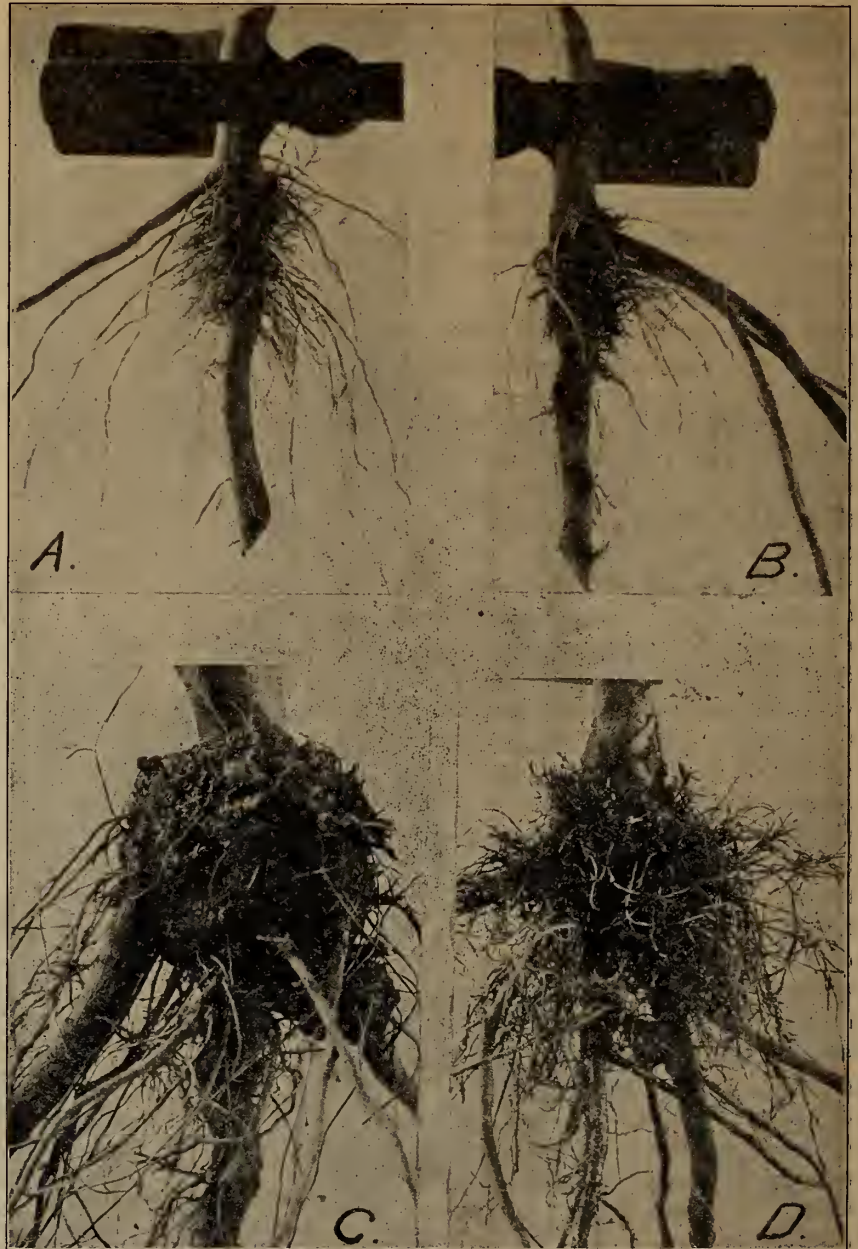
instance, in case of root louse if the attack is on the outer portions of the root, these can be cut away, and a perfectly healthy tree grown from the plant; but where the attack is on the main root, as shown in the illustration, it is impossible to grow a good tree from such a plant. On the contrary, with Crown gall the trouble is a definite disease caused by a low organism which seems to persist in the tissues of the plant, and in cases under my observation the trees may grow for ten or twelve years and do quite well, then gradually succumb to the disease. I think that every fruit-grower ought to be fully warned in regard to this somewhat recent and very serious trouble; and to that end, I offer the foregoing notes and the illustrations used in my third report as State Entomologist. If further notes are desired, you can add them from the report just mentioned.

As addenda to the foregoing, will say that constant complaint is coming to me concerning this trouble on nursery stock. One instance just to hand shows that out of 925 trees ordered, 708 had to be rejected because of Crown gall, and another instance, of 700 trees 361 were rejected for a like reason. These trees were all received by the same man from a nursery in North Carolina. This is only one of several instances that have been reported in our mail within the last week, and shows how serious this trouble has become. I feel sure that many planters are planting trees affected with this trouble in their orchards this year, and for this reason, it appears that the illustrations I have sent out ought to be of material value.

Experiment Station,  
Blacksburg, Va.

WM. B. ALWOOD.

When corresponding with advertisers, kindly mention the *Southern Planter*.



A and B. Seedling apple, showing beginning of Crown gall. C and D. More mature stages on 2-year nursery stock.

### BEST JAPANESE PLUMS:!

In the opinion of successful New England plum growers the best Japanese plums are the four which were first generally introduced, viz: Abundance, Burbank, Chabot and Satsuma. They are free from black knot, but incline very badly to rot, yet are productive and early bearers.

Mention the *Planter* to your friends.

## Live Stock and Dairy.

### RETENTION OF THE PLACENTA OR AFTER-BIRTH.

*Editor Southern Planter :*

This cow evil, I think, is not so prevalent now as in former times, and the reason no doubt is because cows are now better fed and better taken care of in the winter. I can remember when no farmer ever thought of stabling his cows. They were given fodder in the yard, and had no other protection against winter storms and zero weather than the lee side of a straw stack. It was the common opinion when I was a boy, and is my opinion now, that cows in thin flesh and poor condition when they calve are more subject to this misfortune than cows in good flesh and vigorous health; but nevertheless it is true that some cows in good order, and apparently in good health, sometimes fail to "cleanse." One of the strongest and fleshiest cows in my barn, a few years ago, retained the placenta until I took it away about twenty-four hours after she calved. She did not lose her appetite, nor fall away in flesh, and gave as large a quantity of milk through the season as ever she did. There not being any veterinary surgeon in the neighborhood, I had to perform the duties of the office myself on my own cows, and in some instances on the cows of my neighbors.

In every case in which I officiated the placenta was found firmly attached in several places to the inner surface of the womb, and the adherence was so tenacious that the separation had to be made by severing the connections (which Dr. Law calls the "cotyledons" or "placentula") with my thumb nail.

I think that from laceration, or inflammation, the placenta grows fast to the inner surface of the womb, and all the efforts of that organ to expel it are in vain. I know this to be true in all the cases I have attended. An old cow doctor told me that the retention was caused by the mouth of the womb closing on a portion of the placenta which was filled with fluid, and all that had to be done was to insert the arm, open the mouth of the womb, or "unbutton it," as he termed it, and remove the placenta. There may be such cases, but I have never found one.

Cows should be kept in reasonably good flesh when not giving milk. There is but little danger in having cows too fat when they calve. The danger is all the other way; but it is not safe to feed a cow meal a short time before she calves lest the milk flow will be started too soon, and the udder be caked, and milk fever encouraged. I had a cow that had to be milked a week or ten days before calving, or her bag would have been spoiled. If a cow is poor when she calves, she will be apt to remain poor through the milking season, and if

a generous milker, probably grow poorer in spite of all you can feed her. There is not much doubt that cows in poor flesh are more subject to the retention of the placenta than cows in good order.

One spring, my father had two cows that did not "cleanse," and as there was no person in the neighborhood who understood removing the trouble, he left the unsightly incumbrance to rot away and disappear of its own accord. It was unfortunate, for the cows nearly dried up and were spoiled for the season. While the putrefying process was going on, the smell was so offensive my father would not have the milk used except to feed the hogs.

For prevention, Dr. Law says: "In poverty stricken animals, much may often be done by warm sloppy food for a week or two prior to parturition." Among the causes of retained afterbirth, he gives the following: "Poverty of condition; premature parturition; adhesions, the result of pre existing inflammation in the womb, etc." He says: "If not removed, it rots away piecemeal, a portion remaining and putrefying in the womb, causing irritation, discharge, rapid loss of condition and milk, and in some cases absorption of putrid matter and poisoning." For treatment, he says: "The most satisfactory method is to remove it by the hand in twelve to twenty-four hours after parturition, before the neck of the womb has closed so as to forbid the introduction of the arm. In cows, the protruding membranes are gently pulled by the left hand, while the right is gently introduced into the womb, and the connecting cotyledons or placentula of the membranes are, one by one, squeezed out of their connections with those of the womb.

"The process may be slow, as fifty such connections may demand separation, but patience will be crowned with final success, the great points being to tear nothing, and to bring up and separate the last portions as perfectly as the first."

J. W. INGHAM.

### THE SOW AS A MORTGAGE LIFTER.

*Editor Southern Planter :*

I read in the columns of the November number of the *Planter* where N. S. W., of Goochland county, writes of the hog as a mortgage lifter that he has a sow that had three litters of pigs in ten months. Will he be so kind as to give me the breed he has, as I am interested in the hog business. It has always taken my sows from ten to twelve months to have two litters, for after breeding it takes three months and twenty days for the first litter to come. I cannot see how he can get three litters in ten months.

*Middlesex Co., Va.*

GEO. W. BRAMBLE.

A little consideration will serve to convince our cor-

respondent that what N. S. W. said is possible. He did not say that he bred three litters in ten months, but that the sow had three litters in that time. The first litter was dropped at the beginning of the ten months, the second could easily have come four months afterwards, and the third litter four months after that was dropped, thus bringing the time for her to have three litters within ten months. A sow will usually accept service within a week after dropping a litter, but if this time is missed, she will not accept service until after the litter is weaned.—ED.

#### THE RAZOR-BACK HOG.

*Editor Southern Planter :*

I will give my experience with the razor back hog. When I was about fourteen years of age, I commenced farming on my own account, and it was then that I decided to raise meat enough to supply me without buying. I started with the best Razor backs I could get, for there were no other kind in my neighborhood. If I had met a Poland-China in the road, I would not have known him from a Berkshire. I went on with the Razor back, raising about enough meat to supply me, until the hogs became so wild as to be difficult to manage. One old sow got out of the pen, and I was two weeks catching her, and then had to run her down with a pack of hounds. This same sow had eight or ten pigs, which I put into a pen to mark them, and they were so vicious that I had to use a stick to prevent them from tearing the man who was marking them. I decided to make a change. Since then I have been using thoroughbred boars of different kinds on graded sows, and have raised double the quantity of meat at the same cost, and I don't think that Brother Hopkins, or any other man, will ever induce me to go back to the Razor-back. The only thing I can say for them is that they are prolific breeders. The hog we want is the one that will make the most pounds at the smallest cost.

*Pittsylvania Co., Va.*

W. P. DIX.

#### CATTLE QUARANTINE.

The restrictions affecting the removal of cattle from this and other Southern States have been removed until the 31st January next. Cattle may be shipped north and west of the quarantine line without any special provisions being observed during December and January.

I agree with Mr. French about improved breeds of hogs for profit. And yet there are no better hams made on earth than the razor-back hams from South-east Virginia, which bring 25 cents or more per pound when the packers' hams from the Poland-China bring 12 to 15 cents.

W. F. M.

#### HOG-RAISING.

*Editor Southern Planter :*

I read with much interest Mr. Hopkins' letter on making hog meat in the South and your comment on the Razor-back. I, like Mr. Hopkins, have had experience with the Razor-back, but, unlike him, I began with the Razor-back and found them to be lacking in every quality that is necessary to make a profitable hog. It used to be in this country that the old time hog or Razor-back could be kept at a profit, but since the forests have been cleared, and the mast crop is no more, he is simply a back number. Then a herd of hogs could be kept without much attention or feed, and hogs were let run in the mountains until they were two or three years old, and they fattened upon the mast. Now that there is no forest of any considerable extent, these hogs are of entirely too slow growth to be profitable.

My first effort at improvement was a scrub sow bred to a full blood Poland China boar, which gave me a very good hog. I kept one of these half blood sows, and secured a full blood Chester White boar. The Chesters are a good, hardy, energetic hog, with stomachs plenty large enough for bulky food. They are good rangers, and if there happens to be a crop of mast they will take it quite as well as the Razor-back, and will grow and fatten much faster. I once turned a full blood barrow on the mast that had been kept in a small lot for two and a half years; he got fatter than any other hogs in the neighborhood. He had been castrated the June before, and was turned on the mast as soon as it began to fall. This proved to me that the theory that well bred hogs would not shift for themselves was a fallacy. My full blood hogs have always showed a disposition to shift for themselves if there is anything for them to get in the woods. I always feed them if there is not sufficient mast to winter them in good condition, but if there is plenty for them to get, I allow them to have free range except when it is necessary to keep sows away from scrub boars.

Since the introduction of full blood Chesters and Poland-Chinas, the old-time scrub has almost disappeared from this part of the country. It is the generally accepted view of our farmers that the Razor-back has had his day, and that well bred animals are much cheaper in the long run, even if they do cost more dollars and cents. There are only a very few scrub hogs found in this part of the country. The farmers have found that with better bred animals the same amount of feed with good management will make much more pork than when fed to scrubs. I find that to a great extent the feed influences the proportion of fat to lean in a hog's carcass. If good muscle-forming feeds are used, there will be a relatively larger pro

portion of lean meat in the animal's body, but if carbonaceous feeds are used, there will be a larger proportion of fat to the lean.

*Albion, W. Va.*

A. J. LEGG.

## WITH THE ANGORA GOATS.

### The Progress of the Breed.

The third annual exhibit and sale of Angora goats held by the American Goat Breeders' Association at Kansas City proved a most popular feature of the week. Angora breeders were in attendance from all parts of the United States with the finest and best of their flocks. Probably never before in the history of the world has there been assembled at any one time such a splendid representation of these interesting, attractive and valuable animals that are now so successfully and deservedly bidding for prominent recognition among the live stock industries of America.

The very fact that, comparatively speaking, the Angora industry in this country is but in its infancy attracts to it a wide range of interesting personalities—a unique group. The Indian fighter of the Southwest and companion of Kit Carson, the progressive miner's wife from the picturesque canyons of New Mexico, the elderly and conservative farmer of the Middle West, the boy breeder from Maryland, and no less prominent the farm and ranch owners from the Atlantic to the Pacific gathered at this meeting outline plainly the national scope of the interest taken in the Angora industry in America, and presents most forcibly the hold it is acquiring with the progressive people of all parts of the country.

That this exhibition and sale of Angoras has attracted such wide attention and proved so successful is gratifying indeed to the supporters of the industry, and much encouragement goes out to them in compensation for the hard knocks of the pioneer in the struggle that has been theirs in the effort to gain for the industry the recognition that it has long deserved.

This year, with an attendance of thousands of visitors to the exhibition and being further complimented by the presence of Secretary Wilson, of the Department of Agriculture, the Angora breeders can well feel proud of the phenomenal progress of the last year in popularizing their industry. The few words that Secretary Wilson addressed to those in attendance in the afternoon of the last day of the exhibition are of particular value at this time—value not only to the breeders themselves but to the entire country as well for is it not true that he who champions a new industry of a national character calculated to better our people from the North to the South, the East to the West, builds generally and well, by encouraging that which is destined to do a common good? Secretary Wilson thus spoke:

"The Angora exhibit here at Kansas City is the greatest ever held on earth. There is unmistakably a place for the Angora in the live stock industries of America. There is a market for its products and its wool. The reason that the Agricultural Department is devoting such particular attention to it and gives it every possible encouragement is that there are millions of acres of land in this country adapted to goat rais-

ing. The Angora industry is an American institution that has come to stay."

Secretary Wilson is familiar with the lands of his own home State, and knowing the work the Angora is doing in Iowa in reclaiming vast areas of good agricultural land now possessing no product capacity, owing to the density of weeds and brush, has before him a vivid picture of the worth of the Angora to the land owner. Such lands when used as a pasture for Angoras will become changed in a comparatively short time from an unproductive waste to a cleared field. It is well known that the Angora is a natural browser, destroys the underbrush, eats out the weedy growths, nips all the persistent sprouts and does more effective work in clearing such lands than can be performed in any other way. Its valuable annual fleece makes it a most profitable animal to raise.

There is sufficient evidence now before the American people to convince them that the Angora is a money maker for its owner, that it converts waste brush land into valuable fields and pastures, and that it is a forerunner for the expansion of the cattle industry. Why should it not have friends in Iowa? Why should it not have friends throughout the land, for it is well known that the millions of acres of goat lands to which Secretary Wilson referred are not all within the borders of his own home State.

### THE AUCTION SALE.

It is interesting to note that the \$1,400 champion Angora buck of the exhibition, the highest priced goat ever sold in the world, was purchased at this sale by one of Iowa's most conservative farmers, Mr. A. Kemble, of Muscatine, who is an enthusiastic supporter of the industry. Last year the most prominent place in the Angora purchasing world was assigned to a woman—one with the courage, foresight and the pocketbook as well, that prompted her purchase of a single buck for \$1,050. That she profited well is evident, for sales of the progeny of that buck have been made by her aggregating between \$5,000 and \$6,000. At the public sale this year Mrs. Armer strengthened her position by again purchasing what was fully credited by breeders as being the best buck shown at the exhibit. This animal was bred by C. P. Bailey & Sons of California, who last year captured the champion prizes for both sexes, and this year in the interest of competitive exhibits did not enter their animals in competition with those of other breeders. The Association passed a resolution commending their generous act and awarded them a gold medal for their exhibit.

The champion buck was owned and bred by D. C. Taylor, of New Mexico, pioneer in the industry. The champion doe was a kid of this year's breeding from the last African stock imported into this country, the famous Holmes and Dick, owned by F. O. Landrum, of Texas, whose buck kids from the same sires, also won first prizes in the competition.

Prices realized at the auction sale following the awarding of prizes developed higher values than prevailed last year. The highest priced buck champion after spirited bidding between Mrs. M. Armer, of New Mexico, and Mr. A. Kemble, of Iowa, went to the latter at \$1,400. The champion doe sold for \$400 to Wyatt Carr, of Iowa, and the six next highest priced animals brought an average of \$300 each. The average price for the twenty five bucks at the first day's sale

was \$164. Only ten animals sold for less than \$50 per head. Less valuable animals were offered on the second day and consequently lower prices prevailed. Twenty nine bucks brought an average of \$23.45; twenty nine does were sold in one lot at \$17.50 per head; twelve at \$14 each; and 131 offered in lots of from five to fifteen head brought an average price of \$8.35. Twenty-five Texas does brought \$6.75 each, and one lot of thirty-seven unregistered Texas grades sold at \$4.75 per head.

#### THE MOHAIR EXHIBIT.

A feature of the Angora exhibit that proved most interesting was the excellent display of mohair manufactured products from the Sanford Mills at Sanford, Maine, the largest consumers of mohair in the country. These mills were represented by Mr. George G. Emery, a recognized expert on mohair and the mills' buyer of raw material of this character. Mr. Emery's visit and his line of mohair plushes, robes, rugs and dress goods did much for the industry by illustrating the use made of the valuable fleece of the Angora.—*Breeders' Gazette.*

#### PASTURING HOGS.

We have frequently urged that Southern farmers should turn their attention to hog raising and feeding, adopting as the basis of the business, the system of growing crops for that specific purpose, and relying upon pasturing the animals to successfully compete with Western meat. The following article shows how one farmer, even in Illinois, has made this method a success. Here we can grow a greater variety of crops and pasture them much longer than in Illinois, and have a home market for all the products. Surely success should be much greater here.—Ed.

Grain and live stock write the secret of the successful farmer's agricultural supremacy. Many interesting accounts have been published in your journal regarding the splendid achievements of the landed princes among our farmers who have successfully based their extensive operations on this well established principal in farm management. Often, however, it is not possible for the owner of a small farm to work into his own system of management many of the features which are potent factors in bringing success to the extensive grain grower and stock feeder. It is, therefore, interesting to study the plans which are successfully worked out on a 100 acre farm of Wm. H. Rowe and Son Charles in Central Illinois. After long years of diligent study and experimental work, covering many branches of grain and live stock farming, they have adopted on their farm a system of rotation of crops and live stock management which is at once so practical and profitable that it cannot fail to prove interesting to every farmer who would stand for the best in agricultural endeavor.

Their system is not the result of chance nor of an unbridled desire to test every new fad and passing scheme. Far from it. Methods full of promise are tried but rejected if found wanting. An abiding interest in their work, a thoughtful study of the multitude of problems which ever confront the farmer and

unceasing attention to every detail are the forces which have enabled them to establish their business upon a rational and paying basis. On any farm, large or small, the farm home and its surroundings are of vastly greater importance than any system of rotation or improved breeds of live stock. Of what profit is it if the farmer maintains the fertility of his fields and builds up priceless herds and flocks and yet fails to secure that most important factor in the building of true and noble characters—the farm home—for who can measure the dwarfing narrowing influences which constantly emanate from the cheerless depressing homes found only too often on our teaming prairies and fair hill sides? Or who can estimate the inspiration and noble motives which flow from the pure wholesome and beautiful farm homes in our land? Hasten the day when every farmer will plan his home and surroundings as wisely and thoughtfully as did this Illinois farmer. No luxury or extravagance in outlay here, but comfort, convenience and beauty. Only a comfortable farm house set in the midst of acres of billowy bluegrass, evergreens and noble forest trees, and yet what a haven of rest. Bank stocks and bonds may be accumulated in ever increasing numbers and acres may be added to acres, but no investment of the farmer can equal in intrinsic value the farm home such as this one. The motto of this farm can be written in these words: "Richer fields and larger crops, the result of a wisely-planned system of rotation and the feeding of the growth of the farm back to the land through live stock."

When one by one the grain growers of our land master this one underlying principle in successful agriculture, a new and brighter era will speedily come. Acres of this farm are in permanent bluegrass pasture and ten acres are devoted to the spacious lawn, orchard, garden and feed lots. Contrary to the generally accepted theory that a farmer cannot afford to "waste time" on a lawn, garden or orchard, on this farm these interests receive intelligent care and add much to the comfort of the family and the annual income. The remaining eighty acres are fenced into four fields of twenty acres each. This is a hog farm and for convenience in handling the stock in the fields a shed and a well are located in the centre of the tract. This shed is unique in design. In the winter it is closed except on the south. In the summer the north side, which is on hinges, is raised and thus a free circulation of air is at all times afforded. Fat hogs weighing over 300 pounds have safely been carried through the hottest weather with no other protection from the sun.

Oats seeded with clover, clover pasture, soy beans, and artichokes and corn are the crops in the rotation which has made this one of the cleanest, most fertile and most profitable farms in the State. One bushel of seed oats per acre is sown broadcast on the land which was in corn the previous year. Clover seed is sown immediately after the oats and is well harrowed in. On this land, quite free from troublesome weeds, this light seeding of oats gives a satisfactory yield and affords the young clover light and moisture in greater abundance. This method of seeding has never failed to give a stand of clover except last year, when such extreme conditions of heat and drouth prevailed. The following year the clover is pastured with hogs the entire season. Few more interesting experiments have



ever been conducted than those which have been carried on at this farm to determine how many pounds of pork an acre of clover pasture will produce. In 1900 over 100 fattening hogs were weighed into the twenty acre clover field and an account kept of all the corn fed. At the close of the season the hogs were sold and the value of the corn fed was deducted from the receipts. The difference represented the cash value of the clover pasture and in this experiment was equivalent to 465 pounds of pork per acre. In 1901 an experiment conducted along the same lines gave a return of 366 pounds of pork per acre. These figures are interesting, for they show that it is possible to secure a large cash income from land even in years when it is growing a crop intended primarily as a source of available plant food. The third year the clover sod is plowed in the spring and the field planted to soy beans and artichokes. In 1901 six acres of well matured soy beans were pastured with hogs. One hundred and thirty-two spring pigs were turned in the field about September 1. They ate the beans greedily and gleaned the field in a few weeks. They were exceedingly thrifty and made a gain equivalent to 647 pounds of pork per acre. This year thirteen acres of soy beans were raised and pastured. When the records of this experiment are made up doubtless they will show returns quite as remarkable and satisfactory as those of the previous season.

Mr. Rowe prepares the ground for soy beans just as he does for corn, and about May 20 plants one half bushel of Early Yellow beans with a beet drill in rows twenty inches apart. This crop is usually cultivated about three times with a one horse cultivator and little or no hand work is required. The Early Yellow variety yields from twenty-five to thirty bushels per acre, and is ready to pasture the latter part of August. Four or five acres of artichokes are raised each year and furnish a splendid food for the hogs through the fall and winter months. The hogs do their own harvesting and are benefitted by the exercise required to root out the tubers. The fourth year corn is raised following the soy beans. It is not surprising to find on these fields, which have grown several successive leguminous crops and been pastured summer and winter with hundreds of hogs, corn of the highest type and quality yielding seventy to ninety five bushels per acre. A pure-bred variety of corn is raised and the demand for seed always exceeds the supply.

This is a hog farm. Twenty Duroc Jersey brood sows are kept. The average number of pigs raised per sow for three years past has been eight. The pigs are farrowed in April and May, and are turned off at fifteen or sixteen months of age weighing from 350 to 400 lbs. Permanent hog houses do not find favor on this farm. The modern individual farrowing pens are used. They are located in ample bluegrass lots and afford comfortable and clean quarters for the sows and pigs. The sows raise one litter each year. After the pigs wean themselves the sows are fed to become thrifty and strong, but not fat and heavy. An extensive pasture range and muscle building foods are the factors which lead to success in carrying brood sows safely from year to year. This system makes it possible for the owner to keep a record of his brood sows and turn off such as do not prove good mothers. It is advisable also to select for breeding gilts daughters of sows known to produce large even litters. Young

sows carefully selected from such litters are this season suckling from nine to twelve pigs, and show many of the excellent qualities possessed by their mothers.

As soon as the pigs are old enough to follow the sows they are turned into the clover field, and from that day until they go to market the pigs are kept in the pastures and fields and are fed such rations as promote the greatest thrift and growth. The clover pasture is used until it begins to fail in fall. The pigs are then turned into the soy bean field, and when this in turn is exhausted the artichokes are available. This series of forage crops, together with the bluegrass, afford excellent feed and pasturage the entire year. Pure air, pure water, plenty of exercise and a balanced ration, are thus provided. They will bring success to many swine raisers as they have to these Illinois breeders. There are no poorly ventilated hog houses, muddy feed lots, and wet disease-breeding straw stacks which serve as barriers to comfort and thrift. Doubtless this wise system of handling the herd has contributed largely to its freedom from disease. Cholera has broken out on the farm only three times in the past fifteen years. In every instance the loss has been very slight, on the last occasion amounting to less than one per cent., although neighbors lost over 50 per cent. Whenever there is any indication of sickness in the herd, corn is withheld and the hogs are fed on a scant laxative ration.

These thoughtful hard working Illinois farmers find opportunity to profitably employ their brains and hands on this small farm. They have succeeded in helping to solve some of the knotty problems which are ever before the farmer. Purchance this account of their system of maintaining the fertility of the land through live stock farming will help some earnest farmer to see more clearly the path to success.—*Breeders' Gazette.*

#### PURE BRED BEEF BULLS AS SIRES FOR VEAL CALVES.

We recently shipped to a Richmond commission merchant four veal calves, out of Jersey cows by a pure-bred Hereford bull.

We received a very flattering letter, complimenting us on the quality of the calves and their uniformity of color. They were all red, with white faces. The calves averaged five weeks old, and brought about \$13.00 each.

This is a fact worthy of comment. One who has a few scrub or Jersey cows will get enough more out of calves by a pure-bred Hereford bull to pay for the bull. Hereford bulls crossed on any cow will almost invariably produce a red, white-faced calf.

Mr. Boocock is just back from a two month's trip through Europe, and while away visited in Herefordshire, the birth-place of Salisbury, and his breeder, John Price. Our cattle are doing well on pasture yet.  
*Castalia, Albemarle Co., Va* L. ROY STACY.

The foregoing fact is one to which we have often adverted and emphasized. The prepotency of the pure-bred beef bulls is so great that they seem practically to eliminate the influence of the female in the produce. They will almost invariably nearly double the value of the calf for veal or for a beef-making animal, besides marking the calf with the characteristic features of the sire in color and conformation.—ED.

## The Poultry Yard.

### THE DIFFERENT CLASSES OF POULTRY.

Fowls, in respect to use, are divided into three great classes—layers, table fowls and general purpose fowls. In the first of these three classes are included the breeds which are characterized by phenomenal prolificacy; in the second, those which possess in the highest degree quantity and quality of meat; and in the third, those which combine in the greatest perfection the qualities of the other two classes.

Such classification is not absolutely accurate, because there can be no clear lines of demarcation between the qualities of different breeds. All fowls are, to some extent, adapted to the purposes of laying and of use for the table. But some groups of fowls are especially characterized by one, and other groups by another quality, and the classification is sufficiently accurate for practical purposes.

The class of layers consists chiefly of two great races of fowls—the Mediterranean and the Hamburg. The first race is characterized by rather slender, graceful bodies, well developed tails, and large single combs. The second race is more compact in build, the tails are full and carried at a moderate elevation, and the combs are rose. In the Mediterranean class are included all of the varieties of the Leghorns, the Spanish, the Minorcas, the Andalusian, and the Ancona. In the Hamburg class are found the six varieties of the Hamburg fowl and the Redcap. Two peculiarities are to be noted among the most prolific fowls. They are peculiarly summer layers; that is, the greater number of their eggs are produced in the warmer months of the year, and they all lay a white egg. Of the two races, the Mediterranean lays much the larger egg, the eggs running from medium to large. The Hamburgs, as a class, lay an undersized egg, the only exceptions to which are the Black Hamburg, whose eggs are medium in size, and the Redcap, whose eggs are somewhat above medium.

The class of table fowls consists of three races—the Dorkings, the Oriental Games, and the French fowls. The Dorkings and some of the Oriental Games are rather poor layers, while some of the French fowls are very good layers, and though considered under this head, really could be classified as general purpose fowls. The Dorking, White, Silver Gray and colored, are of good size, have long parallelogrammatic bodies, and, though white in shank and skin, have an abundance of flesh. The Oriental Games, included in this class, are the Malays and the Cornish Indian Games. The former are exceedingly long in the shank and neck, the poorest of poor layers, but possess very plump and meaty bodies. The Cornish Indian Games are, from an American standpoint, about the best of this class, having yellow shanks of medium length, yellow skin, and a wonderful development of breast meat. The French fowls—the Houdan, La Fleche and Crevecoeur—are not extensively bred in the United States. The Houdan is the most popular of the three, and it is a plump but rather small fowl, with mottled shanks and a white skin. The La Fleche is a tall, up standing, black fowl, with dark legs and white skin; and the Crevecoeur is a heavy white skinned black fowl. La Fleche and Crevecoeur fowls are very rare

in this country, and the few which are found, as a rule, are not good representatives of their breeds.

The general purpose fowls consist mainly of two classes—the American and Asiatic. The American class includes the Plymouth Rocks, Wyandottes, Javas, and Dominique. These fowls have single and rose combs, yellow shanks and skin, are above medium in size, and are excellent representatives of the third class in our division. They are hardy, fairly good layers, dress off nice, mature at a seasonable age, and are generally profitable to keep. The Asiatic class includes the Brahmas, the Cochins, and the Langshans, and the fowls are characterized by great size and the possession of feathered shanks. The skin of all the varieties in this class, with the exception of the Langshans, is yellow; the bodies, when fully developed, quite plump, and the carcasses, though large, attractive in appearance. These two classes, American and Asiatic, lay tinted eggs, varying in shade from almost pure white to an almost chocolate brown.

Of the other classes mentioned in the American Standard, the Polish, the Game, and the miscellaneous, the farmer will take but little notice, because the breeds represented in these three classes, while not lacking in practical qualities, are bred chiefly for their ornamental characteristics. The Polish, when attention is given to practical qualities, rather than the production of large crests, would fall under the first of the divisions we have suggested, and the Games under the second, while those in the miscellaneous class might belong to any one of the three divisions.

Such are the fowls from which the farmer can make his selection. And as is his purpose, so will his choice be of some breed or variety from one of the three classes named. If his purpose be to produce the greatest number of eggs, he will wisely select from the first class; if table fowls are his primary object, his choice will be made from the second class; and if he has no other purpose than the production of a reasonable number of eggs and reasonably good fowls for table, he will prefer some variety included in the third class. —*Farm Poultry.*

### INTRODUCE NEW BLOOD.

There are few flocks that would not pay for an infusion of new blood. Many there are where the same strain has been carelessly bred for years. By the purchase of a good pure bred male to be mated with the best pullets or hens in the yard, a decided improvement in the laying powers of the flock may be had. Be not content with the best grade which may be obtained from your neighbor; that is a backward step. A few dimes spent for a choice bird will be more than repaid by the end of the next breeding season. The winter poultry show is a grand place to make a selection. Look over the exhibition with this idea in mind.

Provide warm but well ventilated roosting quarters for the feathered friends during winter. Feeding is an expensive way to keep up the animal heat necessary to ward off the cold incident to ill protected quarters.

### WARM VS. COLD HOUSES.

An experiment station has been testing the difference in the egg production in winter of hens in warm houses and those in cold houses. The houses were exactly alike, built of matched boards, with single roof, but one was sheathed on the inside and covered with paper. In each were placed twelve pullets, the flocks being as much alike as could be selected, and they were fed alike, having a morning mash of corn meal, middlings and ground oats and at night whole grain scattered in the litter. Fresh water, grit and bone and granulated bone were placed where they could always get them as they wished. The test began November 24 and was continued five months and resulted as follows: Warm house, first month 87 eggs, second 130 eggs, third 138 eggs, fourth 120 eggs, fifth 154 eggs; cold house, first month 39 eggs; second 106 eggs, third 103 eggs, fourth 124 eggs, fifth 114 eggs; totals, warm house 629 eggs, cold house 496 eggs, a gain of 133 eggs. Eleven dozen eggs increase at winter prices would well repay the cost of sheathing and papering a house large enough for twelve hens.

### EGGS IN WINTER.

At a New York State farmers' institute the reader of an essay on poultry gave his method of feeding to get eggs in winter. Take one part of corn and two parts of oats and have them ground together quite fine. To 200 pounds of this add 100 pounds of ground wheat or bran and middlings. To 10 quarts of this mixture add one quart of animal meal, and moisten with skim milk if you have it. Feed this in the morning in V-shaped troughs, giving as much as they will eat in 15 minutes, and gather up what is left at that time. At noon give green feed of cabbage, beets or turnips cut up. An hour later give light feed of small grains, scattered in chaff or straw. The night feed, at 3:30 P. M., is equal parts wheat, oats and corn, scattered in the straw, so that they will work until dark to find it. Keep oyster shells where they can pick them when they please. Have dust bath of road dust or coal ashes for them, and provide plenty of fresh water. Use kerosene oil on the roosts and insect powder in the nests. With early hatched pullets or young hens through their moult this gives eggs all winter.

### EXCLUDE THE MALE.

As poultry are kept on the average farm, one of the greatest mistakes made is in allowing the males full run of the yards during the entire year. Some have even yet failed to learn that the presence of the male is not necessary to a large yield of eggs. In fact, any experiments that have been conducted along this line have most emphatically declared this to be true, and in most cases the conclusions reached have been that even larger returns were obtained in the absence of the male bird. In the light of this, all specimens now on hand, not intended for breeding purposes, should be promptly disposed of. Poultry keeping will never bring the profits which it is capable of doing until such details are considered with care.

There is but little profit in keeping hens unless a part of the eggs can be produced in winter and winter prices received. In order to do this, the early hatched pullets must be matured and begin laying in November and December. The lighter breeds, the Leghorns and Hamburgs, if hatched in April and well cared for, will mature about the right time to make good winter layers.

The farmer who fails to save some of his choice second growth clover for his hens during the winter will miss one of the best egg-producing feeds we have. It is a small task to cut with a sharp hatchet enough clover for a feed for one hundred hens.

Our ability to secure winter eggs will depend very much on our skill in carrying out this idea: If we want the hen to change her season of greatest usefulness from a time when nature furnishes her with the most favorable conditions, to one that will better suit our purpose, we must bring about the conditions which make it possible for her to comply with our wishes.

Into the straw should be thrown every bit of grain that is fed to the hens during the whole winter. Make them dig and hunt in the straw for all their grain food. Compel them to take this kind of exercise or go hungry. It gives them health and vigor and warms them up. If this grain food is a mixture of small grains, they will be kept busy nearly all day.

Fowls kept comfortable and sheltered from storms will grow much faster than when neglected in this matter. As the supply of insects grows less, meat of some sort should be furnished.

A lazy hen is never a laying hen. To have your hens lay well, you must make them scratch or work for their food. Therefore scatter the grain well.

### A HUNDRED THOUSAND DOLLAR HENNERY.

The *Brooklyn Eagle* says that at the new country place of Howard Gould, at Port Washington, L. I., there is now nearing completion a poultry plant costing \$100,000. It is said that the houses are built of granite, and are the "finest ever constructed," "of great perfection of detail and finish." Great things are expected of it—naturally—by those putting in the money. It appears, however, to have been demonstrated a number of times that a superfluity of capital is, if anything, worse than a scarcity of capital when one goes into poultry keeping.

Mention the *Planter* to your friends.

## The Horse.

### NOTES.

Colonel Sidney, 32931, and Sidney Prince, 32932, both sons of the noted California trotting sire Sidney, are the stallions kept for service in the stud of Floyd Brothers, Bridgetown, Va. The Messrs. Floyd are the largest breeders on the "Eastern Shore," and were able to weather the storm of depression which spread over the trotting-horse world for years and paralyzed values. Bendee, by General Benton; Clay, the son of Walker Morrill, that sired that stout hearted campaigner Albert C., 2:16½, and other good stallions have been owned during recent years by the Floyds, but the speed and potency as a sire of Sidney Prince cause them to look upon his future as full of promise, while fond hopes are also centered in Colonel Sidney. Both horses were foaled in 1893 and bred by the estate of the late O. Valensin, Pleasanton, California, who owned Sidney, the great son of Santa Claus, 2:17½, sire of William Penn, 2:07½. Sidney Prince has a record of 2:20½, and his dam, Crown Point Maid, is also the dam of Sidney Maid. He has sired Forney, 2:19½, and News Boy, 2:21½. Colonel Sidney's dam was Maud R., the dam of Sibyl, 2:27½, by Hambletonian, 725, and he has sired Admiral, 2:17½, and Lillian S., 2:26½. News Boy, Admiral and Lillian S. are new performers for 1902, while Forney's record represents a reduction of nine seconds from his work of 1901. Among the brood mares in the Floyd stud are Thrift, dam of Willie Shaw, 2:28½, and Admiral, 2:17½; Fava, by Splitwood 1, dam by Daniel Lambert; Benzetta, by Bendee, 10969, dam Fava; Miss Stakes, 2:31, by Great Stakes, 2:20, dam Lady Kenton, a member of the Nancy Hanks, 2:04, family, by Hambletonian Mambrinc, 540; and others, among them Lady Wells, a daughter of Potential, son of Prodigal, the former head of Marcus Daly's noted trotting stud. These mares were mated this season with the two Sidney stallions and Cordova, 2:21½. There are some twenty or more youngsters, ranging from weanlings to three year olds on the farm, and for good looks and promise of speed they are a choice lot.

Sidney Prince, the son of Sidney, that ranks as premier sire of the Floyd Brothers' stud at Bridgetown, is now the most popular sire on the Eastern Shore of Virginia, which has been his home since he was brought from California as a yearling. He is nine years old, and eighty two matrons visited his court this season, which ended August 1st, and he was given a rest of three weeks, then started to jogging. With six weeks' preparation, including three seasons on the North Carolina Circuit, he made a new record of 2:20½ in a winning contest at Winston. As a four year old he got a mark of 2:24½, after which he was given no fast work until the present season. In the second heat of his race over the half mile track at Greensboro, he was given his head and breezed a quarter through the stretch in thirty-two seconds, but a bruised heel caused lameness and he was not taken to Raleigh. From the latter it was intended to take him on down to Savannah, Ga., where right and fit, he was regarded as being able to take a record of 2:25 or better. Sidney

Prince is a well-formed bay horse, of nice size, and marked with a white face and legs like Monterey, 2:09½, and other noted performers to the credit of his sire.

Wealth, the big brown son of Gambetta Wilkes, 2:19½, and Magnolia, by Norfolk, has been shipped from Lexington, Ky., to the farm of his owner, Col. W. H. Chapman, near Gordonsville, Va., where he goes into the Stud. At Bowling Green, Ky., on September 11th, won a good contest, and paced to a record of 2:17½, but in August, at the Indiana State Fair, the handsome stallion was timed separately in 2:08 in his race there. Wealth was bred in Kentucky by T. M. Arramsith, now of the Haven Farm, Greensboro, N. C., but passed to Col. Chapman along with his dam as a suckling. Beck Collins, the grand dam of Wealth, was sired by Woodburn Hambletonian, a richly bred son of Belmont, and by Melville Chief, she produced the chestnut stallion Choctaw, 2:30. Choctaw could pace nearly as fast as he could trot, while he was a natural saddle horse and was presented by Col. B. Cameron, Stagville, N. C., to Gen. Fitz Lee, who took the son of Melville Chief to Cuba and used him as a troop horse.

Among the well known Virginia breeders, owners and horse show men, who exhibited at the Chicago Horse Show were J. B. McComb & Brother, Somerset; Courtland H. Smith, Theological Seminary; Richard Wallack, Warrenton; Julian Morris, Campbell, and T. Lee Evans, Warrenton. All of these gentlemen carried off prizes, while at the same time they made some very satisfactory sales of hunters, jumpers and park saddle horses. The Messrs. McComb got \$2,500 for Lightfoot, an elegant black gelding three years old, by Fesler, dam by Castleman, the trotting bred son of Woodford Mambrino, 2:21½. J. Hobart Moore, of Chicago, was the buyer. I doubt if a finer three year-old than this gelding ever left Virginia; then, too, he was in the pink of condition and shown to perfection. Lightfoot won all along the line of Virginia Horse Shows, including Richmond, and then took the blue ribbon at Chicago. In addition to Lightfoot, the same owners also disposed of Kentucky Cardinal, five years old, for \$300; Duke of Somerset, three years old, for \$300, another three years old, for \$300, making a total of \$3,600 for four head.

At the semi weekly auction sale of Joseph Lassiter, proprietor of the Richmond Horse Bazaar, this city, on November 15th, a consignment of Kentucky bred trotters, pacers, road and saddle horses were disposed of by Shelby T. Harbison, of Lexington, and fair prices ruled throughout for the twenty five head sold. Among the principal local buyers were W. C. Saunders, who secured several richly bred and promising youngsters; W. J. Carter, who got the big bay pacing gelding Hutchcraft, trial, 2:13, by Naboth, 2:19½, son of Walsingham; Williamson Talley, the insurance man, who got a grand looking chestnut gelding in Collins, by Time Onward; Joseph W. Montgomery; Sidney P. Clay, C. T. Friend, H. M. Council and James

C. Smith, the owner of Forney, 2:19½; Clarion, 2:22½, and other fast horses in Rectress, the black filly, one year old, by The Director General, dam Brook-glen, by Glenbrook, probably secured one of the gems of the sale, while Mr. Harbison publicly stated that Hutchcraft; the bay pacer, bid off by W. J. Carter, was one of the fastest horses he ever drove, being able to pace a quarter in 30 seconds, a two-minute gait.

One of the ablest horsewomen that Virginia has produced is Mrs. Robert G. Shaw, daughter of Mr. C. D. Langhorne, of Mirador, near Greenwood, Albemarle county. With her crack hunter, Queen B., that she took over the jumps at the recent Richmond Horse Show with consummate skill, Mrs. Shaw's riding here was a revelation, but her ability in other fields is also marked, as shown by an associated press dispatch recently sent out from New York, which is as follows:

Mrs. Robert G. Shaw, who was one of the Virginia Laughorie beauties, and who has just returned from her old home, showed the Meadow Brooke Hunters how to take high gates in to day's fox hunt. One barrier that she took had to be let down for others. From start to finish Mrs. Shaw was up with the pack and took every jump with grace, and when the fox was "holed" she was there with the hounds.

Mr. W. B. Saunders, of this city, has sold to Major C. M. Walker, Farmville, Va., the fast and handsome bay mare Lucena, 2:22½, full sister to Stormcliffe, 2:13½, by Wickliffe, dam Happy Princess, 2:23½, by Happy Medium. Lucena has figured as premium winner for two seasons in the roadster classes at the Richmond Horse Show, and is a faster trotter than her record indicates. She will be driven on the road by Major Walker, who is a wealthy citizen of Farmville and the owner of other fine pleasure horses.

Mr. Laughorie Putney, of this city, has added to his private stable of fast roadsters, the two speedy and handsome trotters Foxhall, 2:19½, the chestnut gelding, by Great Stakes, 2:20, dam Sue Norfolk, by Norfolk, and Fokie Lambert, 2:22, the bay mare, by Alsatian, dam Antoinette, by Daniel Lambert. Mr. Putney is an expert amateur reinsman, and has figured as a owner of good horses for a number of years, among those passing through his hands being Miss Nelson, 2:11½; Whitby, 2:18½, and others.

T. L. Craig, Gastonia, N. C., has sold to L. R. Hagood, same State, the handsome and promising bay filly, Lenore Bell, 3, by Electric Bell, dam Hixie McGregor, 2:28½, by Robert McGregor. In addition to her rich breeding, Lenore Bell has speed, having worked a quarter in 35 seconds on the trot.

The handsome brown mare Princess of Ridgefield, by Prince Belmont, dam Ida Wise, by Bajardo, has been shipped to Reidsville, N. C., the home of her owner, Dr. J. C., from Flemington, N. J., where she was sent this season and bred to that great young sire of speed and race horse quality, Lynne Bel, 2:10½, son of St. Bel, by Electioneer.

Joseph Linton, Manchester, Va., has lost by death due to lockjaw, the result of an injury, the brown mare Befaua, 2:31½, by Brown, 2:18½, dam by Princeps. She was foaled in 1891 and bred by the late Jerome J. Case, Racine, Wis.

B. W. Southerland, Mt. Olive, N. C., has lost by death due to lung fever, the handsome bay stallion Norwood G., 2:33½, trial, 2:18, by Norval, dam by Onward.  
BROAD ROCK.

It will stand horse breeders well in hand to pay the strictest attention to the statement made by Prof. Craig last week to the effect that now is the time in the first year of a horse's life when he is made or marred for good and all. The foal that is stunted now will never catch up again, no matter what sort of care he may be given. Every one knows that most of the foals born on the range are only a little larger when eighteen to twenty months old than when six or eight. This is simply because they get no care the first winter. It is the same with all sorts of horses, and on too many farms the yearlings are worth only a few dollars, if any thing, more than they were as foals twelve months before. It never pays to stint at the meal bin any sort of a farm animal that is young and growing, but if a breeder is determined to rear his horses cheaply, irrespective of the teachings of experience, he would far better do his stinting the second and third winters than during the first. The horse well done to as a foal will always keep ahead of the one that is starved at that time no matter even if the first is "roughed through" when a yearling and the other fed some grain. It is an accepted axiom in stock rearing that it is folly and money losing folly at that ever to let a young animal lose the flesh that was born on it, and to no sort of domestic stock does that apply with greater force than to the horse, especially the draft horse.—*Breeders' Gazette.*

Express horses continue in the most active request in the Chicago and other wholesale horse markets. One reason for this is that the forwarding corporations are not only doing an immense business but are anticipating a phenomenal increase just before and during the holiday trade. In the United Kingdom there is a shortage of desirable horses of this type. As has been explained before the vanner of Britain is the best class of expresser in the United States and while the foreign demand for almost all other sorts of horses has dropped off to nothing at all, there is still a good inquiry for vanners at prices reaching \$200, which is about as much as such horses have ever brought here. The forwarding companies pay from \$140 to \$175 or perhaps a little more for the horses they buy, but they can do with a rather smaller type than the British market requires. There is money in breeding this class of horses. Some men go so far as to claim that there is more in it than there is in the breeding of drafters, but this is open to discussion, like most of the other questions relating to the production of the horse saleable.

Mention the *Southern Planter* to your friends.

## Miscellaneous.

### GRASS.

"All flesh is grass."—Isa. xl: 6.

*Editor Southern Planter :*

Botanists class wheat, corn, rye, oats, and all the grains as grass. If all flesh is grass, as the Good Book declares, then it is important that only the best grasses should be cultivated for the food of farm stock, in order that their flesh should be put on rapidly and be of the best quality.

The grasses are more widely diffused than any other kind of growing vegetation, being spread over all parts of the habitable globe. There seem to have been grasses created or adapted for all localities, each capable of enduring the climate and conditions of soil or moisture, or lack of moisture, in each particular region. A few are either native of all the continents or have been introduced into them through commercial intercourse.

Every farmer and stock-raiser in the world is interested in the subject of grass, but unfortunately only a few give it the attention which its importance demands. The average farmer continues to sow the same kind of seed his father sowed, without troubling himself to ascertain whether there may not be some other kinds which will produce a larger quantity of forage and of better quality. When clover runs out, he is satisfied if timothy takes its place; when that is crowded out by quack grass, or coarse swamp grass, he is not very much concerned—it still makes hay, or pasture, which cattle will eat rather than starve. It is not until white weed, wild carrot, sorrel, or some other abominable thing usurps the ground that he thinks of plowing up the meadow and reseeding with good grasses.

He is usually quick enough to obtain new kinds of potatoes or wheat, and frequently pays exorbitant prices for something no better than he has been raising; but when you talk to him about the value of some new kind of grass, he will probably say, "Clover and timothy are good enough for me." Clover and timothy are good, but there may be something better than either, whether as a renovator of the soil or a forage crop. Cow-peas, where the climate is suitable, and especially in the Southern States, are superior to clover for both manurial purposes and forage, and some of the sorghums and alfalfa (or Lucerne) will outyield timothy twice over. Alfalfa flourishes in California and all the Southern States, and has been successfully raised as far north as Long Island.

Prof. J. R. Page, of Virginia, says: "I have cultivated alfalfa for forty years both in the Tidewater and the Piedmont regions of Virginia, and I regard it as

the most valuable forage plant the farmer can cultivate for soiling. It is ready to be mowed by the first of May, and may be cut three or four times during the season. Grazing kills it out. It should be top dressed with manure every fall and plastered in the spring, and after every mowing."

If we could find a grass that would produce double the amount of forage that is supplied by any we now have, and of as good quality, it does not require much arithmetic to prove that we could keep double our present number of animals, make double the amount of manure, raise twice as many bushels of grain on the same number of acres, and thereby double our present incomes, without very much increasing our expenses.

When the first colonists left Europe to settle in America the grasses raised there were indigenous. The pastures and meadows were made up of such varieties as had adapted themselves to the conditions there found. They were what is called "natural"—the grasses which had always grown there or had come in of their own accord. It is said that in Europe artificial seeding with grass did not become common until the close of the 18th century, and that the practice was introduced from this country.

The early colonists found here only wild grasses growing in the openings of the woods and marshes. They never saw or heard of the immense natural pastures or prairies of the West, on which great herds of buffalo fed and fattened. The natural pasturages in the East were abundant, such as they were, and the vales and marshes furnished a supply of coarse hay for winter feeding. It was not until population had greatly increased, and the range for cattle had become restricted, that artificial pastures and meadows began to be formed.

In 1749, Jared Elliott, of Connecticut, made some valuable investigations and experiments in regard to the best kinds of grasses for cultivation, and published his results. He gave a particular account of the fowl-meadow grass (*Poa serotina*), which is a native of New England. He also mentions Herd's grass, or timothy, as having been found in a swamp in Piscataqua by one Timothy Herd, who propagated the same. This is as much as fifty years before its introduction in England. It seems to be a fact well established that timothy is a native of both Europe and America, although first introduced into England from this country. It is said to have been cultivated in Maryland about 1720.

Thomas Hale, who published a large work on English Husbandry in 1768, says: "The curious reckon two or three hundred species of common grass, but this the husbandman need not regard. These

several species taken together make what we call common, or natural grass; the others are called artificial grasses. Natural grass is the produce of our own country, the growth of wild nature, and we have it finer than any other kingdom in the world; the others are principally of foreign origin, and most of them have but newly been brought into use by us." Hale mentions but three cultivated grasses—Clover, Sanfoin, and Lucerne (or alfalfa). Timothy he did not seem to know anything about.

The *Poa pratensis* of the botanists, better known as Kentucky blue grass, and believed by many to have originated in America, and principally confined to the region from whence it derives its name, is really to be found in nearly all parts of our country, though thriving best in the limestone soils of Kentucky. It is the well known, smooth stalked meadow grass, or green sward, of England.

Major Alvord says: "There is no grass that accommodates itself to any given locality with greater facility, whether it be the Mississippi Valley, New England, Canada, the shores of the Mediterranean, or the north of Russia. It is found thriving upon gravelly soils, alluvial bottoms, and stiff clay lands, in the permanent pastures of Missouri, and along the roadsides of Minnesota. Soil and climate cause varieties in its size and appearance, and this protean habit accounts for the various names by which it is known."

J. W. INGHAM.

#### TIDEWATER (VA.) NOTES.

*Editor Southern Planter:*

The 18th of November finds us here as yet untouched by autumn frosts. Sweet potatoes are being rapidly dug and either marketed or placed in pits for winter use. The second crop of Irish potatoes is also dug and secured for seed for planting next February and March, also for use during the winter.

Kale, cabbage and early spinach is being marketed daily in Northern markets, and the last of the peas and beans will go this week.

From Accomac county comes a big potato story, but as it seems to be pretty well vouched for, it is doubtless true. A prominent farmer over there had a sort of public digging, or public exhibition, at which one hundred persons were present, when he filled a barrel with the sweet potatoes dug from nine hills, and from two hundred hills he selected four potatoes which filled a barrel. We suppose that these potatoes were so large that two could not lie in the barrel side by side, but they had to lie one on top of the other, so that the four reached the top of the barrel. We do not suppose that the grower or the newspaper people would lie about a little matter like that.

The largest of the potatoes weighed 8½ lbs., and the potatoes from the largest hill weighed 21½ lbs.

Recently we made a trip to Princess Anne county, Va., and at the court house saw the largest quince in the United States. It was more than seven inches in length, and measured 15¼ inches around the shortest dimension. It weighed 2 lbs. 13¼ ounces. The grower reported fifty-five quinces on the tree which made two bushels. He calls it the Japanese quince. The tree is a beauty, and very ornamental, shedding its leaves in autumn just like any other well-regulated fruit tree, but having a habit of shedding its bark in May. The fruit is fine for all such purposes as the quince is used for. Princess Anne holds the record for the best poultry, the finest turkeys, the largest and the best oysters, and the best average quality of land in any county in the South. The county has nearly fifty miles of salt water frontage on bay and sea, and an extensive frontage on the waters of Currituck Sound on the south. It is a wonderful county in many respects, and has a great future in view.

Norfolk, Va.

A. JEFFERS.

#### TOBACCO SEED.

The State Seed Company of Hyco, Va., is the largest grower of tobacco seed in the world. The crop this year will amount to about 100 bushels, or 3,500 lbs. Those who know what a small seed the tobacco seed is much about the size of a grain of sand, will realize what a number of plants must have been grown to make this quantity of seed. The company raises seed of almost every type of tobacco.

#### "SOME PUMPKINS."

Mr. Ford, of Roxbury, Va., a subscriber to the *Planter*, raised a crop of pumpkins this year which has made a remarkable yield. From one vine he cut twenty-one pumpkins, which, together, weighed 896 lbs. Nearly half a ton of pumpkins on one plant! New England is not in it raising pumpkins with "Ole Virginny."

#### OUR JANUARY, 1903, ISSUE.

We invite the attention of our readers to the notice of our January 1903 issue which will be found under the head of Publishers Notes, page 709.

When corresponding with advertisers mention the *Southern Planter*.

## NORTH GARDEN FARMERS' CLUB.

*Editor Southern Planter :*

As you requested something from the North Garden Club I write you of the last meeting I was able to attend. We met in September at Mr. H. S. Martin's. Mr. Martin is a young man, but a good farmer, and resides on the plantation on which he was raised and which he inherited from his father. It is a mountain farm, situated in the picturesque section around Covesville, which is perhaps the most prosperous and beautiful of Piedmont Virginia. It is the pippin section, where the Albemarle pippin for export excels. Mr. Martin's handsome home stands on an eminence overlooking beautiful and fertile meadows, through which sparkling mountain streams flow, their banks shaven and shorn, a sight to make the farmer's heart glad. The house is flanked by orchards, magnificent trees bearing in this "off" year a fair crop. Around three sides stand the mountains, green with forests, and here and there well-kept fields climbing up their steep sides. New gates and fresh whitewash showed that the Club had been expected and the inspecting committee prepared for. This is one advantage of the Club, we all get ready for the inspecting committee and thus there is one time when fences and gates are repaired, branches cleared and whitewash applied without any putting off. Twenty thousand hills of tobacco waist-high and extra good and almost ready for cutting added to the attraction of the scene as it will later on add to the revenue of the owner. Plenty of corn and hay, but a poor return from the wheat harvest, which was not good in our section this year. The inspecting committee approved of the stock, fences, implements and carriages and found nothing to condemn. The last time the Club met at Mr. Martin's it criticised his stock of hogs; they were the old time kind, descendants of the "Pine Rooters." Mr. Martin accepted the suggestion, and at this visit had one of the finest lot of hogs in the Club, pure-bred Poland-Chinas and high-grades, sixty odd in all. They were greatly admired and especially commended in the report. The cows and horses were good, and there were twenty head of fine cattle to be kept over. Mr. Martin and his brother ship carloads of apples to Liverpool, and with their neighbor, Hon. W. H. Boaz, are the largest growers in the community. The quality of their fruit is always very fine. The Club had a most enjoyable time, and there was but one thing that ought to have been otherwise—we staid so long at the table that we had no time for discussion of the appointed topics. This will be excused, however, by those who have enjoyed the famous hospitality of the Martin home.

S. B. W.

Mention the *Southern Planter* to your Friends.

## TOBACCO-GROWING UNDER CANVAS.

The experiment of raising tobacco under cover, conducted by the Pennsylvania Department of Agriculture on the farm of Dr. H. M. Alexander at Marietta, is indeed most satisfactory. If the tobacco comes through the process of fermentation, as is expected, large numbers will take up this new method of culture.

During the period of growth, there was much speculation as to whether it would pay the ordinary farmer to go to the extra expense necessary to cover his fields. All was guess work then, but now, since the tobacco has been taken from the poles and weighed, the managers of the Station are able to give figures comparing the results under the old and new methods.

County Commissioner M. L. Greider, who had charge of the experiment, and is a tobacco grower of many years' experience, and a recognized authority in local circles in all that pertains to its cultivation, declares that the results are way beyond all expectation. He has, however, been cautioning all inquirers not to make any extensive preparations for next year until the result of the fermentation is known. The tobacco was shipped to Connecticut last week to undergo this process, which will be completed by January. So far as known, there is no reason why it should not be successful.

A review of the methods of cultivation, compared with outside cultivation, shows a saving of labor after the cover has been erected. It costs about \$300 to cover an acre, over half of which is required for the frame work, which should last about ten years. Not more than two years' wear can be expected from the canvas. The Experiment Station at Marietta had one-half acre under cover and several acres under natural conditions. The tobacco was planted under the canvas May 31, and on the same day the same kinds, Sumatra and Vuelta, were planted on plots outside. Each was given the same amount of cultivation, until that under the tent had attained a size of five feet, when it was found impracticable to work it any longer with a horse. At this point, the tobacco on the outside and immediately adjoining the tent, had only reached the height of one foot; in other words, had grown only one-fifth as fast as that under cover.

There was no work entailed by the presence of tobacco worms or grasshoppers. There were no worms, and one brood of grasshoppers which made its appearance were attended to by a hen and her chicks. The tobacco on the outside required as much attention as in previous years for these two pests. When the tobacco under cover was ready to harvest, it had reached the average height of nine feet, and touched the top of the tent. The cost of planting, cultivating, harvesting and packing for shipment to Connecticut was \$140. The half acre crop, when dried, weighed 855 pounds. The same kinds of tobacco, on the outside, averaged only between three and four feet, with from fifteen to eighteen leaves, compared to from twenty-three to twenty-nine for that on the inside.

The covered tobacco was incomparably superior in every way to that unprotected. During August, one of the severest thunder storms ever known in that section, accompanied by a terrific wind and heavy hail, created general havoc in its course, but not a particle of harm was done at the Experiment Station, the hail



fortunately, for comparative purposes, skipping the plots of uncovered tobacco. The storm was of value in demonstrating that the tent could withstand the severest wind.

A radical departure was made when it came to harvesting. Heretofore, it had been the custom to cut off the stalk, stripping the tobacco after the leaves were dried. The tobacco both under cover and outside was harvested leaf by leaf, as it ripened, and Mr. Greider believes this is the proper and most economical way to harvest the weed under all circumstances. It practically saves a second handling, and gives the immature leaves on a stalk an opportunity to ripen. About three weeks were devoted to plucking the leaves, which were placed in a long basket, transferred to a wagon, and then to the tobacco shed. Here laths with protruding wires along their sides were used for hanging purposes, the leaves being strung on the wires by girls; four of whom could string as much tobacco as three men could cut. From 72 to 76 leaves were placed on a stick.

The soil was a light, sandy loam. The fertilizer was cotton seed meal, sulphate of potash and South Carolina rock, in the proportion of about 1,400 pounds to the acre. The expense of keeping the plot clean was a trifle more than under ordinary conditions, because men with hoes had to be substituted when the tobacco became too big for horse cultivation. This, however, was offset by the greater attention required on the outside by the worms. The cost for suckering and topping was also a trifle greater, due to the more rapid growth, but the difference was not sufficient to be worthy of special note.

When the covered tobacco was taken from the poles a few days ago, not a single defective leaf was discovered due to the drying process. There was no white vein, and veins were practically the same color as the leaf, and were no thicker than the leaf itself of much of the outdoor tobacco. This thickness is expected to be reduced still more by fermentation. The tobacco is of a fine and silky texture, and nothing like it has ever been grown here.

To the question of "Does it pay to raise tobacco under cover?" Mr. Greider replied: "Up to the point of fermentation, there can be no question. The results are simply amazing. If the tobacco passes through this process in the shape we are told it will, the profit will exceed anything in the tobacco growing line in this country for many a year, if it is not the greatest known. However, I do not want to raise false hopes, and so have given the invariable advice of waiting until the tobacco is ready for the manufacturers before going into the matter extensively."

The average weight of a half acre of tobacco in this country, raised in the open, is between 800 and 900 pounds, substantially the same as under cover. The same weight, with so many more leaves for the covered tobacco, is due to their finer texture. The average price realized in recent years for the 800 or 900 pounds of open air tobacco from a half acre has been eight and two cents, at the best considerably less than \$75.

The Sumatra, raised under cover, if it ferments properly, will bring \$2 a pound. It is impossible to say how much it will lose in fermentation, and what the other shrinkages will amount to. The cost of fermentation is 11 cents a pound, that of cultivation

\$140, and of cover \$150, making a total of \$290 of known expense. Even with the addition of the 11 cents for fermentation, and allowances for shrinkage, it appears there is a very large and attractive margin of profit at \$2 a pound.

The Vuelta tobacco gave better results, both under the tent and outside, and it is the opinion of those in charge of the Station that on the whole it is better adapted to our soil and climatic conditions than the Sumatra. The past season was one of extreme moisture, and may have been responsible in a measure for the better showing of the Cuban product.—*American Agriculturist*.

## IRRIGATION PROBLEMS IN VIRGINIA.

*Editor Southern Planter :*

Being "green" in the business and a new comer in this State I appeal to you for advice.

I own some land, several hundred acres of which are sandy "flats" near a river carrying considerable silt part of the year.

I estimate that it would cost about \$700 to put in a turbine, with centrifugal pump attached, to lift 600 gallons per minute, or sufficient to irrigate about 100 acres every ten days two inches deep. Adjoining fields have considerable surface rocks, which need be hauled off any way, thus reducing cost of dam.

With judicious irrigation to supply moisture when needed in the summer, and to deposit the river silt on the land in winter to enrich it, I believe that four or more tons of good hay from the acre should be produced on these fields. Located convenient to railroad I estimate the hay at \$12 per ton or over.

I had made arrangements to borrow the necessary money, and was about to begin work when serious doubts began to worry my mind. Neighbors to whom I talked about the matter either ridiculed or seemed amused at the "foolish notion," and as these were men of more than ordinary intelligence it began to dawn upon my mind that the plan must be impracticable for reasons unknown to me.

I began to reason: If the plan were feasible, thousands of others would have attempted it, and capital, always eager for profitable investment, would promptly have embraced the opportunity. Many millions are invested in such enterprises elsewhere, and this State, with its much older culture, much nearer to profitable markets and short of hay even at high prices, would not wait for "greenhorns" to profit from its natural resources.

I reasoned further: There are unlimited acres equally well situated. Some of the neighbors are wealthy, and nearly all could readily obtain financial backing for profitable enterprises. All had equal and most had better facilities for informing themselves on the subject, and some employ salaried superintendents who certainly study the resources of the

property entrusted to their management as carefully as the managers of any other industrial or commercial business. All are better posted on the climatic and soil conditions than a new-comer.

I bought these lands with that one object in view, corresponded even beforehand with a railroad company to secure convenient shipping facilities, as I intended eventually to irrigate over 500 acres. I have, however, not the stubbornness of that one juror who thought the other eleven thickheaded fools because they would not agree with him, and I have dropped the project at present.

I want reasons why my carefully planned calculations, the result of study for years, are faulty and where my mistake lies. I want to know whether irrigation will not produce as much hay on these flats as the sterile sand hills in the West, and why not, since I have more and better water.

And, if results equally as good as in the West can be obtained here, why irrigation would not be immensely profitable in view of the fact that hay sells here for more than twice and often three times as much as there.

The editor of the best agricultural journal in this part of the "States" is surely fully posted on the subject as are doubtless also many of its readers. I want light.

*Hanover Co., Va.*

"GREENHORN."

Lack of space prevents our saying something on this subject this month, but we will do so later. Meanwhile we would like to hear from others.—Ed.

#### THE INFLUENCE OF HEIGHT OF WHEELS ON THE DRAFT OF FARM WAGONS.

Numerous tests of the draft of wagons equipped with wheels of different height have been made at this Station during the past three years. The trials were made on Macadam, gravel and dirt roads in all conditions, and on meadows, pastures, cultivated fields, stubble land, etc.

The draft was determined by means of a Giddings self-recording dynamometer. The net load was in every case the same, viz: 2,000 pounds. Three sets of wheels of different heights, all with six inch tires, were used as follows:

Standard, front wheels, 44 inches, rear wheels, 55 inches.

Medium, front wheels, 36 inches, rear wheels, 40 inches.

Low, front wheels, 24 inches, rear wheels, 28 inches.

The following is a summary of the results:

I. For the same load, wagons with wheels of standard height draw lighter than those with lower wheels.

II. The difference in favor of the standard wheels was greater on road surfaces in bad condition than on

good road surfaces.

III. Low wheels cut deeper ruts than those of standard heights.

IV. The vibration of the tongue is greater in wagons with low wheels.

V. For most purposes wagons with low wheels are more convenient than those of standard height.

VI. Wagons with broad tires and wheels of standard height are cumbersome and require much room in turning.

VII. Diminishing the height of wheel to from 30 to 36 inches in front and 40 to 44 inches in the rear did not increase the draft in as great proportion as it increased the convenience of loading and unloading the ordinary farm freight.

VIII. Diminishing the height of wheels below 30 inches front and 40 inches rear increased the draft in greater proportion than it gained in convenience.

IX. On good roads, increasing the length of rear axle so that the front and rear wheels will run in different tracks to avoid cutting ruts did not increase the draft.

X. On sod, cultivated ground, and bad roads, wagons with the rear axle longer than the front one, drew heavier than one having both axles of the same length.

XI. Wagons with the rear axle longer than front one require wider gateways and more careful drivers, and are on the whole very inconvenient and not to be recommended for farm use.

XII. The best form of farm wagon is one with axles of equal length, broad tires and wheels 30 to 36 inches high in front and 40 to 44 inches behind.—*Missouri Experiment Station.*

#### CURING PEA-VINE HAY.

*Editor of Southern Planter.*

Noting articles in recent issues about curing pea-vine hay, I can appreciate Mr. Rickers' experience as given in the November issue, as I have tried every "newfangled" way noted in newspapers for curing pea vine hay, from storing up in air-tight loft stacking green on straight poles, and will say to this correspondent, and to others, that the only successful way I've ever found, or my neighbors ever found, is as follows: Cut stack poles, leaving limbs on poles about two feet long, sharpened at ends so that the hay will slip on easily, making the stack about four feet in diameter. Select any kind of tree that has an abundance of limbs. Spruce pine answers the purpose admirably. Near to top of pole the limbs should be cut a little shorter, with about two feet of pole at top with no limbs at all and well sharpened. Vines to be stacked just as soon as cut, and as they begin to settle the limbs hold them and let the air circulate all through the entire stack, resulting in a perfect cure of fine hay. Can remain out all winter with very little damage. If not enough limbs on some parts of pole, this can be remedied by nailing on strips of board or scantling.

*Surry Co., N. C.*

H. D. LINDSAY.

THE  
**Southern Planter**

PUBLISHED BY  
**THE SOUTHERN PLANTER PUBLISHING CO'Y,**  
RICHMOND, VA.

ISSUED ON 1ST OF EACH MONTH.

J. F. JACKSON,  
Editor and General Manager.  
B. MORGAN SHEPHERD,  
BUSINESS MANAGER.

TERMS FOR ADVERTISING.  
Rate card furnished on application.

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The Southern Planter is mailed to subscribers in the United States and Canada at \$10. per annum; all foreign countries and the City of Richmond, 75c.

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.

Always give the Name of the Post Office to which your paper is sent. Your name cannot be found on our books unless this is done.

Subscribers failing to receive their paper promptly and regularly, will confer a favor by reporting the fact at once.

The Date on your Label shows to what time your subscription is paid.

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.

No anonymous communications or enquiries will receive attention.

Address— THE SOUTHERN PLANTER,  
RICHMOND, VA.

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

PUBLISHER'S NOTES.

Our January Issue.

The January issue of the *Southern Planter* will be our regular Holiday Number. It will appear in handsome illuminated covers and will be very attractive, both as to appearance and contents. Among the contributors will be Prof. Thomas Shaw, Major H. E. Alvord, Prof. A. M. Soule, Prof. W. F. Massey, Mr. George F. Weston, Superintendent of Biltmore Farms; Dr. Henry Stewart, and probably Dr. Wm. C. Stubbs, and others. There will, of course, be the regular monthly offering from experienced farmers and live stock men, and Editor Jackson will present his timely articles under "Work for the Month" and the Enquirer's Column. Altogether, this issue will be the best and most interesting and valuable one we have ever issued. At least, we think so. At any rate, it will be a fitting issue for No. 1, Vol. 64.

The edition will be 20,000, and will, therefore, be a very attractive proposition for advertisers. We take this opportunity to urge upon them to send us in their copy at the earliest possible moment, so that they may be taken care of properly. If any farmer or other advertiser has anything of merit to sell to farmers, this number will prove a cheap and effective medium.

To Subscribers and Readers.

We are making preparations for the issue of a splendid special Holiday Number on the 1st January next. It will appear in a beautifully colored cover specially designed for the issue, and will be largely devoted to the live stock capabilities and possibilities of the South. A number of leading live stock specialists of the country will contribute articles which we expect to illustrate with pictures of the different breeds of live stock.

WOOD'S  
**GARDEN SEEDS**

Do best in the "Sunny South, because they are specially grown and selected with a full knowledge of the conditions and requirements of our section. Twenty-five years experience and practical growing of all the different vegetables, enables us to know the very best, and to offer seeds that will give pleasure, satisfaction and profit to all who plant them.

WOOD'S NEW SEED BOOK FOR 1903

(Ready early in January) is full of good things, and gives the most reliable information about all seeds, both for the farm and garden.

T. W. WOOD & SONS,  
Seedsman, - Richmond, Va.



THE IMPROVED  
**SCREW STUMP PULLER**  
Write for Prices

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

**STUMP PULLER**

Most Powerful, Handiest and Strongest Built in the World.

We make 4 kinds in sizes to suit all needs and of any desired strength. Saves time and does the work right. The operation of pulling stumps and trees by our methods is simple and easy. Send for Free Catalogue.

CHICAGO STUMP MACHINE MFG. CO.,  
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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

\$100 REWARD, \$100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages, and that is Catarrh. Hall's Catarrh Cure is the only positive cure now known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer One Hundred Dollars for any case that it fails to cure. Send for list of Testimonials.

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

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

The issue will be the largest ever made by the *Southern Planter* Company, probably in excess of 20,000 copies—certainly not less than 20,000. The number of our regular subscribers is, however, now so large that even this number will leave us only comparatively a small number for new subscribers. We would urge that all who desire to have this issue (which alone will be worth more to every farmer than the cost of a whole year's subscription) should send in their renewals and subscriptions *at once*, as we cannot undertake to supply those who may defer doing so until the end of January or into February. Look to the label on your *Planter*, and if your subscription has expired or will do so in December or January, send in your renewal at once, or you may miss this issue. Urge your friends and neighbors who are not already subscribers, to send in their names and addresses *at once*, or, better still, obtain their money and send in their names along with your own renewal. We want the year to begin with a regular list of 20,000 subscribers. We can easily do more than this, if only our friends will each send us only the name of one new subscriber. We know that we can rely on our old subscribers to help us. We ask them to do it *now*, so that new subscribers may secure this special issue.

IT IS THE BEST OF ALL LINIMENTS FOR HORSES.

**YAGER'S**  
**CREAM**  
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**FOR**  
**MAN OR BEAST**

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POPULAR FOR ITS SOOTHING & EFFECT QUICK HEALING POWERS.

IN THE TREATMENT OF DISEASES REQUIRING AN EFFICACIOUS EXTERNAL REMEDY.

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**CORN, COB AND HUSKS.**  
All grains and all mixtures are crushed and ground to any degree of fineness by the

**KELLY**  
Duplex Grinding Mill

Three processes, breaking, crushing and grinding, one operation. Always uniform. Has double set of burrs, double breakers, force feed and feed regulator. Grinds very fast and runs easy. 4 sizes. Adapted to any power. The champion for any purpose for farmers. Catalog free.

THE O. S. KELLY CO., Dept. T SPRINGFIELD, OHIO.



**HEEBNER'S FEED CUTTERS.**


Feed all your fodder. By using Heebner's cutters with shredder attachment the whole of the nutritious stock is cut, crushed and shredded, and rendered edible. No waste. Animals eat it greedily and thrive. Shredder attachment costs \$5.00. The model ensilage cutter. Also make Tread Powers, Lever Powers, Little Giant and Penna. Threshers, Wood Saws, Feed Mills, etc. Catalog free.

HEEBNER & SONS, 25 Broad St., Lansdale, Pa.

**FEED MILLS.**  
EVERY MAN HIS OWN MILLER.

The latest improved. Does all kinds of work. Most durable; has ground over 15,000 bushels without repair or expense. The fastest grinder; has ground 300 bushels in 4 hours. Lightest draft and lowest price. The World's Best! Send for prices to the manufacturers

N. M. FIELD MFG. CO., St. Louis, Mo.



**FRENCH BURR and ATTRITION MILLS**

grind corn cobs and all kinds of grain. Make the finest meal. Guaranteed greater capacity than any other of same size.

Fifteen Days Free to prove superiority. Many thousands in use. Make no mistake. Get our free catalogue and price list before buying.

SPROUT, WALDRON & CO., Box 30 Muncy, Pa.



**ON TRIAL**

**DITTO'S**  
Triple Geared Ball Bearing Feed Grinder

for all kinds of grain. Has largest capacity and runs the easiest. Try it before you send your money. Send for circular.

G. M. DITTO, Box 48, Joliet, Ill.



**WROUGHT IRON PIPE**

Good condition, need short time only, new threads and couplings; for Steam, Gas or Water; sizes from 1/2 to 12 inch diameter. Our price per foot on 1/2 inch is 20; on 1 inch 40. Write for free catalogue No. 106.

CHICAGO HOUSE WRECKING CO.,  
W. 35th and Iron Sts., CHICAGO.

**"GET A DANDY"**

and double your egg yield. The fastest and easiest bone cutter made. Sold on 15 Days' Trial, \$5.00 up. Catalogue and special proposition free.

STRATTON MFG. CO., Box 76, Erie, Pa.

WITH THE ADVERTISERS.

The Acme Harrow is being advertised again this season by Mr. Duane H. Nash, Millington, N. J. Look up the advertisement elsewhere in this issue.

G. M. Ditto, Joliet, Ill., is advertising a good Feed Mill with us this season. As this is his initial card before our readers, we bespeak for him their liberal patronage.

The Spangler Manufacturing Company, York, Pa., who have advertised their Low Down Drill extensively in our columns, are offering their York Improved Weeder this month.

The Petaluma (Cal.) Incubator Company start the season's advertising with this number. This splendid hatcher is being more widely used than ever. Look up their card and write to their Eastern office for catalogues, etc.

Spray Pumps are offered by Mr. J. F. Gaylord, Catskill, N. Y. Mr. Gaylord is successor to the P. C. Lewis Manufacturing Company, of the same place, and who are well known to our readers.

The Sure Hatch Incubator is a new advertiser in this issue. Look up the merits of the "Sure Hatch" before purchasing an Incubator.

The Hawkeye Stump Puller, made by the Milne Manufacturing Company, Monmouth, Ill., has a card in another column. Messrs. Milne Bros., of this firm, also offer Shetland Ponies.

Cow-Peas, Black Eye Peas, and other varieties of field peas are wanted by the Robert Buist Company of Philadelphia, Pa.

Wild Turkeys and Chipmunks are wanted by Dr. Cecil French, Washington, D. C.

Dorsets and Herefords are for sale by H. Armstrong, Lantz Mills, Va.

Furs, Wools and Pelts are wanted by the McMillan Fur and Wool Company, Minneapolis, Minn.

The Glen Allen Stock Farm, Black Walnut, Va., is a new advertiser in this number. Aberdeen-Angus Cattle of the right breeding and at right prices are offered. Look up the advertisement.

Mr. C. B. Chapman, Williamsburg, Va., wants thirty or forty good milch cows. He also has for sale four good work-horses.

Samuel Hairston, Wenonda, Va., offers his herd of Jerseys.

The Dairy Association, Lyndonville, Vt., are advertising their well known preparation, "Kow-Kure," in this number. We have heard of good results from those using it.

Yager's Liniment, for man and beast, is being advertised by Gilbert Bros. & Co., of Baltimore, Md. Every farmer should keep a bottle handy.

Messrs. M. B. Rowe & Co., of Brompton Farm, Fredericksburg, Va., are offering Jerseys, Guernseys and Devons this month.

The Forest Home Farm is offering a well bred Jersey bull calf.

E. M. Gillet & Son, Bacon Hall Farm, Verona, Md., have some splendid Here-




**ELECTRIC**

**Handy Farm Wagons**


make the work easier for both the man and team. The tires being wide they do not cut in to the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

ELECTRIC WHEEL CO., BOX 146, QUINCY, ILL.




**WE'LL PAY THE FREIGHT**

and send 4 Buggy Wheels, Steel Tire on, - \$7.25  
With Rubber Tires, \$15.00. 1 mfg. 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.



**FENCE! STRONGEST MADE.** Built strong. Chicken-tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.

COILED SPRING FENCE CO.,  
Box 53 Winchester, Indiana, U. S. A.



**DOW FARM FENCE**

PRICE AND QUALITY WILL PLEASE YOU—WRITE US NOW.

DOW WIRE WORKS—LOUISVILLE, KY.



**LAWN FENCE**

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address COILED SPRING FENCE CO. Box 53, Winchester, Ind.



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for a long time, and you don't have to repair Page Fence for years to come. That's quite a saving.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.



HARD STEEL

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Heavy lateral wires, heavy hard steel stays, coiled spring wire, Sure Grip lock. In strength, appearance, and durability, the Hard Steel cannot be excelled. Write for catalogue and prices.

THE HARD STEEL WIRE FENCE CO.  
Cuyahoga Falls, Ohio.

LATEST (Newton's Patent.)



**DEHORNER** Every Dehorner Guaranteed

IMPROVED THOUSANDS IN USE.

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

**Take Your Choice**

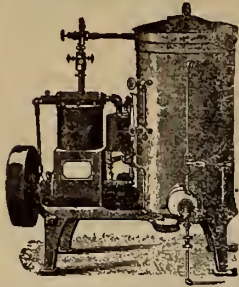
The Convex—very simple, quick to operate. Bully V—latest and most powerful V-Knife made. Sent on trial. Calf Dishorner and other supplies. Send for catalog. Western orders filled from Chicago.

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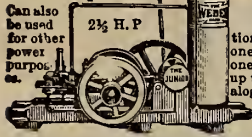


For Churning, Cutting & Grinding Feed, Filling Siles, Sawing Wood, Elevating Water, and all Farm and General Uses where **Small Power is Required.** Fuel, Kerosene Oil.

No Skilled Engineer required.

ROCHESTER MACHINE TOOL WORKS,  
No. 17 Frank St. Rochester, N. Y.

**The "Weber Junior" Pumper**



Is all complete, ready to attach to pump. Equals 30 men pumping water. Uses but little gas and oil. 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 & Gasoline Engine Co., Box 128 Kansas City, Mo.



**ENGINES, BOILERS AND MACHINERY.**

When you want good rebuilt machinery at bargain prices, write for our Catalogue, No. 166 We carry all kinds of engines (gas, gasoline and steam power), boilers, pumps, and mill supplies in general. CHICAGO HOUSE WRECKING CO. West 35th and Iron Sts., Chicago.

**SPRAY PUMPS**

SAVE MONEY BY BUYING ONE OF OURS. They will do as much work, being all brass are lighter to handle and are more durable, will generate a higher pressure thereby making them the easiest pumps to operate on the market. Write for catalog and get treatise on spraying free. Agents wanted. Mention this paper. J. F. Gaylord, Successor to P. C. Lewis Manufacturing Company, Catskill, N. C.

**BOSTROM'S IMPROVED FARM LEVEL**  
Pat'd 1902.



WITH AND 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.

**SHIP YOUR FURS AND SHEEP PELTS TO McMILLAN FUR & WOOL CO., Minneapolis, Minn. WRITE FOR CIRCULARS**

**RAW FURS.** Write for free price-list. Read FUR AND WOOL, only paper of its kind in the world. Copy free.

J. E. MANLOVE, - Bushnell, Ill.

**RUPTURE CURED** while you work. You pay \$4 when cured. No cure, no pay. ALEX SPEIRS, Box 844. Westbrook, Maine.

WITH THE ADVERTISERS—CONT'D. fords and Berkshires. "Tops only sold" is the motto of Bacon Hall.

The Marvin Smith Company of Chicago is offering a lot of seasonal implements, etc., in another column.

The Filston Farm Jerseys and Berkshires gave a good account of themselves on the Fair Circuit this year.

The Biltmore Farms are, as usual, offering some nice stock-Jerseys, Berkshires and Standard Poultry.

Look up the advertisement of Gleason's Horse and Cattle Powder in this issue.

The German Kaki Works will send free to any one requesting it, valuable pamphlets on the use of Potash.

Wine Sap Apple Trees are offered this month by Mr. Chas F. Hackett, Manager of the Bona Vista Nurseries.

The Castalia Herefords are in splendid condition, we learn. Mr. Murray Boocock, the owner, is always ready to talk or correspond about Herefords.

Nursery Stock is offered by the Franklin Davis Nursery Company of Baltimore, Md.

**WINTER SCHOOL OF AGRICULTURE AND DAIRYING FOR FARMERS AND FARM BOYS.**

AT THE A. & M. COLLEGE, RALEIGH, N. C.

For the benefit of Farmers and Farm Boys, a Winter School of Agriculture and Dairying will be conducted in the A. and M. College, Raleigh, N. C., beginning January 2nd and ending March 10, 1903. The instructions will be practical and up-to-date. It will include such subjects only as are of practical interest and economic value on the farm. Any wide-awake progressive farmer will be greatly aided by this school.

No entrance examinations are required. Tuition is free. Total expenses for board, fuel, lights, etc., the full session of ten weeks, only \$30.

Subjects Taught.—Butter-making, stock-breeding and feeding. The culture and improvement of soils, diseases of cattle, diseases of plants. The culture of crops and their rotation.

Practical Work in—Milk testing, Pasteurizing cream and milk, handling cream separators, churning, stock-judging, boiler and engine tending.

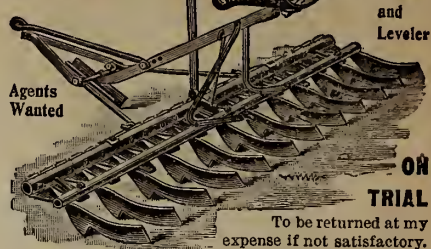
For full descriptive pamphlet, address Prof. CHARLES W. BURKETT, A. & M. College, W. Raleigh, N. C.

**BIG GIANT FEED MILLS.**

A new advertiser in this issue is the N. M. Field Manufacturing Co. of St. Louis, Mo. This firm is offering their celebrated "Big Giant" feed mills. These mills are made in various sizes and capacities. The makers claim that this mill was never beaten, as it has ground 300 bushels in four hours. Look up the advertisement and send for Catalogue No. 91.

To make cows pay, use Sharples Cream Separators. Book "Business Dairying" & Cat. 306 free. W. Chester, Pa.;

**ACME PULVERIZING HARROW**



Agents Wanted

Clod Crusher and Leveler

ON TRIAL

To be returned at my expense if not satisfactory.

The best pulverizer and cheapest Riding Harrow on earth. We also make walking Acmes. The Acme crushes, cuts, pulverizes, turns and levels all soils for all purposes.

Made entirely of cast steel and wrought iron—indestructible.

Catalog and Booklet, "An Ideal Harrow," by Henry Stewart, mailed free.

Free on board at New York, Chicago, Columbus, Louisville, Kansas City, Minneapolis, San Francisco, etc.

DUANE H. NASH, Sole Mfr., Millington, New Jersey, and Chicago, Ill.

PLEASE MENTION THIS PAPER.

**OUR LOW HITCH DISC HARROW**

Best, simplest, strongest and most durable Disc Harrow made. All steel. Double levers. Low hitch. Center draft. All sizes. With or without seeding attachments. Write for circulars and prices.



TOLEDO PLOW CO., - Toledo, Ohio

**FOR SALE**

U. S. Separator, No 7, and 4-Bottle Babcock Tester, very little used and in good order. Price, \$60

C. R. KUYK, BLACKSTONE, VA.

**ONE GALVANIZED WIND MILL**

12 ft. wheel. CUTTING BOX and GRIST MILL with all necessary attachments to same, FOR SALE.

E. M. BALL, - EMORY, VA.



**Krausers' Liquid Extract of Smoke**

Smokes meat perfectly in a few hours. Made from hickory wood. Delicious flavor. Cleaner, cheaper. No smokehouse needed. Send for circular. E. KRAUSER & BRO., Milton, Pa.

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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.

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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.

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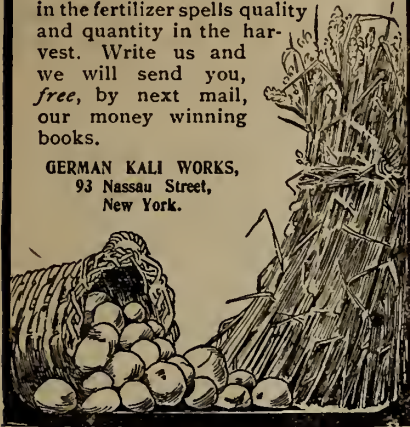
**A Golden Rule of Agriculture:**

Be good to your land and your crop will be good. Plenty of

**Potash**

in the fertilizer spells quality and quantity in the harvest. Write us and we will send you, free, by next mail, our money winning books.

GERMAN KALI WORKS,  
93 Nassau Street,  
New York.



**STEEL ROOFING**  
FREIGHT CHARGES PAID BY US

Strictly new, perfect, Semi-Hardened Steel Sheets, 2 feet wide, 6 feet long. The best Roofing, Sliding or Telling 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 in two sides. Comes either flat, corrugated or "Y" crimped. Delivered free of all charges to all points in the U. S., east of the Mississippi River and North of the Ohio River

**AT \$2.25 PER SQUARE**

Prices to other points on application. A square means 100 square feet. Write for free Catalogue No 166  
CHICAGO HOUSE WRECKING CO., W. 35th and Iron Sts., Chicago

**The Automatic Sure Hatch**



**30 Days Free Trial**

of the best incubator ever made. New automatic, direct action regulator—greatest improvement ever made in incubators. No complications. Sold at reasonable price. Don't pay double for out of date machine. Large illustrated catalogue free.

**SURE HATCH INCUBATOR CO.,**  
Clay Center, Neb. or Columbus, Ohio.

**RELIABLE GUARANTEED.**

We sell the Reliable Incubator on the strongest kind of guarantee that it shall give you perfect satisfaction, or you get your money back. We want everybody to know of the non-mortality, healing, regulating, nursery and ventilating features. Send 10 cents postage for 19th edition of great poultry book, just issued. Reliable Incub. and Brooder Co., Box B 11, Quincy, Ill.

110 Yards Fine Poultry.



**VICTOR INCUBATORS**

Hatch every fertile egg. Simplest, most durable, cheapest first-class hatcher. Money back if not positively as represented. *Write my freight.* Circular free; catalogue 6c. Geo. Ertel Co., Quincy, Ill.

**FALSE ECONOMY.**

The man who imagines he is saving money by buying cheap paint without regard to its composition is cheating himself badly. Would he buy one horse rather than another on that basis? Would he take one house or farm rather than another simply because it cost less, without regard to size or quality? Paint is intended for protection and beauty; if it fails to protect or to remain beautiful as long as it should, it is expensive, no matter what the price. Furthermore, the chief item of cost in painting is not the paint, but the painter, and he charges just as much for applying poor paint as for the best.

There is no need of mincing words. Zinc white combination paints (including the ready-for-use class) have suffered most undeservedly in reputation because of the desire of paint buyers, on the one hand, to get something that looked like paint for as little money as possible, and the efforts of manufacturers to give as little value as possible for the money. It can be safely asserted, from general experience, that a properly prepared combination of pure zinc, pure lead and pure linseed oil, makes a more economical and satisfactory painting material than anything else yet devised; but the seeker after such material needs to exercise caution and be sure that the reputation of the manufacturer justifies his claims for purity.

Does inert pigment in such a combination injure it? Probably not its durability, if the proportion be not pushed to excess—but what is gained in the cost by such admixture is perhaps nearly all lost in opacity. It takes more paint to obscure the surface. The economy is at least debatable.

STANTON DUDLEY.

**STUMP PULLERS.**

The Chamberlin Manufacturing Co., Olean, N. Y., have been advertising with us for several years their Improved Screw Stump Puller. We heard a subscriber say the other day that these pullers were the most powerful he had ever seen or tried. Look up the advertisement and write for prices and circulars.

**WAGONS AND BUGGIES.**

Virginia-made buggies and wagons are advertised elsewhere in this issue by the Richmond Buggy and Wagon Co., 1433 E. Main street, Richmond, Va., of which Mr. J. T. Dunn is the manager. It might surprise some of our readers to know that three large manufacturers of buggies and wagons are located in this State. The Barbour Buggy Co., Virginia Wagon Co., and Hughes Buggy Co.—the two former at South Boston and the latter at Lynchburg—do an immense business every year in vehicles, and the Richmond firm handles their output in this section. You are requested to write for catalogues and prices before you make a purchase.

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

**PLANET JR.**

**Your Garden**

will be better and more easily and cheaply made if you but use the proper tools. For sowing all garden seeds in drills, dropping in hills, hoeing, cultivating and plowing—five distinct operations—you need but one tool. It's our "Planet Jr." No. 4 Combined Drill, as shown in the cut below. It sows accurately in drills—no skips, or drops the seed in hills 4, 6, 8, 12 or 24 inches apart. It not only saves seed, time and hack-ache but it also saves land by putting every seed at the right place, right distance, right depth and in close, straight rows. Throws dirt to or from rows, opens furrows for planting, cultivates deep or shallow and will kill weeds as fast as you can walk. It only takes a little time after each rain to run over your garden and break up the hard crust. That leaves a mulch or blanket of fine earth on top. That saves the moisture in the soil for plant use. That makes a successful garden in the driest weather.

We make over 50 other seeding and cultivating implements, including plain and combined Seed Sowers, Wheel Hoes, Hand Cultivators, Walking Cultivators and One and Two-Horse Riding Cultivators, Special Sugar Beet Tools, etc. Our new 1903 catalogue is just published. It contains over 100 illustrations with full descriptions and prices. It costs you nothing and will make you money. Write for it.

S. L. ALLEN & CO.,  
Box 1107-X  
Philadelphia, Pa.



**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 1/2c. per lb.; barrels, 425 lbs., at 3 1/4c. Large quantities, special rates. Send for circular.

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

**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.

**AGRICULTURAL and BUILDERS' LINE**

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



## TO CROWERS OF COW PEAS.

Black Cow Peas also Black-Eye Cow Peas wanted. Advise the quantity you have to offer, name best price, mail small sample.

ROBERT BUIST COMPANY,  
Seedsman, Philadelphia, Pa.

**VELVET BEANS!**  
The Greatest Soil Enricher.  
Follows small grain and melons without cultivation, or cheaply cultivated in rows. Matures seed in extreme southern states. For seed and full information write  
Munroe & Chamberliss, Bankers,  
Ocala, Florida.

**FOR SALE.**  
1,000,000 Early Jersey Wakefield  
and 300,000 Large Charleston  
Wakefield Cabbage plants;  
now ready.

These plants grown from best Long Island strain of American grown seed.

J. B. SAVAGE, Nassawadox, Va

**200,000  
CABBAGE and LETTUCE PLANTS.**

\$1.50 per 1,000, 25 cents for 100, by express. Ready to plant out now. Varieties: Charleston, Succession and Early Jersey Wakefield.

MARK T. THOMPSON, Rio Vista, Va.

**SWEET POTATOES.  
DO NOT LET THEM ROT.**

Inclose 50 cts (preferably by money order) to Byron Tyson, Carthage, N. C., and receive a pamphlet, giving full and valuable instructions for preventing; valuable instructions for bedding and growing sweet potatoes and many other new and valuable points that will hold good the year round, are also given all of which will give any person interested large returns for his money. Do not fail to order by reason of the late of the season. Plan also good for other vegetables. Will you please mention this paper. BRYAN TYSON, Carthage N. C.

**WANTED TO RENT**  
A Farm with option to buy. Must have good buildings and plenty of water. Address, giving full particulars.  
LOCK BOX No. 1, MERCERSBURG, PENN.

A LIBRARY FOR FOUR DOLLARS.  
Best Pictures, Best Fiction, Best History for Price of a Century Subscription.

Four dollars is a small sum with which to supply a family for a year with the best pictures and literature: "The high-water mark of color reproduction," as Howard Pyle characterizes the exquisite color reproductions of his paintings in the December Century; history, current topics of vital interest, the best verse and fiction of the day.

The most striking successes of The Century Magazine have been made in the field of history, witness the famous Century War Papers, Nicolay and Hay's Life of Lincoln, etc.; and it is to return to the field of historical literature this year. A striking series of illustrated articles on the early campaigns of the Revolution, written by Professor Justin Harvey Smith of Dartmouth College, will be one of the features, especially covering the picturesque march of Arnold through the Main woods. Important articles on the "Trusts" will be printed from time to time,—not attacking or defending, but simply telling the inside history of the great trusts and how they are conducted.

Richard Whiteing, the author of that popular book, No. 5 John Street," is to write one of the serials for The Century in 1903, the "Yellow Van," the story of an American "schoolma'am" who marries an English duke. Another serial, by the author of "Mrs. Wiggs of the Cabbage Patch," the most popular book of the year, will begin to appear in the December Century. Papers by "Mr. Dooley," giving his unique "Opinions" on literature; new light on the lives of Edgar Allan Poe and Sir Walter Scott; richly illustrated articles on the great exchanges of the world, and the best short stories that can be procured from the leading writers,—all these are coming in The Century. Beautiful pictures in color will appear from time to time.

The pictures are richly worth framing and a place in every home. The reading means wide information, culture, and rich intellectual pleasure from month to month. The bound volumes should have permanent place in every library. Big returns, all this, on the small investment of four dollars.

**TROUBLE FOR THE PROOF READER**

"If you think that I am going to pay you a penny for this advertisement of mine in your measly old paper, you are mightily mistaken, my friend," said an irate business man as he slammed down a copy of the *Morning Revelle* on the counter of the business office of the paper.

"What is the matter with the advertisement?" asked the business manager of the paper as he came forward.

"I'd ask what is the matter, if I were you! What I wrote was, 'A fresh invoice of dairy butter every day.' Will you just cast your eye on that ad of mine and see what you have printed!"

The business manager "cast his eye" on the "ad," indicated and looked for a place of safety when he read—

"A fresh invoice of hairy butter every day!"—*Lippincott's Magazine for December.*

ELMWOOD NURSERIES..

## ASPARAGUS

100,000 2-yr-old Asparagus roots, 5 varieties. A special rate of \$3.50 per 1000 for 2 mos for BARR'S, PALMETTO, CONOVER.

## APPLES

A large general assortment, including WINESAPS and YORK IMPERIALS.

**Splendid Assortment of  
Ornamental, Shade  
and Fruit Trees.**

**EGGS** from B. P. Rocks, Light Brahmas, Brown Leghorns at \$1.00 per 13.

WRITE FOR OUR CATALOGUE.

J. B. WATKINS & BRO., Hallsboro, Va.

## WINESAPS

I have for sale several blocks of the finest two-year old Winesaps Apple trees ever grown in the State. The trees are well branched and measure from five to eight feet in height. Trees are dug from the nursery the day they are shipped.

8c each for the finest lot under 100.  
7c. " " " " " over 100.

6 to 7c. wholesale.

CHAS. F. HACKETT, Manager.

Bonavista Nurseries,  
Albemarle County, Greenwood, Va.

## TREES, TREES

I offer a fine lot of whole root trees.

**APPLES, PEARS, PEACHES,  
CHERRIES, PLUMS, GRAPE  
VINE, RASPBERRIES, Etc.**

Save agent's commission by sending your order to the nursery.  
CATALOGUE FREE. All Stock Inspected and Fumigated.

WERTZ'S NURSERY, Salem, Va.

PALMORE'S

**Law and Collection Association,**

Established 1884. Claims collected in all parts of the United States. No collection—no charge.

P. O. Box 503. 905 1/2 East Main Street,  
RICHMOND, VIRGINIA.



**"YOURS WITH GRATITUDE."**

So Writes a Virginia Young Lady to a Baltimore Firm - Tells a Wonderful Experience.

To every man or woman who has ever known the suffering that indigestion causes, the following letter must appeal with especial force. It is written from Somerset, Va., under recent date, and says:

Mecars. Gilbert Bros. & Co.,  
Baltimore, Md.:

I could not feel satisfied were I not to speak a word in praise of your medicine, "YAGER'S SARSAPARILLA WITH CELERY." I have been a sufferer for two years with attacks of indigestion; not any appetite scarcely, and what I did eat would cramp me, and then a swelling in my stomach would follow. The doctors would give me medicine to relieve me for a while, but about one month ago I felt the attack coming on me again, and while talking to the lady with whom I board about my complaint, I picked up a little book which told about your medicine. After reading it I told the lady that I thought I would try it. She advised me to do so, so I sent and got a bottle, and before I had used it a week I felt a good effect. Now I have been using it nearly a month, and I am glad to say that I feel all right. I have a good appetite—something I never have in the spring—and I don't suffer with that weak tired feeling that I generally have. Yet I feel I am not entirely well and shall get another bottle soon.

I am yours with gratitude.

Miss OTELIA ISHELL.

YAGER'S SARSAPARILLA WITH CELERY is sold by all druggists, 50c. a large bottle. It cures Rheumatism, Nervousness, Indigestion, Dyspepsia, Headaches, Neuralgia, Loss of Energy, that Tired Languid Feeling, and every other disease resulting from impurities of the blood and derangement of nerves. Made by Gilbert Bros. & Co., Baltimore, Md.

**IF YOU ARE NOT FEEDING  
GLEASON'S  
HORSE AND CATTLE  
POWDER.**

To your STOCK, you are making a mistake. There is no Powder on the market that will take its place. It is one of the very few Stock Powders that actually possess merit as a medicinal concentration. No owner of live stock can afford to be without it. It can be had of any merchant. Prepared by

GILBERT BROS. & CO., Baltimore, Md.

**GO FOR THAT BOTTLE OF  
HONEY-TOLO**  
Your Dealer Has It. 25c.

The long time purpose of one of the large implement manufacturers to produce a perfect weeding machine, or at least one more nearly perfect than any yet offered, has at last been realized. We refer to the York Improved Weeder, manufactured by the Spangler Manufacturing Company, of York, Penna. The result of their experience and efforts is shown and well described in our advertising columns. Whoever brings to the farmer's aid an implement to take the place of the hoe in perfectly keeping down weeds and doing it without injury to the crops is entitled to his lasting gratitude. The York Improved is a likely candidate for the favor. An incident to the above requirements, we mention its extreme simplicity, the rapidity of its work and its ease of management. For full and accurate description readers should write to the company for their circular, which will be promptly mailed free to any one asking for it.

The McMillan Fur and Wool Co. have placed their circular of November 1st on file at our office for reference. This house was established a quarter of a century ago, and on account of their extensive business, they are in a position to pay high prices. Shippers find their dealings with them very satisfactory.

**WHY SHE WANTED AN AUTOMOBILE**

"I might's well tell you, Abner," she said with a grim smile. "I ain't told a living soul. But you're a Suncook, same as me, an' I feel as if I'd got to tell somebody."

"What is it?" asked Abner. He moved forward in his chair.

She looked at him shrewdly. "You won't tell nobody!" she said.

He shook his head.

"Well, the first thing I'm goin' to have when I get down off the hill is an—automobile."

She leaned back, triumphant.

Abner's eyes bulged feebly. He shifted them uneasily to the clock and then to the floor.

Aunt Nancy laughed happily. "Now you think I'm out of my head, don't you, Abner?"

He looked at her with sheepish guilt.

"But I ain't. I never was quite so sane in all my life. I've always wanted, ever since I was born, to ride somethin' that went by itself. I've pulled horses up and down these hills till I'm sick to death of it. I've always set far forred on the seat an' breathed light so's not to weigh so much, an' I want to ride in somethin' I can lean back in an' weigh heavy 'fore I die—somethin' that I won't have to think all the time how tired it's gettin'."—Jennette Lee, in *Lippincott's Magazine* for December.

**JACKS AND JENNETS.**

The Krekler Jack Farm, West Elkton, Ohio, has an advertisement in another column. We invite the attention of our readers to it, and if they are interested in raising mules, to send for a little pamphlet which will be mailed them free.

**Horse Owners! Use**

GOMBAULT'S

**Caustic  
Balsam**

A Safe Speedy and Positive Cure



The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. Impossible to produce scar or blemish.

Every bottle sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars. THE LAWRENCE-WILLIAMS CO., Cleveland, O.

**USE FOUTZ'S HORSE AND CATTLE POWDER**

A medicine which makes sick animals well, the diseased whole, the weak strong and the thin fat. It will restore lost Appetite, expel Worms and cure Chronic Cough, Heaves, Influenza, Distemper, Hiccough, Indigestion, Constipation, Flatulency and all Stomach and Bowel trouble.

The finest of all animal vitalizers and tonics and the only one which increases the coefficient of digestibility of protein.

PRICE 25¢ PER PACKAGE

5 PKGS. \$1.00  
12 PKGS. \$2.00  
CHARGES PAID.

Get the Genuine or send to us. Pamphlet No. 9 Free. Sold by All Dealers.

DAVID E. FOUTZ, BALTIMORE, MD.

**DEATH TO HEAVES Guaranteed**

Newton's Heave, Cough, Distemper and Indigestion Cure. A veterinary specific for wind, throat and stomach troubles. Strong recommendations. \$1 per can. Dealers, mail or Ex. paid. Newton Horse Remedy Co. ( ) Toledo, Ohio.

**S. B. ADKINS & CO.**

4 and 6 Governor Street,  
RICHMOND, VA.

**EXPERT BOOKBINDERS**  
and Commercial Printers.

**WATER CLOSET COMBINATIONS,**

Porcelain Bowl, Hardwood Seat and Tank, Nickel Plated flush and supply pipes, complete, each \$11.00.

Cast Iron Roll Rim Bath Tubs, length 5 ft. Complete with full set of nickel plated fittings, each \$11.00.

They are new goods, ask for free catalogue No. 166 on plumbing and building material.

Chicago House Wrecking Co., W. 35th and Iron Sts., Chicago

**ANGORAS.**

Those wanting ANGORA GOATS will do well to call on me, as I have them constantly at my farm. Registered and high grades for sale at right prices.

A. DILTS, - BURKEVILLE, VA.

ANGORA GOATS are handsome, hardy and profitable. For large circular address E. W. COLE & CO., Kenton, Ohio.

## HOMES AND THE PLACE TO FIND THEM.

No place in the United States can a man do so well at farming, for the money invested, as in Virginia. Lands are cheap; climate good, and the best of markets close at hand. It is the State of all others, for a comfortable all the year round home. The James River Valley Colonization and Improvement Company offer superior advantages to land purchasers. For free 36 page land pamphlet, address

W. A. PARSONS, Vinita, Va.

## To HOMESEEKERS.

### "THE BUSINESS OF FARMING IN VIRGINIA"

Is the title of a new pamphlet issued by the Norfolk and Western Railway Company. We will gladly mail you a copy.

W. B. BEVILL, PAUL SCHERER, Agt,  
G. P. A., Lands and Immigration,  
Roanoke, Va.

WE HAVE A LARGE LIST OF

### FRUIT, POULTRY and TRUCK FARMS.

Ten, Fifty and One Hundred Acres each, with good buildings, close to steam and trolley lines, easy access to the city. Also

### GRAIN AND STOCK FARMS

From 100 to 1,000 acres at low prices, all the way from \$5 to \$50 per acre. Write for Catalogue.

THE VIRGINIA LAND AGENCY, Richmond, a.  
J. R. HOCKADAY, Manager.

## FARM FOR SALE

In Bladen county, N. C. Consisting of 104 acres, 70 acres cleared and in good state of cultivation. A new five room house, barn, stalls and gin house, 1 tenant house, 2 wells of good water, 1 1/2 miles from steamer landing on Cape Fear river. Convenient to church and school; healthy and good neighborhood; 34 acres of native timber. Price, \$1,000. Must sell at once. Address

J. R. SQUIRES, SQUIRES, N. C.

## "PIEDMONT And all that it implies."

Good land, climate, markets, shipping facilities, churches, schools, good health, moderate prices, easy terms.

MACON & CO., - Orange, Va.

**FINE FARMS** in the great fruit grain and stock section of VIRGINIA. Best climate and water in the U. S. Near great markets, with best educational advantages. For further information, address ALBEMARLE IMMIGRATION CO., SAM'L B. WOODS, Pres. Charlottesville, Va.

## Virginia Farms

All prices and sizes. Free list on application.

WM. B. PIZZINI CO., Richmond, Va.

## VIRGINIA FARMS

\$3 PER ACRE AND UPWARDS.  
EASY PAYMENTS. CATALOGUE FREE.

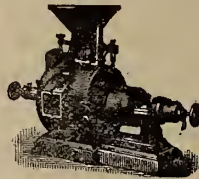
GEO. E. CRAWFORD & CO., Richmond, Va.  
Established 1875.

## I Can Sell Your Farm

no matter where it is. Send description, state price and learn how. Est. '96. Highest references. Offices in 14 cities.  
W. M. Ostrander, 1885 N. A. Bldg., Philadelphia

## SUPERIOR FEED MILLS.

-It is always a source of satisfaction to the publishers of this paper to know that its readers avail themselves of any of the really worthy things which our columns advertise to them. There is now running an advertisement of a machine which is fraught with greatest usefulness to farmer and feeder. We refer to the feed grinding mills manufactured by Sprout, Waldron & Co., of Muncy, Penna. They manufacture a long line of mills for various purposes, one of which is here reproduced. The plan of their mills and the amount and character of grinding they do and their superior



making mark them as deserving of special attention among mills manufactured for the same purposes. Among the many points of superiority in the mills of this manufacture we note their greater weight, three main bearings for shaft, ball bearings at thrust end of spindle, the tapered steel sleeve to hold runner on shaft, shake feed that is regulated by the speed of the mill, etc. It is impossible in this limited space to give an adequate idea of their superiority. Any one needing a feed mill should not fail to send to the company for their free catalogue before buying. We are confident it will make it apparent that there is nothing superior to their line. Look up the advertisement and kindly mention our paper when you write.

## THE CHICAGO SHOW.

The Seventh Annual Exhibition of Poultry, Pigeons, Dogs, Cats and Pet Stock, to be held in the Coliseum, January 19, 20, 21, 22, 23 and 24, 1903, under the management of the National fanciers' and Breeders' Association, judging from indications, bids fair to surpass all of its successful predecessors. The present Board of Directors, on taking up the work last March, parceled out this work to committees. These committees have made plans which are now being pushed to completion, and which is hoped will contribute much to the comfort and pleasure of exhibitors and visitors. There has been much discussion as to the propriety of making entry fees \$2.00 for each specimen and \$5.00 for breeding pens, as is the practice at the large Eastern shows. But it has been considered best to have them remain as in former years. The entry fee will be \$1.00 per specimen in poultry, cat and pet stock departments; 50 cents for specimens in pigeon department, and \$3.00 for breeding pens.

Premium lists will be sent out about December 15, 1902. An edition of 10,000 copies will be issued. It is the intention to send to all interested, but if by oversight or mistake any are neglected, or if extra copies are desired for friends, kindly write to Secretary.

L. KIMMEY, Secretary,  
1213 Manhattan Building, Chicago, Ill.

Mention the Southern Planter when corresponding with advertisers.

## "THE CREST" FRUIT FARM.

RED HILL, ALBEMARLE CO.,

J. H. CRAWFORD, - Manager.

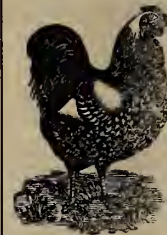
The following poultry for sale, bred from stock that has won in Madison Square Garden, and raised on a farm range, thus securing blood and vigor.

25 White Holland Turkeys, bred from First Prize winner tom at Madison Square Garden, 1902. Weighed 26 pounds at 7 months of age. Hens, \$3.00. Toms, \$5.00. Pens 2 hens and 1 tom \$10.00.

30 Pekin Ducks Pecunia strains, some weigh 14 pounds Per pair, \$2.00 each.

60 B. P. Rock Cockerels \$1.00 to \$2.00.

20B. P. Rock Pullets \$1.00 each.  
Bradley Bros. strain direct.



## SILVER LACED WYANDOTTES

Choice purebred specimens of either sex, \$1 each, in any quantity.  
Eggs in season.

Dr. H. H. LEE, Marmon,  
Rockbridge Co., Va.

## SPECIAL SALE.

National Strain,

### M. BRONZE TURKEYS.

Decendents of prize winners. Sold in pairs or trios. Large, beautiful birds, at exceedingly low prices. The first orders will get pick of large flock. Correspondence solicited.

PIEDMONT POULTRY PLACE,  
Miss E. Calis E. Giles, Prop., Whittle's Depot, Va.

## WHITE HOLLAND TURKEYS, WHITE PLYMOUTH ROCKS.

I have bred these varieties for seven years. I have shipped stock to every Southern State, and have never received a complaint of the quality of the stock sent out. I have a fine lot of young stock for sale. Circular free.

Address Mrs. LIZZIE DYER, Versailles, Tenn.

## BUFF PLYMOUTH ROCKS

Pure bred, hardy, good layers and table fowls. Have unlimited range, being only breed kept. Cockerels and pullets for sale, also eggs in season.

T. M. WADE, - Lexington, Va.

## WHITE PLYMOUTH ROCKS, HOLLAND TURKEYS

Fine strains and beautiful birds. Will be sold at reasonable prices. Farm bred birds and very healthy; six months old. A few Setter puppies a month old. For prices and particulars apply

JOHN A. CLARK, - SHIRLEY, VA.

## 40 Mammoth Bronze Turkeys.

Large and handsome 35 cockerels. B. P. R. Rocks, S. C. B. Leghorn; Splendid, healthy birds. Cheap this month.

Mrs. JNO. F. PAYNE, University of Va.  
"Clairmont" Dairy Farm.

**MARK YOUR STOCK.**

Use the  
**KENTUCKY ALUMINUM EAR LABEL.**  
Made by F. H. JACKSON & Co., Winchester,  
Ky. Write to them for free samples.

**FOR SALE** M. B. TURKEYS, \$6.00 a trio.  
PEKIN DUCKS, \$1.50 per pair.  
S. C. B. LEGHORN CHICKENS.  
Address  
Miss CLARA L. SMITH, Croxton, Caroline Co., Va.

**FOR SALE**  
**PURE WHITE HOLLAND TURKEYS.**  
Early spring birds. Toms, \$3.50 Hens,  
\$2.50, Trios, \$7.50.  
E. I. COOKE, Ware Neck, Va.

**INDIAN GAME**  
Cocks, Cockerels and Pullets.  
**BRONZE GOBBLERS (pure-bred)**  
\$4.00 each; for sale by  
WILTON STOCK AND POULTRY CO., Hanover, Va.

**WHITE PLYMOUTH ROCKS,**  
75 cents each.  
**M. B. TURKEYS,**  
\$5.00 per pair.  
**BERKSHIRE PIGS.**  
\$5.00 each.  
W. F. FLANAGAN, Christiansburg, Va.

**PRIZE WINNINGS**  
AT RICHMOND SHOW 1902.  
I received 1st on pen, 1st on hen, 1st and  
2nd on pullets, 3rd on cockerel.  
Choice cockerels, \$2 to \$5. Hens and pullets,  
\$2 to \$5. Write me your wants, I can please  
you. Eggs \$2 per 15 in season.  
C. G. M. FINK, 1409 W. Leigh St., Richmond, Va.

**WANTED**  
**LIVE WILD TURKEYS.**  
I will pay \$5 a bird for genuine wild turkeys  
delivered to me alive and in good order.  
I will also pay 50 cents each for live ground  
squirrels (chipmunks).  
Dr. CECIL FRENCH,  
718 Twelfth St., N. W., Washington, D. C.

**THE IMP. FRUIT AND POULTRY FARM**  
OFFERS  
**200 B. P. ROCK and S. C. B. LEGHORN**  
**COCKERELS and PULLETS**  
At only \$1 each. This stock is pure,  
and will please.  
P. H. HEYDENREICH, Prop., Staunton, Va.

**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.

**JACKS.**  
Raise mules and  
get rich. 200 large  
Black Spanish Jacks  
for sale. 14 to 16  
hands high. Good  
ones and money  
makers. Cheaper  
now than later on.  
Stock guaranteed.  
Also some fine  
large Jennys and  
mules.  
Write for prices.  
KREKLER'S JACK FARM, West Elkton, Preble Co., O.



**SEED FOR ALL.**

We are glad to note in the advertising  
of J. Bolgiano & Son, of Baltimore, Md.,  
that they will this year have more of  
New Fortune Cucumber seed for sale.  
Their supply of seed ran out last year a  
long time before the demand was satis-  
fied, and as this new cucumber of theirs  
is proving such a winner and money  
maker for gardeners, it is worth some-  
thing to the readers of this publication  
to know that this year there will be  
enough seed for those who place their or-  
ders early. These people have within the  
last few years brought a out number of  
new vegetables, each of which have been a  
distinct improvement over anything on  
the market, notably the New Century To-  
mato, Ruby King Radish and New Leader  
Cabbage. They are also distributors of  
the popular Rocky Ford Cantaloupe, Val-  
entine Beans, Alaska and Gradus Peas  
and a superior general line of garden and  
field seeds. They are the kind of people  
who are constantly working for improve-  
ment, and it is well for every grower to  
have one of their seed catalogues in the  
house and watch what they are doing.

You ought to keep a little good whis-  
key in the house. For accidents, fainting  
spells, exhaustion, and other emergency  
uses, it relieves and revives. But you  
must have good whiskey, pure whiskey,  
for poor whiskey, adulterated whiskey is  
injurious. Hayner Whiskey is just  
what you need, for it goes direct from  
their distillery to you, with all its origi-  
nal strength, richness and flavor, carries a  
United States Registered Distiller's Guar-  
antee of purity and age, and saves you  
the enormous profits of the dealers. Read  
the offer of The Hayner Distilling Com-  
pany elsewhere in this paper. They are  
a reputable house, have a paid-up capital  
of half a million dollars, been in business  
over 36 years and will do exactly as they  
say.

**LONG DISTANCE SALES.**

W. M. Ostrander, the Philadelphia  
"long-range" real estate broker, reports  
the following sales:  
Farm of 120 acres, in Perry county,  
Ark., to E. E. Murdock, Howell, Mich.  
Quarter section, of Thomas county,  
Kans. land, through L. T. Graves, agent.  
Farm in Chester county, Pa., to L. W.  
Miller, Wagontown, Pa.  
Ranch of 120 acres, in Hyde county,  
S. D., through L. T. Graves, Western  
agent.  
Hotel in Plano, Ill., to Geo. E. Caskey,  
Chicago.  
Farm in Hocking county, Ohio, to A.  
B. Moss, Cambridge, Ohio.  
Residence in Denver, Colo., through  
C. D. Varmin, Denver office.  
Quarter section of land, in Clark coun-  
ty, Kans., to M. G. Stevenson, Ashland,  
Kans.  
Fruit farm near Winter Haven, Fla., to  
A. B. Tilden, St. Mary's, Fla.  
Kansas farm, 160 acres, located in Sher-  
man county, through Lee Monroe, Hays  
City, Kans.  
Farm 98 acres, in Rensselaer county,  
N. Y., to C. A. Godard, Kenton, Del.  
Ranch in Finney county, Kans., 18  
quarter section, through L. T. Graves,



**KOW-KURE**  
Cures Abortion (Slinking).

**KOW-KURE**  
Cures Barrenness (Failure  
to Breed).

**KOW-KURE**  
Cures Scours in Cows and  
Calves.

**KOW-KURE**  
Cures Milk Fever.

**KOW-KURE**  
Removes Bunches from the  
Bag.

**KOW-KURE**  
Makes More Milk.

**KOW-KURE**  
Makes Calving Easy.

Kow-Kure is in powder form, to  
be given in regular feed.

MADE BY THE  
DAIRY ASSOCIATION, LYNDONVILLE, VT.

**I WANT 20 to 40**

Good milch cows—pre'er dual purpose  
breeds. Do not care for registered stock,  
unless price is way down. Also want  
small flock Anzora goats and mutton  
sheep. Have four good, sound, young  
horses for sale cheap.

C. B. CHAPMAN, - Williamsburg, Va.

**THE KEELEY INSTITUTE**  
**GREENSBORO, N.C.**

For the treatment of THE LIQUOR, OPIUM, MORPHINE and  
other Drug Addictions. The Tobbacco Habit, Nerve Exhaustion

**JACKS FOR SALE.**  
1 to 6 yrs. old. Fine Jacks a  
specialty. Write for  
what you want.  
W. E. KNIGHT & CO.,  
Nashville, Tenn.





**LION COFFEE**

is the kind used by people who want good coffee, without paying fancy prices for it, and who want

Absolutely  
**PURE COFFEE**

FOR SALE.

## JERSEY BULL.

A. J. C. C. Emperor Nero, No. 54171.

**LEGHORNS**, White, S. C. Brown, R. C. Brown.

**WYANDOTTE COCKERELS**. Price, \$1.00 per head, three for \$2.50.

Address

J. B. JOHNSON, Clover Hill Farm, Manassas, Va.

## RED POLL BULL,

Three years old; weight, about 900 lbs., for sale; price, \$40—a good individual. The father of this bull is a pure bred RED POLL weighing 1,400 lbs. His mother is a three-fourths Jersey. I also offer another bull, 11 mos. old, same breeding as above, \$25; also 2 fine, blooded colts; standard trotters.

M. E. ANDREWS, HURT, VA.

## FOR SALE.

One fine COACH HORSE. Family DRIVING HORSES. Good WORK HORSES and MULES. 200 good GRADE EWES. bred to pure-bred SHROPSHIRE BUCKS.

In lots to suit purchasers. Call on, or address

JOHN MATHEWS, East Richmond, Va., On Seven Pines Electric C r Line.

## DUNTREATH BERKSHIRES.

"BRED-IN-THE-PURPLE."

We can only book orders for Spring delivery, as our advertisements in the SOUTHERN PLANTER have sold all pigs now ready.

DUNTREATH FARMS,

Box 666, Richmond, Va.

## ..ESSEX PIGS..



sale. Prices on application.

L. G. JONES, BETHANIA, N. C.

Some extra fine pigs, 8 to 10 weeks old, \$10 per pair. All stock offered is eligible to registry. Southdown sheep, spring lambs and yearling ewes for

Western agent.

Building lots in Cambridge, Ohio, to W. A. Johnson, Isleborough, Ohio.

Ranch 160 acres, in Brown county, S. D., through L. T. Graves, Western agent. Farm of 160 acres, in Webster county, Mo., to Mrs. Hanna Hansell, Lenox, Ia.

Farm of 160 acres, in Brown county, S. D., through L. T. Graves, Western agent.

Farm 93 acres, in Dorchester county, Md., to Mrs. A. B. Gove, Federalsburg, Md.

Farm of 160 acres, in Edmunds county, S. D., through L. T. Graves, Western agent.

Virginia Polytechnic Institute, Agricultural and Mechanical College, Blacksburg, Va. Circular giving statistics of attendance, etc., Session 1902-1903. This circular shows the wonderful growth in popularity of this institute during the last five years. The number of students in 1898 was 303. At the present session the attendance up to this time is 600, of whom 524 are from Virginia. The facilities required for handling so large a body of students have been supplied with no niggard hand by the Board of Visitors, and are now not surpassed by any other similar institution. Each year has seen a large addition to the buildings and appliances and increase in the Faculty. Under the able direction of Dr. J. M. McBryde, the President, the use of these, results in the turning out each year of a body of young Virginians ably equipped to fight the battle of life successfully in the scientific mechanical and agricultural fields. No better training school can be found in the United States.

## VICARIOUS RESTITUTION.

Not long since a respectable colored preacher, who was noted for his ability to "cuss out" people from the pulpit, was hurling thunderbolts of invectives against his congregation because of a great wave of lying and stealing that was sweeping over the city. Among other things he said:

"No longer'n last night, some one come an' stole de las' two chickens dat me and mah ole 'man had. I b'lieves de thief is in this house right now, and I hereby countersigns him to evahlastin' punishment. De nigger dat stole dem chickens is a gwinter burn fur it sho, you hyeah me! De 'cree has gone forth!"

Next morning a colored man with two fine hens came up to the preacher's door. He said—

"Parson, hyeah's your chickens."

"No, sah," said the preacher, eying the chickens closely, 'dese ain't mah chickens."

"I knows dey ain't perzactly yo'wn," explained the parishioner, "but dese is to tek de place of yo'wn. Yo' chickens wuz et up fo' de 'cree went forth. An' las' night after I went to bed, my conshunce hurt me so tell I had to get up and go ovah to Marse Bob's house an' git two mo' chickens. Parson, do tek dese chickens, an' fur de Lawd's sake tek dat 'cree back too.—Silas Xavier Flod, in Lippincott's Magazine for December.

## FINE STOCK AT A BARGAIN.



One eight-year-old brown mare, Hackney and Trotter cross, fine driver, gentle, handsome and stylish, very fast. Weight, 1,200 lbs. Price, \$175. Worth double that money on any city market.

One fine, reg. Aberdeen-Angus bull calf, six months old, very finely bred.

Nine head beautiful, reg. Angora Goats; One Buck; Price, \$20. Six Does; Price, \$12 each. Two Buck Kids; Price, \$10 each. Lump price of nine goats, \$100.

Two fine, reg. Dorset Ewe lambs, about 1 yr. old. Price, \$10, each.

One Scientific Grinding Mill, nearly new, made by Foss Manufacturing Co., Springfield, O. Price, \$25.

Address W. M. WATKINS & SONS,

Cottage Valley Stock Farm,

Randolph, Charlotte Co., Va.

## ABERDEEN-ANGUS

Bull calves, \$40 to \$60, heifers 5 to 7 mos. old, \$75. Limited quantity

## NEW SIBERIAN MILLET

Seed at \$1.50 per bus.; this millet will produce a crop of seed and a fair quality of hay at the same time. It is fully two weeks earlier than the German millet, of finer quality, but will not yield quite as much.

C. E. JONES, Carysbrook, Va.

## ANGUS BULL CALVES

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

## SHROPSHIRE SHEEP

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

WARREN RICE, - Winchester, Va.

## POLAND-CHINAS

Closely related to such famous hogs as Anderson's Model, Model of 97 and Hands Off. Pigs, boars, gilts and bred-sows for sale. Also some good SHORTHORN bull calves and SHROPSHIRE sheep. Stock guaranteed as represented or money refunded.

J. F. DURRETTE, - Birdwood, Albemarle Co., Va.

## Large ENGLISH BERKSHIRES

M. B. TURKEYS Very Fine.

B. P. R. Chicken Eggs in season.

HAWKSLEY STOCK FARM,

J. T. OLIVER, Allen's Level, Va.

THOROUGHbred

## O. I. C. PIGS

FOR SALE. Prices Right.

F. S. MICHIE, CHARLOTTEVILLE, VA.

# HEREFORDS.



## BERKSHIRES.

Young stock for sale at all times. Information and terms upon application.

EDW. G. BUTLER, ANNEFIELD FARMS, BRIGGS, CLARKE CO., VA.

# V. P. I.

## Farm Bulletin

We are offering some nice BERKSHIRE PIGS. Let us have your orders early. Choice stock; prompt attention.

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

### ELLERSLIE FARM

Thoroughbred Horses AND SHORTHORN CATTLE, Pure Southdown Sheep and Berkshire Pigs.

FOR SALE. R. J. HANCOCK & SON, CHARLOTTESVILLE, VA.

### EAST RIVER SIDE

## SHORTHORNS.

Choice bull and heifer calves for sale. Will make price very low for next 60 days.

JAMES F. CLEMMER, Summerdean, Va.

## FOR SALE.

20 grade SHROPSHIRE EWES, in good, healthy condition, most of them in lamb; \$3 each or \$55 for all.

1 fine SHROPSHIRE BUCK, \$10—a bargain. This stock is on Cramer's Farm, near Wolf-trap, Halifax county, Va.

JOHN CRAMER, South Boston, Va.

# DORSETS AND HEREFORDS

H. ARMSTRONG, - Lantz Mills, Va.

### REPORTS.

U. S. Department of Agriculture, Washington, D. C. Bureau of Animal Industry.

Circular 36. Officials, Associations, and Educational Institutions, connected with the Dairy Interests of the United States for the year 1902.

Bureau of Chemistry. Bulletin No. 69. Parts I and II, Foods and Food Control.

Office of Experiment Stations. Experiment Station Record, Vol. XIII, No. 12.

Bureau of Plant Industry. Bulletin 11. Johnson Grass.

Crop Reporter. November, 1902.

Cornell Experiment Station, Ithaca, N. Y. Bulletin 205. Shade Trees.

Maryland Experiment Station, College Park, Md. Fifteenth Annual Report.

Illinois Experiment Station, Urbana, Ill. Bulletin 78. Market Classes and Grades of Cattle, with suggestions for interpreting market quotations.

Kansas Experiment Station, Manhattan, Kan. Bulletin 114. Growing Alfalfa in Kansas.

Kentucky Experiment Station, Lexington, Ky. Bulletin 102. Commercial Fertilizers.

New Hampshire Experiment Station, Durham, N. H. Bulletin 93. The Cold Storage of Apples.

Virginia Department of Agriculture, Richmond, Va. Bulletin November, 1902. Analyses of Fertilizers.

Virginia Weather Service, Richmond, Va. Report for October, 1902.

Department of Agriculture for West Indies. Agricultural News, November, 1902.

### CATALOGUES.

S. L. Allen & Co., Philadelphia, Pa. Planet Jr. Implements. This is a most useful catalogue, giving full information as to the different implements made by this company, and which are so well known as being great labor savers. It is beautifully illustrated.

The Stover Manufacturing Company, Freeport, Ill. Makers of the Samson Windmills and owners of the largest windmill factory in the world. The catalogue gives full information as to the details of these windmills.

The Sixth Annual Poultry Class of the Rhode Island Agricultural College, Kingston, Rhode Island, will meet January 7, 1903, and continue for six weeks.

The course of instruction will, as usual, include lectures, practical work and excursions to the Boston Show and successful poultry plants. Lectures will be given by members of the Faculty and by well known experts in the poultry world. Practice will be given in planning poultry houses, incubation, breeding, preparing for market, and other matters incidental to the industry.

The usual attendance is expected. As the accommodations at the College are limited, it will be necessary for those determined to attend to apply early.

### FILSTON FARM.

SECOND LARGEST

## JERSEY HERD

IN AMERICA. FOUNDED 1882.

BULL CALVES, and for the first time, Heifers bred to Imported Golden Feter, and Heifer Calves and a few aged Cows.

BERKSHIRES, all ages, sired by Imported Storm King, or Imported Esau 2nd, Size, good shape and large litters.

Visitors welcome. Address for Book of The Farm, or prices

E. M. GILLET, Clerk, Glencoe, Md.

ASA B GARDINER, Jr., Manager

### 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.

T. P. BRASWELL, Prop., Battleboro, N. C.

## HOLLYBROOK FARM

Has for sale a few Extra Fine Cockerels of

Barred Plymouth Rocks,

White and Silver-Laced Wyandottes, Light Brahmas,

All vigorous, thoroughbred stock. Write for prices.

HENRY W. WOOD,

Hollybrook Farm, Richmond, Va.

## Berkshire Pigs

I have a number of Young Pigs for sale, first-class thoroughbred stock. Price, \$4 each, crated and f. o. b. cars. Address

GEORGE B. WOODFIN, CHESTER, VA.

### 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, Mgr., Cassanova, Va.

## GO SOUTH.

For full particulars write A. JEFFERS, Norfolk, Va.

## "Crop Growing Crop Feeding"

BY PROF. W. F. MASSEY.

383 Pp. Cloth, \$1.00; Paper, 60c.

We offer this splendid work in connection with the Southern Planter at the following prices:

Southern Planter and Cloth Bound Volume, \$1.25

Southern Planter and Paper Bound Volume, 90c.

Old or new subscriptions.

**THE PLANET, JR. BOOK FOR 1903.**

Our readers will remember the firm of S. L. Allen & Co., of Philadelphia, Pa., as being the manufacturers of the famous "Planet, Jr. garden, farm and special culture tools. In addition to the many cuts of the various machines showing their construction and the almost innumerable changes of which they are capable, suiting them to all classes and combinations of work, there are many half-page half-tone reproductions made from actual photographs taken on the spot, which show very much better than any description how "Planet, Jrs." are used in this and foreign lands.

A partial list of these embraces "The Planet, Jr. Bullock Hoe in Foreign Lands," "The Planet Jr. Single Wheel Hoe in the Family Vegetable Garden, Plowing Corn," Sowing Seed with the "Planet, Jr. No. 4," "Planet, Jr. Double and Single Wheel Hoe in Onions," "Planet, Jr. Single Wheel Hoes in Onions," "Planet, Jr. Double Wheel Hoes in Onions from Sets," Fine Cultivation Among Strawberries with Twelve Tooth Harrows with Pulverizers," "The Planet, Jr. Horse Hoe in Potatoes in New Jersey," "Four Row Planet, Jr.," "Beet Hoes in Large Field of Sugar Beets in Bettoravia, Cala," "Planet, Jr. Two Row Beet Horse Hoe working two rows of apple seedlings at one passage in the J. A. Gage Nurseries, Beatrice, Neb.," "Planet, Jr. Universal Cultivator working thoroughly three rows of Mangolds in Scotland," "Deep Cultivation with No. 42 Universal on the Cudahy ranch near Los Angeles, Cal., in five hundred acre English Walnut Grove," "No. 72 TwoWheel-Wheel Pivot Wheel Adjustable Farm Cultivator working two middles at one passage—twenty acres a day," "No. 73 working two rows of potatoes at one passage—fifteen acres a day," "No. 70 Planet, Jr. Pivot Wheel Cultivator working large bran field," and No. 70 working cabbages."


In addition to all this, the book is full of good matter which should be in the hands of every farmer, orchardist, etc. Write for a copy, which will be mailed free if you will kindly mention that you saw this article in our journal

**DEPARTMENT OF EDUCATION UNIVERSITY OF TENNESSEE.**

The new Department of Education in the University of Tennessee will be opened at the beginning of the second term, January 6, 1903. This department has been organized to meet the demand for a school of education of high grade in which students may do advanced work in pedagogy and get special instruction in the newer branches required in the most progressive schools. It is not a normal school, but a university department for the professional training of teachers. It aims to prepare men and women of good scholarship for superintendents, principals, and responsible positions as teachers in public and private schools, of cities, towns and country districts. It will aim also to train teachers and supervisors of English, history, physical sciences, nature study, manual training, domestic science, and other special subjects.


New schools of instruction have been

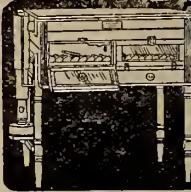
**THERE'S A HEN ON**




All the time, doing her duty and making you easy money, when you install The Hawkeye Incubator. Made in sizes to suit your needs, from 60 eggs to 200, all of the finest and most approved construction and guaranteed in every particular. Our little price includes everything needed. We send our incubators on **30 DAYS' FREE TRIAL.** Send for free illustrated catalogue describing fully all sizes of Hawkeye Incubators and Brooders, mentioning this paper, or send 10c and we will send you catalogue and a leading poultry paper for one year.

**HAWKEYE INCUBATOR CO., Box 49, Newton, Iowa.**







**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 Brooders** 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.**

✿ **FOR SALE.** ✿

# JERSEY BULL CALF

Dropped February 11, 1902. Squirrel-gray, back tongue and switch, good size and all right. He has large, well-placed rudimentaries.

Dam is a fine cow and a persistent milker, testing 7 per cent. butter-fat now. **PRICE, \$30.**

**FOREST HOME FARM, - Purcellville, Va.**

## JERSEY AND GUERNSEY CATTLE

Berkshire Hogs, young boars ready for service, and Pigs in pairs or trios not akin. Large, young Bronze Turkeys. A few Ply mouth Rock and Brown Leghorn Fowls. All the above stock ready for shipment now.

**M. B. ROWE, - FREDERICKSBURG, VA.**

## HOLSTEINS and DORSETS.

Two young cows, one to be fresh in December, other in the spring. Two heifers, one year old. One bull calf, four months old.

### FOUR DORSET RAMS

Rams sired by an Imported Buck. Address

**T. O. SANDY, Burkeville, Virginia.**

Norfolk and Western and Southern R. R.

No. 1 Iron Age Double and Single Wheel Hoe.

No. 6 Iron Age Combined Double and Single Wheel Hoe, Hill and Drill Seeder.

No. 1 Iron Age Combined Harrow and Cultivator.

Improved-Robbins Potato Planter.

**Look for the full name IRON AGE branded on the tool.**

Don't be imposed upon by dealers selling implements made in imitation of the famous Iron Age brand. All the **IRON AGE** tools are **MARKED WITH THE FULL NAME**. The name is for your protection. It is a guarantee of best materials, best ideas, best workmanship, and all the merits that have made Iron Age tools popular with three generations of farmers and gardeners. Write for a **FREE** copy of the **IRON AGE BOOK for 1902**, telling all about these marvelous labor savers, and giving prices on Cultivators, Horse Hoes, Seed Drills, Wheel Hoes, Riding Cultivators, the Improved-Robbins Potato Planter, &c.

**BATEMAN MFG. CO., Box 167, Grenloch, N. J.**

No. 6 Iron Age Horse Hoe and Cultivator.

established for each of the following subjects, with one or more professors or instructors in each:

- Science and art of teaching;
- Educational psychology and ethics;
- History of education, and school economics and administration;
- Literary interpretation and expression;
- History and methods of teaching history;

Elementary science and nature study; Manual training and domestic science. The subjects most essential to the teacher's professional education have been provided for first. Instructors in other subjects will be provided as rapidly as there may be demand for them.

No tuition fees will be charged students registering in this department and declaring their intention to teach. Other fees will be the same as those paid by students of the academic department (\$7.00 a term and laboratory expenses). Board and lodging cost from \$12 to \$20 a month, according to location.

For full information in regard to courses of study, expenses, etc., address Professor P. P. Claxton, University of Tennessee, Knoxville, Tennessee.

**A FEAST OF GOOD THINGS.**

ST. NICHOLAS IN 1903 PROMISES TO GO FAR BEYOND PAST SUCCESSES.

Professor John Beach McMaster recently wrote to the editors of St. Nicholas: "Thank you very heartily for the pleasure and profit St. Nicholas brings to my boys."

Boys and girls are very much alike the world over. The delight and help that St. Nicholas is giving to Professor McMaster's boys, and thousands of other girls and boys, it holds for every girl and boy who can understand English.

Since the first number of St. Nicholas was published, nearly thirty years ago, many weekly and monthly publications for children have come and gone; but St. Nicholas still holds its place, the unrivaled "prince of periodicals for young folks." It was never more enjoyed by its readers than now, for, in addition to the usual serial stories, short articles, etc., there is a department called "The St. Nicholas League," in which the children themselves have an opportunity to take part. There are said to be nearly fifty thousand children now belonging to the League,

**FOR SALE**

Having lost by fire, my barns and granaries, including all my winter feed, my silo and all my ensilage, I am forced to sell

**30 HEAD OF PURE-BRED and GRADE JERSEY COWS**

WILL SELL THEM AT A BARGAIN.

**SAMUEL HAIRSTON, - Wenonda, Va.**

(Oak Hill Station D. and W. Ry on the farm).

**POLAND-CHINAS.**



TECUMSEH G, 49283.

I have a limited number of pigs by my fine boars, "TECUMSEH G," 49283, and "MONARCH," 48705, and can furnish pairs not akin or related to those previously purchased. Young boars and sows of all ages. Send to headquarters and get the best from the oldest and largest herd of Poland-Chinas in this State at one-half Western prices. Address **J. B. GRAY, Fredericksburg, Va.**

\* VIRGINIA DIVISION. \*

**Farmers Mutual Benefit Association.**

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

Insures, against Fire and Lightning, only country property—no stores or unsafe risks. Average cost per year for three years has been \$3.66 2/3 per \$1000, including dwellings, barns, produce, &c.,—about one-third the usual cost of insurance to farmers. Amount of property insured \$325,000. Estimated security in real and other estate, \$600,000.

For further information, address, **MENTION THIS JOURNAL.**

**CHAS. N. FRIEND, General Agent, CHESTER, VIRGINIA.**



**A SINGLE STRAND** of the Truss and Cable Wire Fence contains six wires, strands made either 2 or 4 inches wide. Makes the strongest fence in existence. Costs less than any other and lasts longer. Perfect provision for contraction and expansion. Sold direct from factory at wholesale prices. - Agents wanted. Sample free. **THE TRUSS & CABLE FENCE CO., 329 Federal Bldg., Youngstown, O.**

and prizes are given out each month for the best stories, poems, drawings and photographs sent in by the young members. Any reader of St. Nicholas may become a member.

St. Nicholas announces for 1903 "The Story of King Arthur," written and illustrated by Howard Pyle, a companion story to his famous "Robin Hood," but which readers of the manuscript think surpasses that in the strength and interest of the narrative and beauty of the illustrations. Two short stories by Miss Alcott, written for her own little neices and never before published, will soon appear in St. Nicholas, with other stories and articles by the author of "Mrs. Wiggs of the Cabbage Patch," by Ruth McEnery Stuart, Frank R. Stockton, Clara Morris, and scores of other well known writers. St. Nicholas makes a specialty of papers of information, richly illustrated articles on practical subjects, like the Navy Yard, the Assay Office, etc.

The price of St. Nicholas is three dollars a year. The publishers announce that new subscribers who begin with January may receive the November and December numbers free, and so begin the volume and get the commencement of all the serials. The publishers are The Century Co., Union Square, New York.

#### SMOKING MEAT WITH A BRUSH.

**KRAUSER'S LIQUID EXTRACT OF SMOKE REPLACING OLD METHODS.**

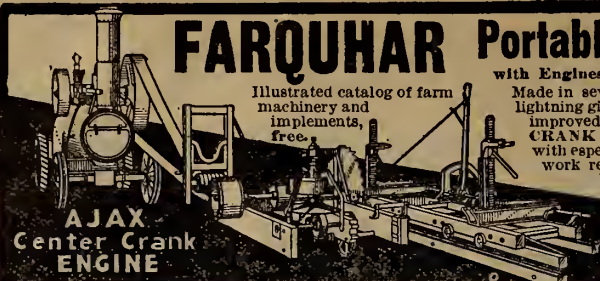
Messrs. E. Krauser & Bro., of Milton, Pa., have succeeded in liquefying hickory wood smoke, so that all meats formerly smoked by fire—an operation occupying days—can now be smoked at home in a few hours. Krauser's Liquid Extract of Smoke is applied with a brush or sponge, and has all the ingredients that preserve meat smoked by the old way. It gives hams, sausages, beef, bacon, fish, and whatever is cured by its use a finer, sweeter flavor; keeps them from contamination by insects and mould, and is entirely wholesome. It is much cheaper and cleaner than the old smokehouse method, and permits of each piece of meat being treated to suit its own conditions—given a thin or a thick coat as may be needed. It is so simple to apply that any one can do it, and the meat can then be hung in a garret, safe from smokehouse thieves, and no loss by fire.

For further information concerning this inexpensive but valuable liquid, write to the makers, E. Krauser & Bro., Milton, Pa.

#### NO GO.

Mamie went to Sunday-school and came back with a very serious face. "What's the matter, Mamie?" asked mamma. "Didn't you have a nice time at Sunday-school?" Then Mamie explained: "The Superintendent said that no one could go to Heaven 'less they had a pure, clean heart, and I've swallowed a button and a rock and a peach-seed!"

—November Lippincott's Magazine.



## FARQUHAR Portable Saw Mills

with Engines and Bollers Complete.  
Made in seven sizes, friction feed, cable lighting gig, patent chain set works and improved dogs. **AJAX CENTER CRANK ENGINES** are constructed with especial reference to the peculiar work required of them. This combination of engine and mill makes the best sawmill outfit on earth.

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**GLEN ALLEN STOCK FARM, W. P. ALLEN, Prop., Walnut Hill, Va.**

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All testify to his prepotency, nor is

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Unlike him in strong points of transmission or reproduction.



Every pig I ship has individual merit, aside from the purest English strain of LARGE BERKSHIRES that I could import from the most famous breeder in England.

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PROMPTLY FOR FALL SHIPMENT,  
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\$17.95

Buys this sweep grinder. 9 styles sweep mills either single or triple geared, with or without ball bearings, \$14.50 and up. 28 styles power grinders. Horse Powers all kinds. 2 h., \$19.25, 4 h., \$27.40.



For Fanning Mill with grain outfit for cleaning wheat, rye, oats, corn, barley, beans and cheat and cockle board, sieves for clover, timothy, flax or millet extra. Our Big Catalog gives over 40,000 prices on things you use every hour of your life.



For this set blacksmith tools 1 forge, 18 in. hearth, 6 in. fan, weight 65 lbs; vice, anvil, 11 hardy drill and three drill bits, 2 hammers, 1 set of stocks and dies, 6 taps, 3 dies, 1 pr. 14 in. pinchers, 1 pr. 20 in. tongs, 1 farrier's knife, 1 chisel. Do your own repairing. **EVERYTHING** in blacksmith tools, bar iron, bolts, horse shoes, anvils, etc.



This Scale Only \$6.95 Size of platform 17 1/2 x 26 1/2 Weighs 1/2 to 600 lbs. \$1.75 for this scale, weighs 1/2 oz. to 240 pounds.



\$1.00 for men's rubber coat. All kinds of duck, rubber and fur coats. Complete set carpenter's tools \$2.40 to \$18.95. Our catalogue illustrates 7,600 different tools, 1,800 cuts tinware and other hardware.



\$1.95 buys this brace and bit set, brace has 10 in. sweep, steel jaws, 8 warranted auger bits, sizes 1/4 to 1 in. 1 screw driver bit, 12 other sets. Complete set carpenter's tools \$2.40 to \$18.95. Our catalogue illustrates 7,600 different tools, 1,800 cuts tinware and other hardware.



27c for granite gray enameled steel coffee pot 1 qt., 2 qt., 3 qt., 4 qt., 5 qt., 6 qt., 8 qt. Tea pots same prices.



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Send for Our Catalogue

It has 432 pages, size 9x11 inches. Postage is 15c, but if you will cut this ad out and send it to us we will mail the catalog FREE.

MARVIN SMITH CO., 55-57-59 N. Jefferson St., CHICAGO, ILL.

TRIP TO VIRGINIA.

Mr. Editor,—Last week I took a flying trip through Virginia and among the places visited was Randolph, in Charlotte county, where I met my host, a Mr. W. M. Watkins, who took me out to his most pleasant home (a distance of two miles) for the purpose of showing his celebrated Aberdeen-Angus cattle. They surpass anything of the cow kind I ever saw. All hornless and as black as a crow. I purchased for \$100 one of his bull calves, and if life lasts you will see him about the 1st of November, and I feel sure you will agree with me when I tell you the Angus for fine show excel all others.

The people all along my trip grow chiefly corn, wheat and oats. The corn looks grand. I found a most hospitable people wherever I stopped.

The style of the firm who has the Aberdeen-Angus is W. M. Watkins & Sons, and they have a beautiful country home and a most excellent stock farm. They raise pure-bred sheep, horses, Angoras and Belgian hares.

Yours truly,  
C. A. WILLIAMS.

Ringwood, N. C., Sept. 22.  
Enfield (N. C.) Ledger.

GIVE HIM A LIFT.

Give him a lift! Don't kneel in prayer Nor moralize with his despair. The man is down, and his great need Is ready help, not prayer and creed.

'Tis time when wounds are washed and healed, That the inward motive be revealed; But now, whate'er the spirit be, Mere words are but a mockery.

One grain of aid just now is more To him than tones of saintly lore, Pray, if you must, pray in your heart, But give him a lift, give him a start.

The world is full of good advice, Of prayer and praise and preaching nice, But the generous souls who aid mankind Are scarce as gold and hard to find.

Give like a Christian—speak in deeds! A noble life's the best of creeds; And he shall wear a royal crown Who gives them a lift when they are down.

Mention the Southern Planter when writing advertisers.

CASTALIA HEREFORDS...

The breeding cows and herd bulls at "Castalia" have been selected with one aim; THE BEST, REGARDLESS TO COST. Herd headed by the \$3,000.00 Imported SALISBURY, assisted by LARS, JR. I have now for sale a very fine bunch of bull calves by these bulls, also a few females. Visitors are welcome and met at station.

Write your needs. MURRAY BOOCOCK, Keswick, Va.



**BACON HALL FARM.**

# HEREFORD REGISTERED CATTLE

"TOP" BREEDING, CALVES NOT AKIN.  
MOTTO—Satisfaction or no Sale.

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**Reg. and Grade HEREFORD CATTLE \* REGISTERED SHROPSHIRE SHEEP**

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**NOW OFFERS FOR SALE**

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**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.**

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**WILLIAM L. JR., No. 23058, half brother of Axtell, will serve a limited number of mares for \$25 the season. Mares boarded at lowest figures per month.**



MAGAZINES.

A Magazine Thirty Years Old. The Christmas (December) Number of THE DELINEATOR is also the Thirtieth Anniversary Number.

To do justice to this number, which for beauty and utility touches the highest mark, it would be necessary to print the entire list of contents. It is sufficient to state that in it the best modern writers and artists are generously represented. The book contains over 230 pages, with 34 full-page illustrations, of which 20 are in two or more colors. The magnitude of this December number, for which 728 tons of paper and six tons of ink have been used, may be understood from the fact that 91 presses running 14 hours a day, have been required to print it; the binding alone of the edition of 915,000 copies, representing over 20,000,000 sections which had to be gathered individually by human hands.

The busiest people read THE YOUTH'S COMPANION because it is condensed, accurate and helpful.

Its weekly summary of important news is complete and trustworthy.

Its editorial comment on political and domestic questions is non-partisan; it aims to state facts in such a way that the busiest person can use them as the basis of an intelligent opinion.

It reflects on every page the wholesome, industrious, home-loving, home-making side of American life, the life of noble aims and honorable ambitions.

A full Announcement of the new volume will be sent to any address on request. The new subscriber for 1903 who sends \$1.75 for the new volume at once will receive free all the remaining issues for 1902, including the Double Holiday Numbers; also THE COMPANION Calendar for 1903, lithographed in twelve colors and gold.

THE YOUTH'S COMPANION,  
144 Berkeley Street, Boston, Mass.

The chief features of the December Century are the color work, the Christmas material, the beginning of "Lovey Mary," a new serial story by the author of "Mrs. Wiggs of the Cabbage Patch," an engraving by Cole of a "Madonna and Child" by Morales, the Spanish Master, and the second paper in the series on Trusts, the author being Henry Loomis Nelson, the topic "The So-Called Steel Trust."

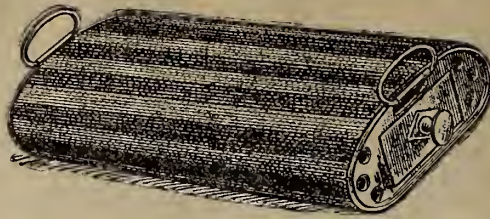
The color work includes four full-page pictures by Howard Pyle, illustrating his text on "The Travels of the Soul." As usual with The Century this example of color is an experiment in a new direction. The color plates are engraved by hand by Davidson, and Mr. Pyle has certified to the faithfulness of the proofs to his originals. There are other plates in color after drawings of "Animals in British Parks," by Charles R. Knight and J. M. Gleeson. These are in quite a different style from Mr. Pyle's pictures and thus give variety to the number.

The Christmas material includes two Christmas stories, "Mrs. Chick," by Virginia Woodward Cloud, and "The Vision," a "Pa Gladden" story by Elizabeth Cherry Waltz, author of "The Mystery

COLD WEATHER IS HERE.

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The Greatest Comfort is to be Derived Therefrom in Cold Weather.

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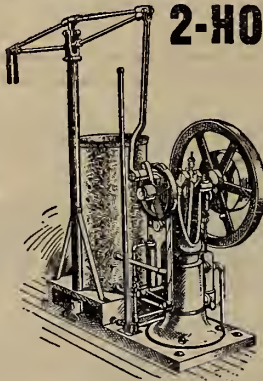
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2-HORSE POWER GASOLINE ENGINE

FOR \$90.00



We offer you a strictly modern, absolutely new and perfect, fully guaranteed gas or gasoline engine, complete with pumping jack and all fixtures and fittings.

Price for the 2-H. P. . . . . \$90.00

For efficiency, quality, simplicity, mechanical construction and economy, the engine is unsurpassed.

We have all kinds of Motive Power, both new and second hand. Write for our catalogue No. 166.

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A Perfect Weeder

in all soils, under all conditions. The all important feature of flexibility of teeth is near perfection in the YORK IMPROVED.

Made of square spring steel with round points, and set staggered in strong but flexible angle steel frame. Wide clearance, no clogging, teeth too strong to break. Multiplies producing qualities of soil and does not whip or bruise growing plant. Adjustable handles and shafts. Write for free descriptive circular.



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GILT-EDGED FAMILY COWS

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We have more high-testing St. Lambert Cows than can be found in any herd in America.

INDIAN GAMES—The king of table fowls.

WHITE WYANDOTTES—The best general-purpose fowl.

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Address

BOWMONT FARMS, SALBM, VA.

THE OAKS. 6 SHORTHORN BULL CALVES,

(Eligible to registry) FOR SALE; Also 4 Grades.

100 high-grade SHROPSHIRE EWES; good ones, and some of them bred. I never offered a better lot of stock.

B. B. BUCHANAN, BEDFORD CITY, VA.

## **BILTMORE FARMS, - BILTMORE, N. C.**

*Headquarters for GOLDEN LAD JERSEYS,*

*Also get of TREVARTH and GEN. MARIGOLD. \* \* \**

**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.



### **BILTMORE POULTRY YARDS.**



**SPECIALTY.** Write for descriptive circular of eggs from our prize-winning pens. Over 50 yards to select from, made up of the winners at the leading shows for the last two seasons. If you want winners you must breed from winners.

*Headquarters for the best IMPORTED ENGLISH BERKSHIRES.*

**APPLY TO BILTMORE FARMS, BILTMORE, N. C.**

# **SHELBURNE'S**

**Is the BEST WAREHOUSE**

in Richmond, the BEST MARKET for all grades of Tobacco. It is the home of sun and air cured Tobacco and headquarters for flue-cured and shipping types. Here are located the head offices and stemmeries of all the large corporations, Regie representatives and the largest number of independent factories and buyers in the United States.

## **SHELBURNE'S WAREHOUSE**

Has the largest lighted space, insuring equal attention to every pile. Ample accommodations in every way for all our customers.

Correspondence solicited.

**SILAS SHELBURNE & SON, Props., 12th and Canal Sts., RICHMOND, VA.**

Play;" Christmas poems by Josephine Dodge Daskam and James Stanton Park, A "Lay Sermon for Christmas" in the editorial department, and papers on topics appropriate to the season, such as a description of the Day Nurseries of New York by Lillie Hamilton French, with a profusion of pictures of babies and young children, by Jessie Wilcox Smith; "Heroism in Every-day Life," a study by S. Weir Mitchell based on newspaper clippings; and a paper on Frederick W. Robertson, the great English preacher, by Professor Hewett, of Cornell, with a new portrait from a daguerreotype accidentally discovered.

Readers of "Mrs. Wiggs of the Cabbage Patch" will doubtless turn first of all to "Lovey Mary," the first part of which introduces the titular character in a series of adventures which bring her to the Cabbage Patch. It is announced that Mrs. Wiggs is a character in the new story and that it is crowded with action and fun.

Mr. Nelson's article on the so-called Steel Trust bears its authoritativeness on its face. It is believed that the facts presented by him have not before been brought together, and the paper has special interest as a record of the formation of the company.

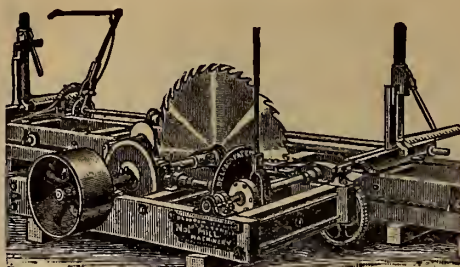
In addition to the stories already mentioned the number contains "At the Tavern of the Sun," a story of Pompeii, by Maude Caldwell Perry; "A Deceptive Cadence," a story of the life of music students abroad, by Elinor Comstock; and "Uncle Bige's Creaking Heart," a humorous sketch by Burton E. Stevenson, author of "The Heritage." "A Forsaken Temple," by Anne Douglass Sedgwick, comes to a conclusion, and "The Yellow Van," the new problem story by Richard Whiteing, introduces the heroine, an American duchess, to some of the difficulties of her new position.

Miss Maud Roosevelt, a cousin of the President and an actress as well of considerable vogue, contributes the monthly complete novel to the Christmas number of Lippincott's Magazine. "The Price of Fame" proves that fiction is by no means the least of Miss Roosevelt's accomplishments. She turns a brilliant searchlight on New York society life which reveals the good and the bad with infinite skill. The evolution of Helen Mortimer—country-bred girl with an imaginative temperament—into an actress of the first rank, through the most treacherous act a man may commit, is the pivotal point in this novel of exciting episodes that ends delightfully.

In addition to the complete novel in the Christmas number of Lippincott's Magazine, there are many short stories, several papers suited to the glad season, much good verse, and the usual diverting "Walnuts and Wine."

As crammed with good things as the fattest and longest and most overflowing Christmas stocking could possibly be is the Christmas St. Nicholas with its store of Christmas verse and story and fun. Edwin L. Sabin, Howard Pyle, Guy Wetmore Carryl, Ruth McEnery Stuart, Louisa M. Alcott, C. E. Borchgrevink and Alice Caldwell Hegan are among the notable artists and writers who have con-

## \$115=FARMERS' SAW MILL!=\$115



To introduce OUR NEW FARMERS' SAW MILL, fitted with DeLoach variable Friction Feed, we make this special offer:

We will deliver on cars at Factory our No. O PONY FARMERS' SAW MILL, with DeLoach Patent Variable Friction Feed, Duplex Dogs, Improved Head Blocks and Ratched Set Works, complete as shown in cut, except has Carriage made in two four-foot sections, with Rope Drive instead of Rack and Pinion, without Saw or Belt, for

### \$115.00 Spot Cash!

AWARDED FIRST PRIZE AND GOLD MEDAL, World's Fair, Chicago, 1893.

With 36-in. Solid Saw, \$127.50; 40-in., \$132.50; 44-in., \$140.00; 48 in., \$150.00.

With 36-in. Inserted Saw, \$147.50; 40-in., \$152.50; 44-in., \$160.00; 48 in., \$170.00.

Best Rubber Belting, 4-ply, 6-in., 20 cents per foot; 8 in., 30 cents per foot, net case.

NO DISCOUNTS FROM THESE PRICES.

OUR GUARANTEE:—The Mill is warranted to be made in 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 THIS MILL without the assistance of an experienced sawyer or mill man. The Mill will easily cut 2,000 to 2,500 feet of first-class lumber per day with only FOUR-HORSE POWER; 3,000 to 3,500 feet with 6 horse power; 4,000 to 5,000 feet with 8-horse power, etc., and is adapted to any kind or size power up to 15-horse power. IF INTERESTED, write for large illustrated catalogue of DeLoach Patent Saw Mills to suit any power, from 4 to 200-h. p.; Shingle Mill, Machinery, Drag Saws, Planers, Edgers, Trimmers, Stave and Lath Mills, Bolters, Corn and Buh Mills, Water Wheels, Shafting, Pulleys, Gearing, etc. (Be sure to say you saw our ad. in this paper.)

### DeLoach Mill Mfg. Co.,

Address, Box 600, ATLANTA, GA., or 120 LIBERTY STREET, NEW YORK.

P. S. Crowley, Quitman, Pa., says: "The DeLoach Variable Friction Feed is perfection. When I need another saw mill I want the DeLoach every time."

This cut is not the machine but simply shows the manner of fastening the steel rope to the stump. We cannot tell you all about it here. Our catalogue shows Full Line of Stump Pullers testimonials, prices, etc. It will surprise and interest you.



## PULLS Yellow Pine Stumps or Trees.

Our new 2-Horse Hawkeye

is built for that purpose and does it rapidly and cheaply. A machine that will pull yellow pine stumps will pull almost anything else. It is being used by many planters and most of the leading R. R. and levee contractors. It has 3 times the power of our machines for ordinary work and pulls 8 acres at a setting.

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When corresponding with Advertisers, always say that you saw their advertisement in The Southern Planter.

# NOTICE

Having discontinued making the **WATT, CROWN** and **CRESCENT PLOWS**, we have disposed of our entire stock of said Plows and Repairs to **THE CALL-WATT COMPANY** of this city, the only firm having authority to manufacture them and the owners of the patterns from which they are made. We refer all persons wanting these Plows or Repairs to them.

Richmond, Va., Nov. 24, 1902.

**THE WATT PLOW CO.,**

By **A. C. SINTON, Pres.**

Referring to above notice, I desire to inform my friends that my connection with The Watt Plow Company has been severed, and the manufacture of the above-named Plows and Casting will be continued by **THE CALL-WATT COMPANY** of which I am General Manager. The new firm, while making a specialty of Plows and Plow Castings, will handle Implements, Machinery and Vehicles for all purposes.

With an experience of thirty years in the manufacture and sale of Agricultural Implements in this city, and by careful attention to all business entrusted to the new firm, I hope to merit the continued patronage of former patrons and that of the public generally.

RICHMOND, VA.

**MANFRED CALL,**

MANAGER THE CALL-WATT Co.



## THE RICHMOND PLUMBING AND MANTEL CO., 26 N. Ninth Street, RICHMOND, VA.,

Has just received  
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Stock and com-  
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**STOVES, RANGES, FURNACES,  
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FIXTURES, TILING and  
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Correspondence Solicited.

**CALL AND INSPECT OUR SHOW-ROOMS.**

tributed to this bountiful store of Christmas cheer; and the result is a magazine that will please and interest the grown-ups as well as the children.

For the thoughtful father, uncle or friend who decides that no Christmas gift will bring his boy or girl quite so much lasting profit and delight as a year's subscription to St. Nicholas, there are attractive certificates, sure to gratify the young recipient, which set forth and declare, in black and red, that So-and-So is entitled to twelve numbers of St. Nicholas, the big card, suitable for framing, bearing a seal and a signature of the Secretary of The Century Company. This card, duly filled in, is a pleasantly tangible promise of a perpetual Christmas present, with which the lucky young person may grow into happy friendship with the passing months.

In the Review of Reviews for December, there is a comprehensive editorial summary of the political situation in all the States. The results of the November elections are carefully analyzed with reference to their bearings on national policies. The editor also discusses the proposition for the admission of new States in the Southwest—the first subject of debate at this session of Congress—and offers cogent reasons in support of the plan for the direct election of United States Senators. Other important topics of the month—in foreign as well as domestic policies—are treated with the Review's accustomed thoroughness and accuracy of judgment.

#### KEEP A-GOIN'!

If you strike a thorn or rose,  
Keep a-goin'!  
If it hails or if it snows,  
Keep a-goin'!  
'Taint no use to sit and whine,  
When the fish ain't on your line!  
Bait your hook and keep on tryin'—  
Keep a-goin'!

When the weather kills your crop,  
Keep a-goin'!  
When you tumble from the top,  
Keep a-goin'!  
S'pose you're out of every dime?  
Gettin' broke ain't any crime?  
Tell the world you're feelin' prime!  
Keep a-goin'!

When it looks like all is up,  
Keep a-goin'!  
Drain the sweetness from the cup,  
Keep a-goin'!  
See the wild birds on the wing!  
Hear the bells that sweetly ring!  
When you feel like singin'—sing!  
Keep a-goin'!  
—[Atlanta Constitution.

## "Feeds and Feeding"

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

Delivered anywhere for - - \$2.00  
With the SOUTHERN PLANTER, 2.25

# Something good for Christmas

During the holiday season, when good cheer everywhere prevails, there is nothing nicer to have in the house than a little good whiskey, and besides, your physician will tell you it is excellent in many cases of sickness. But you must have good whiskey, pure whiskey. You don't want to drink poor whiskey yourself, much less offer it to your friends, while as a medicine, poor whiskey, adulterated whiskey, may do you decided harm.

HAYNER WHISKEY goes to you direct from our own distillery, with all its original richness and flavor, and carries a UNITED STATES REGISTERED DISTILLER'S GUARANTEE OF PURITY and AGE. When you buy HAYNER WHISKEY you save the enormous profits of the dealers and have our guarantee that your money will be promptly refunded if you are not perfectly satisfied with the whiskey after trying it. That's fair, isn't it?

## HAYNER WHISKEY

PURE SEVEN-YEAR-OLD RYE

4 FULL \$3.20 EXPRESS  
QUARTS 3.20 PREPAID

We will send you FOUR FULL QUART BOTTLES of HAYNER'S SEVEN-YEAR-OLD RYE for \$3.20, express charges paid by us. Try it and if you don't find it all right and as good as you ever drank or can buy from anybody else at any price, send it back at our expense and the next mail will bring you your \$3.20. Could any offer be fairer? This offer is backed by a company with a capital of \$500,000.00, paid in full, and the proud reputation of 36 years of continuous success. We have over a quarter of a million satisfied customers, proving conclusively that our whiskey is all right and that we do exactly as we say. Shipment made in a plain sealed case, with no marks or brands to indicate contents.

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.

**FREE** With each four quart order we will send free one gold-tipped whiskey glass and one corkscrew. If you wish to send an order to a friend, as a Christmas present, we will enclose with the shipment an elegant souvenir card, with both your names neatly printed thereon.

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EXTENDING FROM CINCINNATI AND LOUISVILLE, AND  
THROUGH ITS CONNECTIONS

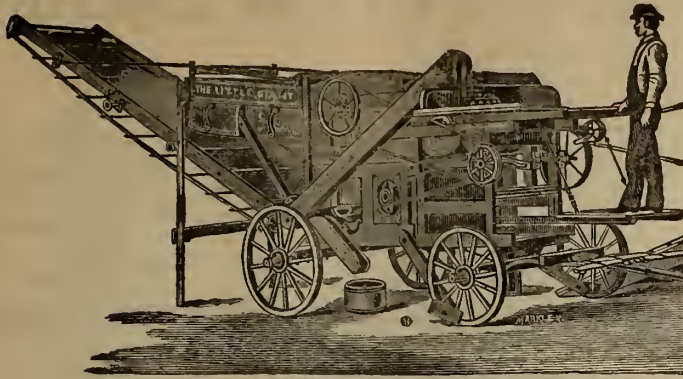
THE BIG FOUR SYSTEM, from Chicago, St. Louis, Peoria, Indianapolis, Sandusky and Cleveland;  
THE OHIO CENTRAL LINES, from Toledo and Columbus;  
THE CINCINNATI, HAMILTON & DAYTON, from Detroit, Toledo, Lima and Dayton—

FORMS THE MOST DIRECT And from Five to Twelve Hours the Quickest ROUTE.

TO STAUNTON, LYNCHBURG, CHARLOTTESVILLE,  
RICHMOND, PETERSBURG, NORFOLK,  
And Principal Virginia Points.

H. W. FULLER, Gen. Pass. Agt. C. & O. Ry., Washington, D. C.

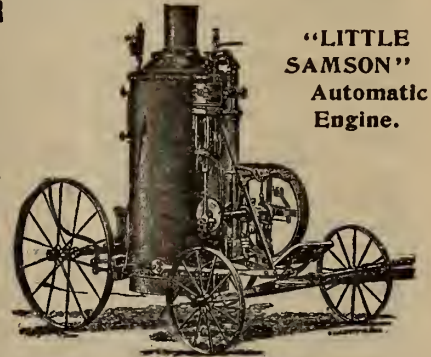
The most popular Machine in use for Peanut Picking and Grain Threshing are the



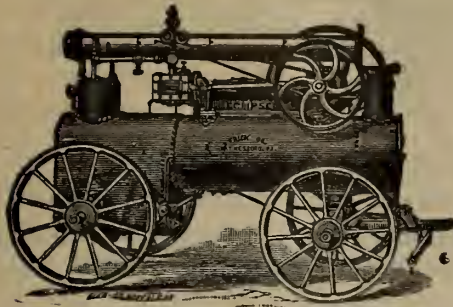
**HEEBNER'S,  
LITTLE GIANT AND  
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Machines, and they have splendid improvements for 1902. They are built in first-class manner, and are strong and durable. The price is within the reach of all. We guarantee them to do the work satisfactorily. We will mail catalogue and testimonials, and quote prices on application.

**RUBBER, LEATHER  
and  
GANDY BELTING.**



**"LITTLE  
SAMSON"  
Automatic  
Engine.**



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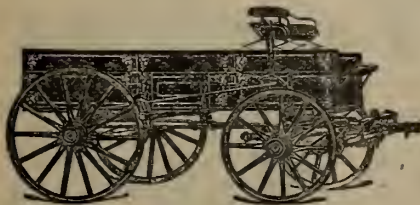
**ERIE ENGINES and BOILERS.**

THE CELEBRATED  
**"CHASE" SAW MILLS**  
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This cut shows our 5 and 7 h.-p. "Little Samson" Vertical Automatic Engine, for running threshers, peanut pickers, cutting feed, sawing wood, etc. Larger sizes also furnished.

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The following list of papers and periodicals are the most popular ones in this section. We can **SAVE YOU MONEY** on whatever journal you wish.

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The Dispatch, Richmond, Va.....	\$ 3 00	\$ 3 00
The Times, " .....	3 00	3 00
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The Dispatch, Richmond, Va.....	1 00	1 25
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Harper's Weekly .....	4 00	4 00
" Bazaar.....	1 00	1 40
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The Baltimore Sun.....	1 00	1 35
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Central Presbyterian, " .....	2 00	2 50
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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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For Tobacco, Corn, Wheat, Potatoes, &c.

Pure Raw-Bone Meal, Nova Scotia and Virginia Plaster and Fertilizing Materials generally.

Parties wishing to purchase will find it to their interest to price our goods. Samples sent by mail when desired.

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## Headquarters for Nursery Stock.

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# Agricultural Implements and Machinery



Cider Mills—with wooden crushing rollers.

**The Hocking Valley Cider and Wine Mills**  
Have crushing rollers made of wood, which impart no taste or discoloration to the juice.

**Buckeye Grain and Fertilizer Drill**  
With hoes or disc. Drills grain of all kinds, corn, peas, grass seed and fertilizers.

**Our Five-Hoe Drill**  
For seeding between rows of standing corn is a great success.

**Continental Disc Harrows,**  
Changed to straight or slanting tooth without stopping team.

**Ensilage and Feed Cutters.**  
Capacities from 600 to 16,000 pounds per hour.

**The Union Cutter.**  
Crushes the stalk after it leaves the knives—far superior to shredding.

**The Combined Feed Mill and Horse Power**  
Is indispensable to every farmer. Grinds corn, shelled or on cob, grain of all kinds, and is a first-class horse-power for any purpose. Three machines in one.

**The McCormick Corn Binder**  
Works like a grain binder, cutting and tying the corn and delivering in bundles.

**The McCormick Husker and Shredder.**  
The most complete machine of its class made. The very low price brings it within the means of all.

**Corn Shellers**  
For hand or power, separating corn from cob.

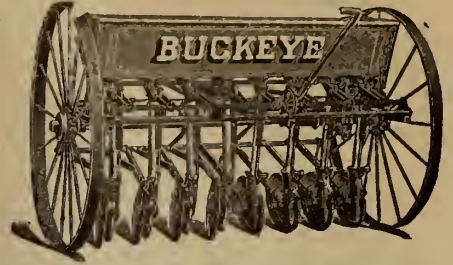
**Churns—Improved Buckeye Rocker.**  
Unequaled for cheapness, with simplicity, strength, durability and perfect work.

**Cane Mills and Evaporators.**  
Turned rollers, steel shafts, brass boxes, enclosed gearing. Made of special iron of great strength.

**Portable Evaporators**  
With furnace. Pans of galvanized steel or copper.

**Cucumber Wood Pumps**  
With porcelain-lined cylinder, for wells up to 45 feet in depth.

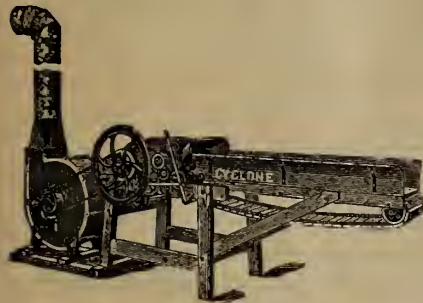
**The Hancock Disc Plow,**  
Improved for 1902.  
Will work in any land, and with less draft than any other disc plow.



Disc Drill.

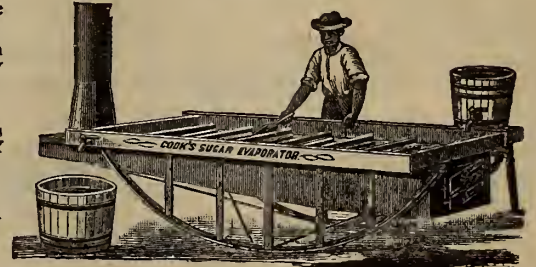


Feed Mill and Power.

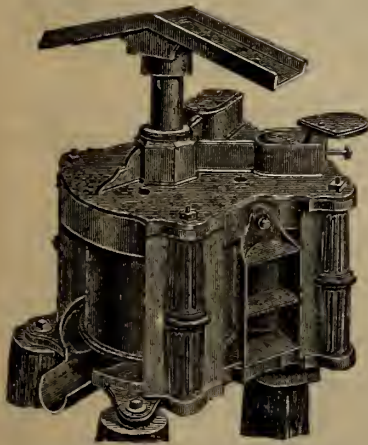


CYCLONE

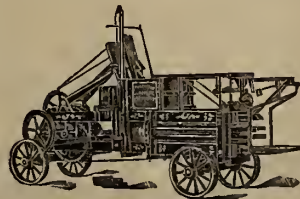
Feed and Ensilage Cutters. All Sizes.



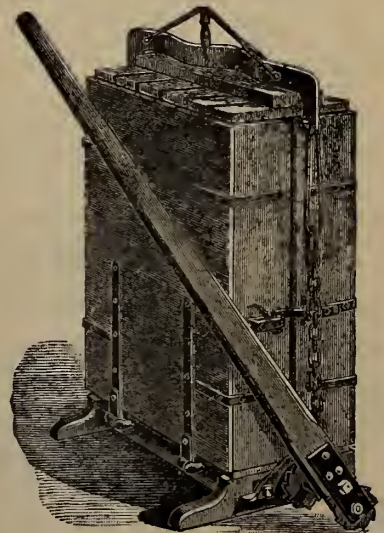
Portable Evaporator.



Cane Mill.



Belt Power Press.



Hand Power Press.



Full Circle Horse-Power Press.

**THE WATT PLOW CO.,** Franklin and 15th Streets,  
**RICHMOND, VA.**

## DAINTIES FOR CHRISTMAS.

MARY WASHINGTON.

*Charlotte Polonare.*—3 cups of flour.  
2 cups of sugar.  
1 cup of butter.  
1 cup of milk.

Whites of six eggs.  
2 teaspoonfuls of baking powder,  
Bake in jelly cake pans.

*Icing and Filling for the Above.*—Prepare boiled icing, highly flavored with lemon, and put into it figs, raisins, nuts, citron and candied cherries, chopped fine; spread this between the layers of cake and on top.

*Walnut Cake.*—Make a batter as for ordinary layer cake. Bake it in cake pans, and prepare an icing and filling as follows: First crack enough walnuts to give you two cupfuls of kernels, very carefully picked out and perfectly free from trash or grit. Take a very large frying pan, washed and scoured perfectly clean. Put 2 lbs. of brown sugar in it, moistened with sweet milk. Add a tablespoonful of butter, and after the sugar begins to boil, beat it steadily ten minutes with a large kitchen spoon. Then drop in the walnut kernels and take it off the stove, adding, last of all, a teaspoonful of vanilla. When slightly cooled, use it for filling and icing for the cake.

*Cake with Coconut Filling.*—A very pretty and showy cake is made by using grated cocoanut in between and on top the layers—like a fall of light, fluffy snow. And as grating cocoanut is a very tedious and troublesome job, you may simplify matters (as the pilgrim did by boiling his peas) by grinding the cocoanut in your sausage grinder, carefully cleansed of all grease. This will save you a great amount of trouble, but I must say candidly that the effect is not so pretty and fluffy.

As even the most rigid and sober people relax in their austerity at Christmas, and treat themselves to egg-nog, I now herewith give a superior receipt for this beverage, obtained from a noted house-keeper. This receipt, however, only suits for those who have a dairy and can command cream unstintedly, as it calls for cream instead of milk.

Take a pint of cream and whip it very stiffly, as if you were going to make Charlotte Russe. Also whip the whites of six eggs into a stiff froth, and add them to the whipped cream. Then beat the yellows and add them. Put a wine glass of whiskey to each egg, and a dessert spoonful of white sugar. You will find this almost like liquid Charlotte Russe, and a great improvement on the ordinary way of making egg-nog.

As oysters are very popular at Christmas (as well as at other times), I will subjoin a good receipt for pickled oysters and another for oyster salad, either of them extremely nice for a luncheon or supper dish, and very convenient to have when your servants are, perhaps, taking holiday during Christmas, rendering it troublesome for you to serve the oysters hot.

*Pickled Oysters.*—Pick out from the juice with a fork one gallon of oysters. Add one tablespoonful of salt, and the same of black pepper, in the grain, picked over and washed; one dessert spoonful of all-

# A CHANCE FOR THE NEEDY.

We wish to state to readers of this magazine and the public generally, that owing to the warm weather we have had this Fall, we were unable to dispose of our Stoves and Heaters which we bought in large quantities.

In order to reduce our stock, we are offering all

## STOVES AND HEATERS

At greatly reduced prices.

If you intend coming to the city before the holidays, it will pay you to see us before leaving, and if you cannot come, drop us a postal and we will be glad to quote you prices.

Our stock of

## FURNITURE, MATTINGS, OIL CLOTH, PICTURES, SEWING MACHINES,

and everything for HOUSEKEEPING is complete and prices  
**LOWER THAN THE LOWEST.**

Bear in mind the name and number,

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CHARTERED 1870.

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SIX SOLID STERLING SILVER TEA SPOONS, \$3.40. Write for our catalogue, it contains many articles on which we can save you money.

C. LUMSDEN & SON, Established 1835, 731 E. Main St., Richmond, Va.

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spire and one inch of Cayenne pepper pod. Stew in a flat tin pan till the gills are open, and the juice watery. Lay out on a dish to cool. Put the juice in a pitcher to settle. After it is cool, pour it over the oysters in a jar, adding an equal amount of apple vinegar.

**Oyster Salad.**—Strain the liquor from one gallon of oysters, and pour back, adding half tea cup of vinegar, and a little salt. Cook till the oysters plump out and taste done. Strain and put on top a block of ice till very cold. Cut in half and mix with an equal amount of celery, cut in slices. Pour Mayonnaise dressing over this mixture, and keep in a cool place till ready to serve.

### MISSOURI STATE HORTICULTURAL SOCIETY.

KANSAS CITY, Mo., Oct. 3, 1902.

The 45th annual meeting will be held at Springfield, Mo., December 2-4, 1902. The largest meeting, the fullest attendance, the best program, the finest exhibit of apples, the best instruction from the teachers of colleges, and practical fruit growers of our State are features of the meeting.

One hundred and fifty dollars in premiums will be given. Rates on railroads and hotels. Matters of interest to every fruit grower will be discussed in an able way. The World's Fair, the preparing of the fruit, the reports from fruit men, the questions and topics for discussion, suggestions concerning your troubles, and

the presentation of practical papers will interest you.

L. A. GOODMAN, *Secretary.*  
4000 Warwick Blvd., Kansas City, Mo.

### WHY THE AUDIENCE LAUGHED.

At a public entertainment recently, a conjurer had an experience which was highly comical, though quite disastrous from a professional point of view.


Having produced an egg from a previously empty bag, he announced that he would follow up this trick by bringing from the bag the hen that laid the egg.

This little arrangement he had left to his confederate to carry out.

He proceeded to draw the bird from the bag, but what was his surprise on finding that the alleged hen was an old rooster, which strutted about the stage with ruffled feathers and offended dignity, and set up as vigorous a crowing as if

it had just awakened from its nocturnal slumbers.

The whole audience shrieked with laughter, and the unfortunate conjurer made a bolt for the dressing-room.



**Actual Results**  
of the advantages of spraying are shown in above picture. The two piles of apples came from the same number of trees in the same orchard row. The big pile from sprayed trees. Pictures taken from actual photographs.

**The Best Spraying Pumps**  
bucket, knapsack, barrel, hand and power, are made by the undersigned, inventors and sale owners of many new valuable spraying fixtures and features. Write for free catalogue and booklet on insects, plant and fruit diseases.

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## Seed for New Leader Cabbage

is now ready for the public. The greatest money maker ever produced. Will yield big crops of the finest large, flat, solid, perfect keeping cabbages ever bred. Tested thoroughly, and proven to be wonderful improvement over any extra early cabbage now grown. The best of all early flat headed varieties.

## Bolgiano New Leader

is the cabbage that will make your fields yield you big returns. Write for large, free illustrated catalogue of Rocky Ford Cantaloupe, Alaska Peas, Valentine Beans, Gradus Peas and all Seeds, Plants, Bulbs, etc., for the Garden and Farm. Write now.

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"Special line of Tomato, Cucumber, Radish and all garden seed."



Pedigrees traced and tabulated. Catalogues compiled and circulars prepared. Special attention given registration matters pertaining to thoroughbred and trotting horses

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SOUTHERN PLANTER, Richmond, Va.  
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## RED LEO, 28028. Record, 2:26 $\frac{1}{4}$ .

(See American Trotting Register, Vol. XIV.)

Sired by Red Wilkes, 1749, the greatest living sire; dam Dictator Girl, by Dictator.

NOTE—Red Leo is a richly-colored, bay horse of fine size and substance. He comes from a great line of performers and producers. Ella Leo, 2:20 $\frac{1}{2}$ ; Cassie Leo, 2:23 $\frac{1}{2}$ , and other winners are by him.

FEE, \$25 the season, with usual return privilege.

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Building Carriages to order is our special business.

Repairing and Repainting done, and best material used.

A full line of all the latest

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A Standard and Registered

## TROTTING STALLION.

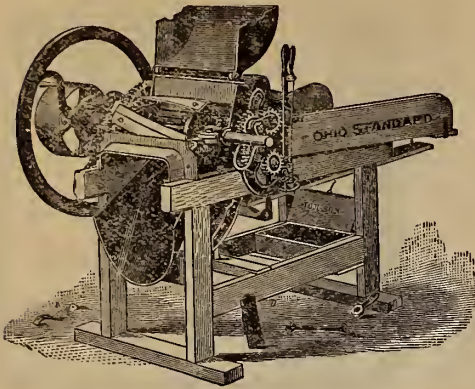
Color, dark bay; height, 15.3 $\frac{1}{2}$ ; weight, 1,075 lbs., foaled 1893.

Very handsome and stylish, and a fine driver with good manners. Sired by one of the greatest sons of George Wilkes, from a famous producing dam.

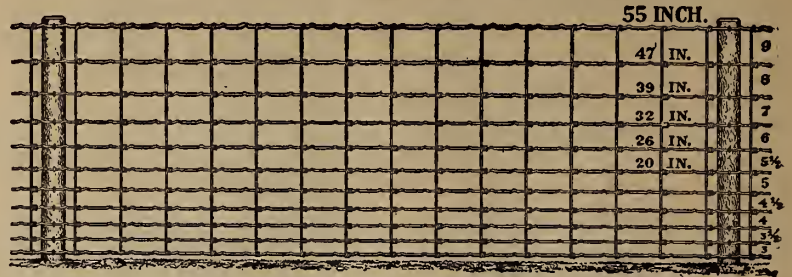
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FOR HAND OR POWER. THE STRONGST, SIMPLEST AND BEST MADE. Write for prices, catalogues, and testimonials.



Why use dangerous barb wire when a **NICE, 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.

**CANE MILLS AND EVAPORATORS.**—We are agents for the celebrated "Kentucky" Mill and "Cook's Improved Evaporator." At least the equal of any made, and far superior to most.

**PEA HULLERS.**—It will pay to inspect the "STAR." Will hull and clean from 10 to 15 bushels of peas every hour.

**DISC HARROWS.**—Send for special catalogue of the "THOMAS," lightest draft and strongest harrow made.

## OWECO AND PENNSYLVANIA DISC GRAIN DRILLS

With or without fertilizer attachment.

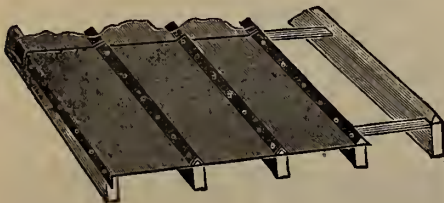
## THE IDEAL FEED MILL AND POWER COMBINED

Has no equal for grinding shelled grain, corn and cob into excellent feed. The Horse-Power is very useful for running other machinery as well. A full line of mills for horse and steam power.

### THE No. 19 IDEAL MILL.

For one horse. A very useful size for small farms. Price, \$15.00.

**PLOWS.**—Try an "Imperial" and you will not want any other. It is admitted by all who have used it to be the best in the world.



## "V" CRIMPED STEEL ROOFING

Made in lengths of from 5 to 10 feet. The most economical roof for barns and all out houses.

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## FEED HER PROPERLY.

I mean buy your supplies right. You should lay aside a few Gold Pieces yourself, you might ask how it can be done—easy, dead easy—stop paying high, country prices. The mail comes to your home six times a week, I can get a letter from you every day.

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The railroads almost pass your house. Uncle Sam spends millions yearly to give you mail and railroad accomodations. You need not come to town, let Uncle Sam do your shopping. He can knock the spots out of you in buying—just try him. No matter how small your order I will be glad to have it and ship promptly. Here is what your groceries will cost you

### JUST ONE-HALF WHAT YOU ARE NOW PAYING.

Arbuckle's Green Coffee.....	9½	Cotton-Seed Meal, Nothing Finer.		Gibson's Fine Old Rye Whiskey; fit for a king, get a quart.....	75
Granulated Sugar.....	4½	510 Tons Cotton-Seed Hulls—an excellent Winter Food, Cheap and Nutritious, per hundred.....	50	O'Grady's Pure Malt. Try a bottle of Malt for that hacking cough. It is a sure cure. It is good for dyspepsia. Indigestion it cures at sight. Warms the inner man; makes new rich blood, and stimulates the whole system. It has saved many and many a man and his family, 75 a quart. The price is insignificant compared to the benefit it will do you.	
Best Family Flour.....	4 25	This is as good as Coarse Meal for stock.		Country Cured Bacon Sides.....	13½
Byrd Island—have no other.		60,000 lbs. Rock Salt for Stock—try a bag, keep it in the Trough, improves Stock very much, \$1.00 for 100 lbs.		100,000 bushels finest Oats.....	37
10,000 lbs. Nice Family Pork.....	9	Chalmer's Gelatine, 3 for.....	25	60,000 bushels fine Corn.....	63
7 Boxes Axle Grease.....	25	Seedless Raisins in Packages.....	9	Water-ground Corn Meal, made of the finest White Corn, and ground by one of the finest mills in Virginia. Bushel.....	75
800 Bbls. White Oil.....	12	Cleaned Currants, per lb.....	8	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.	
1,000 Bushels Seed Rye.....	68	New Citron for Fruit Cake.....	12	Clover Seed, prime Crimson Clover Seed.....	2 90
500 Tons Fine Timothy Hay, hundred.....	75	Home Made Mince Meat.....	11	Choice Crimson New-Crop Clover Seed.....	4 25
300 Tons Choice Clover Hay, hundred.....	70	100,000 lbs. New Mixed Nuts.....	11	Fine Winter Turf Oats (seed).....	75
10 Large Cakes Fancy Soap.....	25	Virginia Hams, Choicest of Meat. I have a Nice Lot of Hams Made in Smithfield, Va.....	14	Prime Winter Seed Oats.....	60
Crystal Washing Soda, Light, Smooth, and Durable, makes Washing Easy.....	30	Fine Sweet Cider, per gallon.....	20		
Washing Powders, 8 for.....	25	Home-Made Black Berry Brandy, 5 years old and nice.			
Fine Gun Powder Tea.....	40	Family Tonic, quart.....	20		
Ben Mocha and Java Coffee Roasted	18	Northampton Apple Brandy, 6 years old—pure—Apple Juice—nothing finer made—gallon.....	2		
Large Fat Mackerel in Nice Buckets or Kits, about 15 lbs.....	1 25	Clemmer's Fine Old Mountain Rye Whiskey, double distilled, sweet and wholesome, quart.....	40		
New River Herrings, 750 fish in the barrel, Large and Fat.....	5 50	Juniper Gin, sure cure for bladder and kidney troubles; relieves the cutting, stinging ache in your back, quart.....	45		
New Cut Herrings, barrel.....	5 50				
Finest Cream Cheese.....	15				
Baker's Chocolate—2 Cakes.....	25				
New Table Raisins—6 Lbs.....	60				
Fine French Candy.....	8				
Pure Lard.....	9½				
610 Tons Pure City Made Shipstuff, hundred.....	1 00				

I have an immense stock of CHRISTMAS GOODS, CAKES, CANDIES. FRUITS of all kinds, and I will ship any quantity required.

**D. O'SULLIVAN, Eighteenth and Main Sts., Richmond, Va.**

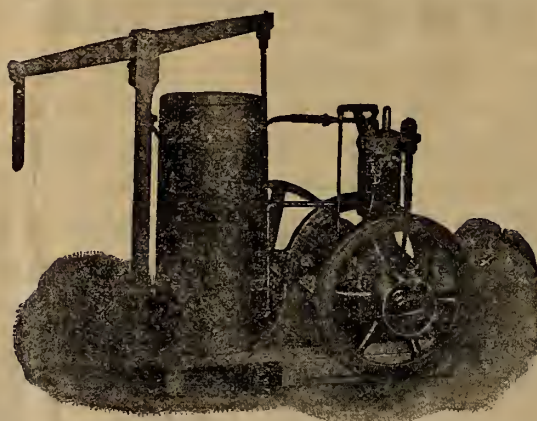
# The GASOLINE ENGINES

WHICH HAVE MADE SUCH ENGINES FAMOUS.

The Engine which the farm-hand can handle. Success beyond question and merit above all others. If you think we say so because we sell them, ask some of those who have bought them.

THERE IS NEARLY AS MUCH DIFFERENCE IN GASOLINE ENGINES AS THERE IS BETWEEN A LOCOMOTIVE AND AN OX CART

ALWAYS READY  
TO START,  
SAW WOOD,  
PUMP WATER,  
SHELL CORN.



FROM 1½ HORSE  
POWER TO 50  
HORSE POWER.  
Mounted on  
Wheels or not.

If you do not own a GASOLINE ENGINE it must be because you have never known what they are, what they will do, and how necessary they are.

A few who have them:—

Harper Dean, Henrico Co., Va.; E. B. Addison, Richmond, Va.; S. E. Pender, Greenville, N. C.; W. I. Everett, Rockingham, N. C.; E. B. Howle, Manchester, Va.; Geo. D. Thaxton, Henrico Co., Va.; W. C. Reed, Keswick, Va.; Jno. C. Robertson, Forest Hill, Va.; Jos. P. Garrett, Ridgeway, Va.; S. W. Anderson, W. Va.; Edward Scott, Warren, Va.; William and Mary College, Williamsburg, Va.; T. W. Wood, Va.; W. H. Purdy, Dinwiddie Co., J. E. Cox, Ashland, Va.; Thos. S. Martin, Scottsville, Va.; James H. Dooley, Richmond, Va.; Henry Clay Inn, Ashland, Va.; and any number of others.

**RICHMOND ENGINE and PUMP CO., Richmond, Va.**



NON-CIRCULATING





