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DEVOTED TO

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

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TRUCKING, LIVE STOCK AND THE FIRESIDE.

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

65th Year.

Richmond, June, 1904.

No. 6.

Farm Management.

WORK FOR THE MONTH.

The cold ungenial and dry weather of which we have had to complain for now so many months still continues up to the date of this writing (19th May). This condition is not peculiar to the South but more or less affects the whole country except the Gulf States where there is a slight excess of average temperature accompanied by drouth in many places. There is every indication that we are likely to enter summer with a deficiency of soil moisture which, if not carefully provided for by keeping the fields covered with a mulch of fine soil, may result in serious damage to the crops. Those who plowed their land in the early fall will be in a much better position to conserve their crops than those who have only broken the land just previous to planting. Whilst the rainfall throughout the South has been below the normal ever since last December yet where land was plowed before that month there has been a constant though slight accretion to its moisture content which unplowed land has largely failed to be in a condition to accumulate. This once more emphasizes the importance of early fall plowing if the best chance is to be given to the crop, for whether the winter and spring be wet or dry such land will be better fitted to take care of the crop during the growing season than land left unbroken until spring.

Crop conditions throughout the country tell unmistakably of a trying winter and spring. The Government Report for May says, "The available records of the Department show for no preceding year

such uniformity of unfavorable conditions as is reported this month." The condition of the winter wheat crop is a distinctly unfavorable one. Nearly 5,000,000 acres of the land seeded in the fall has been abandoned and plowed up, reducing the area left to be harvested to very little more than 27,000,000 acres or over 5,000,000 acres less than was harvested last year. The average condition of the crop throughout the country is only 76.5 as against 92.6 last year and a ten year average of 84.2. This would indicate in conjunction with the reduction in area a reduction of at least 100,000,000 bushels in the crop as compared with last year. The seeding of spring wheat has not been a very successful one and the condition of the crop is very variable. The winter and spring oat crop of the South is likely to be a very poor one as much of the crop of winter oats was killed and the spring seeding has not done well from lack of rain and constant cold weather. Corn planting has been in progress for more than a month in this State and the fine dry weather has enabled it to be put into a good seed bed but germination has been slow from the cold condition of the soil. We are afraid stands will not be of the best. In several of the Gulf States drouth is injuring the crop materially. The stand of cotton in the more Southern States is not what we would like to see and much replanting is being done. In this State the crop is only just being planted.

Tobacco plants are reported from many sections as being small and scarce and the crop is likely to be a late one.

Irish potatoes have been much injured by the cold dry weather and the early crop promises to be smaller than usual. Those planted later are making slow growth. Grass and clover crops are of good color where standing, but a great deal of last fall's seeding was destroyed by the winter. The cold dry spring has made the growth short and late and hay crops generally are likely to be light. From the foregoing review of crop conditions as they appear at this time it will be seen that effort will be needed to supplement the fall and early spring sown crops if an average result is to be made. The wheat crop must be supplemented by an extra area in corn and the oat and grass and clover crops by forage crops of various kinds. There is yet ample time to make good all deficiencies if only effort be at once made.

The completion of the planting of the corn crop for grain should be hastened as much as possible. All highland crops ought to have been planted before the end of May, but if not already planted should be got in before the 10th June. Where corn is planted on high land during this month we would advise the planting of Golden Dent or Improved Leaming, two excellent varieties of yellow corn which will mature in much less time than any of the white varieties. We had a splendid sample of Golden Dent brought to our office last year which was planted on the 4th July. The whole crop matured fully and cured finely. On the river low grounds white varieties may be planted up to the 20th of the month, but the sooner they are got in the better they are likely to do and mature. The main work of the month should be the cultivation of the crop. In our last issue we wrote fully upon this, and to that issue refer our readers. Two points should be constantly borne in mind. Cultivate frequently and cultivate shallow and level. If these requirements be observed the roots of the plants will soon fill all the space between the rows and search out all the plant food which is available. The corn plant is a great forager for food and its root system a wide spreading one. If the crop is not making such growth as is desired it may be helped by inter-cultural fertilization that is by applying fertilizer during the cultivation. For this purpose a quick acting fertilizer should be used, one in which the nitrogen is in the form of a nitrate already, like nitrate of soda, with the addition of acid phosphate and on sandy land some potash. A good mixture for this purpose would be 100 pounds of nitrate of soda, 200 pounds of acid phosphate and 25 pounds of potash per acre. Apply this in the

middles between the rows and not close to the stalks and work it in with the cultivator. The roots will soon find this and it will largely help in the making of ears rather than stalk. The practise of sowing cow peas in the corn crop at the last working is one highly to be commended as tending to the constant improvement of the land and making feed for hogs and stock. Cow peas, however, are scarce and dear this year and we are afraid that few will be sown, indeed we expect the pea crop to be vary largely curtailed from this cause. We have had scores of enquiries from parties wanting cow peas which we have been unable to satisfy. Soy beans may be planted in the place of the peas and will answer the same purpose though they will not make so heavy a crop usually. A mixture of crimson clover and sapling clover may also be sown. This will make a winter cover for the land and much grazing during the early spring. If the crop should make a good stand the crimson clover can be cut off for forage or hay in May and the sapling clover make a hay crop later in the summer. No better preparation for a good corn crop can be made than by the growing of the leguminous crops like cow peas soy beans and the clovers. They will tell much better than the use of commercial fertilizers on the corn crop. We would urge upon corn growers the importance of removing the tassels from the barren stalks of the crop as soon as they appear and before they have begun to shed their pollen. Allowing these stalks to pollenize in the corn crop is the prolific cause of barren stalks. Few realize what a loss of corn is sustained from these barren stalks. With persistent effort in removing the tassels this can be largely obviated.

Corn for the silo should be planted this month. Sorghum also should be planted for this purpose. In this issue will be found an article giving information as to the relative value of these two crops for silage and fodder. A combination of the two crops in the silo will make better silage than either alone. In planting for a silage crop do not plant too thickly but give the plant the opportunity of making a perfect growth and a fair proportion of ears. The silage will be sweeter and not so watery and its feeding value will be much higher. Cow peas may with great advantage be grown with corn and sorghum for the silo. They should be planted alongside the corn rows at the second working and will then grow up the stalks and can be harvested with the corn either with the corn harvester or by hand. The Whippoorwill pea is a good variety to sow for this purpose as it

keeps closer to the stalks and is not so apt as the Black pea to reach over from row to row and thus tangle the crop together and make it difficult to harvest. Soy beans intended for the silo are best grown as a separate crop from the corn and should be mixed with the corn as filled into the silo being run through the cutter alternately with the corn.

In our last issue we wrote very fully on the importance of planting forage crops for stock feeding and gave information as to the different crops. To that article we refer our readers and also to an article in this issue on the same subject.

Bring the cotton crop to a stand as quickly as possible by chopping out the excess of plants. Much cotton is injured in its growth and yield by allowing the crop to grow too long before the chopping out is done. The plants become drawn and spindling and then when the surplus plants are chopped out they fall over and are several days before they recover and acquire a sturdy and robust growth. All this is time and vitality wasted. When once a stand has been secured keep the cultivator running in the crop and encourage growth. Cultivate shallow and level. At the last cultivation sow crimson clover or sapling clover or a mixture of the two in the crop. This will improve the land make some feed and preserve the soil from washing in the winter.

The completion of the planting and the cultivation of the tobacco crop will require attention. Cultivate frequently until the crop is too large for the team to get through it without damaging the leaves. Look out for the first brood of worms and have them closely picked off or destroyed by spraying. The practise of spraying tobacco is now fully established in many sections and can be done without injury to the crop at any rate in the early part of its growth. We would not, however, advise spraying after the crop gets near ripening as it might stain the leaves with traces of the poison and thus prejudice the sale. The proper strength of the mixture to use for killing the worms is one pound of Paris green to 160 gallons of water.

The harvesting of the wheat and oat crops will demand attention before our next issue is in the hands of our subscribers. Do not fail to have the reaper and binder carefully overhauled at the first opportunity in order that it may be seen to be in good working condition. See to it that you have all neces-

sary repairs ordered at once and have them fixed and the machine ready for work. Do not let the crops become over ripe before commencing cutting. Much grain is wasted when the crop is over ripe and the grain itself is never so bright and fine in appearance as when cut just before becoming dead ripe. See to the hands required to enable the work to proceed quickly when once begun. Have sufficient force to keep close up to the machine so that all cut grain may be shocked before leaving the field. Select men as shockers who know how to make a shock so that it will turn rain. Poor shocking is the cause of great loss every year. A shock can never be set up a second time so that it will turn rain. It can be done the first time by a man who understands his work. The great art is to keep the centre of the shock well filled and the sheaves all so laid as to slope outwards from the centre so that any rain falling on it may be carried outwards and not inwards. See that the shocks are well capped.

The cutting and curing of the clover and hay crops will need watchful care. Do not let these stand until they have past their prime before cutting. Clover and the hay grasses are in their prime for making into hay just before reaching the full blooming period. Every day the crops stand uncut after this time they lose in nutritive value. The seed commences to form and in perfecting its maturity absorbs from the plant those elements upon which the nutritive value of the hay depends. As the seed of the clover and hay crop is not the purpose for which the crop is grown its formation should not be encouraged but the crop be cut when in its prime for feeding purposes, that is to say when all the nutritive elements are in the stalk and leaves. Let the crop be cut when free from rain and dew so that it will not take so long to dry and not run the risk of becoming bleached or fermented by lying in the sun. Hay, whether clover or grass, should, when cured, retain the leaves and blades and be of a green color. This cannot be the case if the crop after being cut is allowed to remain broadcast exposed to the sun and wind longer than is necessary to wilt the stalks and leaves. As soon as the clover or grass is thoroughly wilted, but before the leaves and blades are dry enough to fall off when handled, the crop should be drawn into windrow and be left in that condition for the wind and sun to draw through it and further reduce the watery elements in the plants but largely protected from the scorching rays of the sun. If rain or heavy dew threatens put up into small cocks and let stand over night and if necessary

over the next day. Then after the dew is off the cocks and ground on the following day, open out the cocks and especially be careful to throw out the bottom of the cocks which will have absorbed moisture from the ground, and let the wind and sun dry out the hay and thoroughly warm it. If the weather be good the hay should then be fit for putting into large cocks or if the crop be not a heavy one be hauled to the barn. Nothing but practical experience can accurately determine whether the hay is sufficiently cured to haul to the barn, but if all rain or dew is thoroughly dried out of it we would rather put it away in the barn a little undercured than overdried. In this condition it will heat in the mow but will take no harm if not disturbed, but cure out thoroughly. It will be a browner color but will retain its nutritive character and will smell appetising and sweet. If, however, it contains rain or dew when stored it will mould and may burn up from spontaneous combustion. We have known this to occur and the whole crop to be destroyed by fire. We have cured hundreds of tons of fine hay but never knew a crop free from rain or dew when stored to mould or fire. We have known it, when put in the barn too full of the natural juices, to heat so much as to become a very dark brown color, but it still made good feed and was eagerly eaten by stock. Of course this is not desirable, but it is better and more nutritious in this condition than in the dry and flavorless condition which is characteristic of the overcured hay, which is common in the South where leaves and blades are gone and nothing but woody stalks remain. When hay is stacked out of doors make one large stack rather than a number of small ones. There is much less waste and a much better product.

FORAGE CROPS FOR FODDER AND SILAGE.

In our last issue we published articles emphasizing the importance of growing forage crops of all the various kinds which we can so easily and profitably produce in the South. The weather we have had since those articles were written, and indeed ever since the year commenced has only served to make more necessary the advice we then gave. Abnormally dry and cold weather is cutting short the hay and clover crops and making the prospects for good wheat and oat crops look gloomy. "Long" feed for stock is likely therefore to be scarce and every farmer should see to it that a vigorous effort is made to meet this contingency whilst there is time to do so. Even in the best of years it is not sound practise or wise econ-

omy to neglect the raising of crops specially for stock feeding. The agricultural prosperity of every country in the world is largely measured and determined by the numbers of live stock of all kinds which they raise and mature. A country which does not raise live stock of every kind adapted to its climatic conditions is certain to lack prosperity and to become a wasted one. The example of the South itself is proof of this. As we advance in attention to live stock husbandry so will the South advance in prosperity and her lands take on their pristine fertility and enhance it. To succeed with live stock in the South it is essential that we should grow forage crops both for summer and winter feeding. However good the pastures may be in the spring and early summer there comes every year a time in late summer when the heat of the sun and a dry spell burns up the grass and stock suffer for want of feed. A field of sorghum, or cow peas and sorghum, or of fodder corn is then a god send to the farmer who has it. Instead of losing weight and shrinking in milk they will go on improving or at least maintain their position, and the pastures will be given an opportunity to recuperate and become capable of carrying a full head of stock up to the close of the grazing season. For winter feeding these crops when properly harvested and saved provide a variety of feed which is in itself almost as important in the well doing of the animal as a sufficiency. They enable a ration to be so balanced as to be an improving one without recourse to the corn crib, the miller, and the cotton seed mills or only require small help from these adjuncts. In our last issue we considered the value of the different forage crops as feeds and to this we refer our readers. We now want to say a word as to the relative value of these crops when harvested and saved in different ways. This point is well illustrated by experiments made at the Tennessee Experiment Station. Professor Soule writing on these in the *Breeders Gazette* says:

"Part of the sorghum grown on a piece of land was made into silage and part of it shocked and utilized as fodder the same method being pursued with corn for silage and stover. The cost of harvesting a silage crop from sorghum was \$12.83 and shocking the sorghum \$9.12. The cost of fertilization plowing and seeding would of course be the same. The total cost of putting up 19.8 tons of sorghum silage per acre was \$22.65 or \$1.15 per ton. The total cost of shocking 7.10 tons of sorghum fodder per acre was \$18.94 or \$2.64 per ton. The sorghum silage was ready for immediate use as food while the shocked sorghum

had still to be cut up in order to get it into the best condition for feeding.

"On the basis of the experiments made at the station with beef cattle 19.8 tons of silage when fed with four pounds of meal per head per day would have been sufficient to maintain seven beef cattle 150 days. The experimental cattle gained 222 pounds per head in the time indicated, making 1,554 pounds of gain. The sorghum fodder when fed with the same grain ration would have been sufficient to feed 5 1-2 animals for 150 days. The cattle on sorghum fodder and a grain ration made 173 pounds of gain, so that 5 1-2 animals would make 951 pounds of gain, in 150 days, a difference of 593 pounds in favor of the sorghum silage.

"Corn silage cost a good deal more than sorghum silage and the writer is inclined to believe that there is little to choose between the feeding value of the two for either beef or dairy cattle. Corn does not yield so well for either silage or fodder purposes as sorghum. It cost \$6.17 to harvest the corn and put it in the silo, the total cost per acre being \$17.11. It cost \$1.73 to harvest the stover with a total cost of \$4.38 per acre. The corn when cut in the silo yielded 8.3 tons of silage; when the ears were stripped off and the stalks cured as stover, 1.5 tons. The cost of a ton of corn silage was \$2.06 and a ton of corn stover \$2.92. Supposing the silage from corn and sorghum to be equal in feeding value, 8.3 tons of corn silage would be sufficient to feed three steers for 150 days. If the steers gained 222 pounds of beef in that time, corn silage would make 666 pounds of beef per acre when fed with a suitable meal ration. Of stover 1.5 tons would do but little more than supply the roughness necessary for one steer when gaining 145 pounds with suitable meal adjuncts. The difference in favor of the silage would thus be about 521 pounds per acre or nearly the same difference as is shown from making the sorghum into silage and into fodder.

"These facts should lead the farmer carefully to consider the relative feeding value of these two food stuffs in a dry and succulent form, particularly for beef production. Corn stover has been made on the farm from three different varieties of corn. Cocks' Prolific and Hickory King have produced stover at the least cost per ton, \$2.92. The average yield obtained has been 1.81 tons. From 1.5 to two tons will be the yield generally obtained from corn stover and the cost on the average will be close to \$3 to \$3.50 per ton.

"Two varieties of sorghum have been made into

dry feed, False Red Head and the genuine Red Head. The principal difference in the cost was due to the great variation in yield. One can probably expect to obtain about five tons of sorghum fodder per acre and the average cost will vary from \$3.50 to \$4.

"These facts seem to warrant the statement that silage can be produced at a reasonable cost from either sorghum or corn; that it is a hard matter to obtain a large enough per cent. of peas to influence the composition of the silage to any material extent; that a combination of corn and sorghum can be effected which will increase the yield of the total crop and probably make a more desirable form of silage than where one crop is used alone. It also seems clear that silage is peculiarly valuable in the South because of the large yields that can be obtained. These results would indicate that it is more desirable to put the crop in the silo than attempt to cure it in the form of dry fodder because of the greater palatability of the silage. It also seems that a crop made into silage has a much greater carrying capacity per acre than when made into dry feed and there is little to choose between the two methods so far as cost is concerned. Owing to a warm climate and a heavy annual precipitation the loss of feeding nutrients through long curing periods in the field is undoubtedly greater than in some other sections. These investigations demonstrate the importance of utilizing silage on a more extensive scale for the feeding of farm animals in the future than has been done in the past."

The results go to show the great value of sorghum as a feed crop and the importance of providing a silo for the saving of forage crops. In our next issue we will have more to say on the silo question. In connection with this question of growing forage crops we are often asked what area should be planted to provide feed for a given number of cattle. An experiment made recently at the Pennsylvania Experiment Station affords information on this subject. There nine different kinds of forage crops were grown for comparison of yield and their effect on the yield of milk and butter. These crops were clover and timothy, flat peas, Canada field peas and oats grown together, rape, soy beans, sorghum, sorghum and cow peas sown together, cow peas and field corn. These crops furnished a succession of green forage from June 15 to September 23. The yield of the clover and timothy was 6,872 pounds per acre of green feed, of the flat peas 15,588 pounds per acre of green feed, of the peas and oats 18,190 pounds per

acre of green feed, of the rape 24,960 pounds per acre of green feed, of the soy beans 9,934 pounds per acre of green feed, of the sorghum 27,279 pounds per acre of green feed, of the sorghum and cow peas 29,563 pounds per acre of green feed, and of the cow peas 18,095 pounds per acre of green feed. The crops were cut and fed in succession to a selected number of cows, each being given daily what she would eat up clean and about 9 pounds daily in addition if a mixed grain ration. At the rate at which the cows ate the forage and the yield per acre of the different crops the following table shows the number of days which one acre of each would feed 10 cows:

	Days.
Clover and timothy	16
Flat peas	36
Peas and oats.....	27
Rape	37
Soja beans	17
Sorghum	35
Sorghum and cow peas	34
Cow peas	21
Field Corn	16

ALFALFA IN THE SOUTH.

In order to stimulate interest in the growing of alfalfa in the South it is our intention to devote a considerable part of the space in our July issue to this crop. August and September are the best months in the year for seeding the crop in this section and we desire that our readers shall be put into possession of the fullest information on the subject before that time. We would ask all who have had any experience in growing alfalfa to give us the benefit of their knowledge on the subject by writing us short articles for publication in that issue. We believe that alfalfa promises as much, or more, for the South as it has done for the West and this means millions for our farmers. We desire to hasten the time when this shall be realized by giving all the help in our power on the subject.

COW PEAS AND SOY BEANS SOWN IN CORN.

Editor Southern Planter:

I have grown cow peas with great success for a number of years in a State further South and I learn that this crop is grown successfully in States further North than Virginia. It seems, therefore, reasonable to think more farmers could grow this crop

profitably in Virginia, but in Southwest Virginia especially the cow pea is seldom seen growing.

We do not know the best way to grow this important soil improving crop here. We do not know the best varieties for our soils, nor do we know the crop will grow well on our lime stone soil without the soil being inoculated with cow pea bacteria, nor do we know whether we can grow a good crop of peas on the soil without losing a crop from the soil. The results of an experiment made last year may be worth something to farmers now since much corn will have been cultivated the last time before another issue of the *PLANTER* comes out.

On July 11th last year I sowed Whippoorwill cow peas and soy beans in my corn just ahead of the cultivators. The ground was in fine condition and the cultivators put the seed in nicely. Good seed were obtained of T. W. Wood & Sons for experimental purposes.

The date mentioned was very late to sow the seed and I had serious doubt about the success of the crops. On the following 12th of October the land was again plowed and seeded to wheat. My peas made a growth of 12 to 18 inches high, which I thought good for the cool, dry season. The soy beans did no good whatever. They started off very poorly. The weather seemed entirely too cool for them. The root tubercles were very few, only one or two on each vine of the peas. Perhaps there would have been more if seed had been sown earlier. No peas had ever been grown on the land before.

Now (May 18th) the wheat that is growing where the peas were, is rank, and has a rich black color, showing the presence of nitrogen.

I believe the crop was profitable, sown even that late, hence I am thinking of sowing more this year in June just before my corn is cultivated the last time. I have heard of instances where parties grew peas with corn each year, and each successive crop of corn was larger than the preceding one. That was profitable farming since larger crops of corn showed increased fertility of the soil. No bill for expensive fertilizer had to be paid. If we can grow peas on our corn land successfully to enrich the soil for the following crop of wheat and save that heavy cost of commercial fertilizers for wheat, it would mean a great saving to Virginia farmers. This "fertilizer business" is getting to be a costly one. Let us see if we can make more of our fertilizers on the farm, first by growing the legumes, such as clovers, beans and peas, and second by saving all manures on the farm. Sow more grass seed and keep more stock. I

have some experiments under way now with grasses the results of which I want to publish in the *PLANTER*.

R. H. PRICE.

Montgomery Co., Va.

We are of opinion that both cow peas and soy beans can be successfully grown in Southwest Virginia, except possibly on the highest elevations of the mountains. They can certainly be grown in the valleys. Both these plants are semi tropical products and elevation has as much to do with their growing in sections out of their original habitat as latitude. Experience has shown that they can both become acclimated to northern latitudes and high elevations. They can neither of them, however, be grown successfully until the soil is inoculated with the proper bacteria peculiar to each. That these bacteria can be successfully inoculated into the soil of Southwest Virginia we have no doubt. A limestone soil is peculiarly fitted for the propagation of the bacteria. Writing on this subject in a recent Bulletin Prof. Cyril Hopkins, of the Illinois Station, who is doing a great work in introducing the leguminous crops into Illinois, says: "Plants cannot use the free nitrogen of the air as plant food, neither can they use the organic compounds of nitrogen which occur in the soil. There are at least three different kinds of bacteria and also three different steps or stages involved in the process of nitrification, the nitrogen being changed from the organic compounds first into the ammonia form second into the nitrite form and third into the nitrate form. During the process the nitrogen is separated from the carbon and other elements composing the insoluble organic matter and is united or combined with oxygen and some alkaline element (as calcium) to form the soluble nitrate, such as calcium nitrate which is one of the most suitable compounds of nitrogen for plant food. Calcium is the alkaline element contained in lime or limestone. * * * If no alkaline element is present in available form then no nitrates can be made in the soil. One of the reasons for applying ground limestone to soils which are deficient in lime is to furnish the element calcium in suitable form for the formation of nitrates in the process of nitrification." In Illinois as in Southwest Virginia neither cow peas nor soy beans have been generally grown, but Prof. Hopkins has demonstrated that they can be successfully grown there when the soil has been inoculated with the proper bacteria. He says that cow peas will themselves introduce the bacteria for plant as the seed usually carries the infection. The first crop will not have many tubercles on the roots nor be a very heavy crop but succeeding

crops will carry a full crop of tubercles and be luxuriant in proper seasons. For soy beans he advises inoculation of the soil with the soy bean bacteria as the seed carries little if any of the infection. In experiments made with soy beans at Urbana, Ill., no tubercles were found on the roots of the crops for two years and only very few in the third year when the soil had not been inoculated. After the soil had been inoculated with infected soil tubercles were at once formed and the crop became a success. From these and other similar experiments it is concluded that as a rule soy beans should be inoculated when they are first seeded and then they should be grown a second year upon the same land. If soy beans are afterwards grown on this land once in every three or four years the soil will doubtless remain well infected with the soy bean bacteria. We commend this advice to our Southwestern friends. They can have both cow peas and soy beans and they are both too valuable crops to be dispensed with as improvers of the land and economisers of purchased fertilizers to do without.—Ed.

LIME AS AN IMPROVER OF LAND.

Editor Southern Planter:

I notice in the May number of your valuable paper the remarks on my article on lime as an improver of soils. I feel it my duty to you and the many readers of your much esteemed paper to reply to some of the comments made.

My article was not prepared alone from my individual experience but largely from observations covering a wide field and taking in almost all prevailing conditions. I was born and raised in the western part of Maryland. In the Cumberland Valley when a boy back in 1866 and 1867 I frequently went to Washington city. In doing so I passed through Montgomery county, which runs up to the District of Columbia. This county lies east of the Blue Ridge and its lands are of about the same nature as those of Appomattox, Charlotte and Buckingham counties, in Virginia. At the time above mentioned the same conditions prevailed there as now in the last named counties. There were galls and gullies. The rotation of crops was corn, tobacco and pines the prevailing crop of grass was broom sedge. A few years after the war Pennsylvania farmers began to purchase this land at from five to fifteen dollars per acre. In the course of a few years they had bought up the larger part of the county. They adopted a system of liming. They had to have their lime shipped from 40 to

70 miles. So extensive was the shipment of lime that the B. & O. R. R. was compelled to construct boiler iron box cars. They first, as you suggest, tried to ship unslaked lime in bulk in wooden cars. After having a number of them destroyed by fire from the lime slaking they adopted the boiler iron cars. I don't know whether there is a railroad in the State of Virginia that would undertake to ship unslaked lime in bulk and to have it barreled would be too expensive. But to my subject. Montgomery county, Md., to-day and for 25 years has been one of the most productive counties in the State of Maryland. When you travel through it now it rivals the best glue grass regions of Kentucky. Blue grass has taken the place of broom-sedge. Clover and timothy has replaced the scrub pines, fine bank barns stand where the old log stable used to stand. Instead of starvation staring you in the face plenty and prosperity is seen on every hand.

The conditions under which this country was transformed from a poverty stricken waste to a prosperous and productive country were not such as prevail in the South to-day. Those people never heard of acid phosphate and never saw cow peas. They used nothing but lime and barnyard manure. They depended upon the lime to draw the potash from the sand in the soil and the phosphorus from the oxide of iron of which all of our land has an abundance.

Shifting the scene to different conditions of soil. There is a large tract of country lying between Baltimore, Md., and Wilmington, Del., that 40 years ago was entirely worthless. It was a low, wet, swampy country just such land as is to be found around Newport News, and much of the coast region of Virginia. By the use of lime and proper drainage this land to-day is producing from one and a half to two tons of the best timothy hay to the acre that goes on the Baltimore market. This, sir, is not theory. With fifteen years of such experience and observation as but few men have had in a canvas from house to house for ten years on every farm on which grain or grass was grown over all the Middle States, from Georgia to Western New York, that one could possibly reach, I think I have a fair idea of what results must follow the judicious treatment of any soil that has come under my observation in Eastern Virginia.

I have seen soils treated with from ten to two hundred bushels of lime per acre, but I have failed to see a piece of land over-limed yet. The idea of over liming only originates in men's imagination.

That lime is not a direct plant food I admit to a very great extent, but that it renders plant food avail-

able in the mineral substances that compose all soils and is nature's great plan for supplying food for vegetation is a fact based on natural law. You must admit that sandy soils are rich in potash and that lime will dissolve this sand and allow it to give up its potash as a plant food. It is no less a fact that red clay soils are rich in phosphorus. Lime will act so as to render the phosphorous available as a plant food. The moment these elements are rendered available instead of diminishing the humus in the soil they commence to store up in the soil for future use all that the plant does not require for its growth and development. The greatest destroyer of humus in our soils is sulphuric acid used in dissolving the South Carolina rock, the source of most of our acid phosphate. Manufacturers claim it is all neutralized but the claim is not a correct one. This acid has destroyed more humus in the soils of East Virginia than all other agents combined. Its greatest destruction takes place in soils poor in alkali. Those rich in alkali will neutralize this acid before it can do so much damage. The man who spends his money for acid phosphates to apply on lands that are poor in alkali adds fuel to the fire and is rendering himself and his land poorer every application he makes. The same is true of the man who turns under a crop of cow peas or any other vegetation in a green state.

Method in doing work is the direct result of thought on the same principal as method in hitting the mark results from shooting straight. The man who stands off and gives directions is not as likely to hit the mark as the fellow who holds the gun, neither is the man so competent to advise on the best method of applying lime to land who has never tried it himself as the man at the end of the shovel.

Bedford Co., Va.

OTHO HULL.

Whilst we rank ourselves as amongst the most enthusiastic advocates of the use of lime as an improver of the soil and have proved our faith by our works by having been persistent users of lime even to the extent of applying it at the rate of four or five tons to the acre once in each rotation of crops, yet we are unable to agree with our correspondent that overliming is practically impossible. Recent research and experiments have conclusively in our opinion proved that moderate applications of lime, say up to 50 bushels to the acre applied every three or four years, are more beneficial and perform all the work needed in the amelioration of the soil better than excessive applications. The beneficial action of lime is not exclusively confined to its power to make available the potash and phosphates in the soil. It

acts also as a restorer of alkalinity in the soil and in this way permits of the multiplication of the soil microbes on the action of which largely depends the fertility of land. These cannot exist or multiply in an acid soil. It also acts mechanically and physically rendering a heavy soil lighter and a light soil more cohesive. Whilst we believe that lime is more needed on nearly all the land of the South than even acid phosphate or any other fertilizer as all the analyses of soils made go to show a large accumulation of both phosphoric acid and potash in nearly all soils greatly in excess of crop requirements for years to come if made available, yet we cannot join in our correspondent's condemnation of the use of acid phosphate because of the fact that sulphuric acid is used in the making of it. We believe that little if any injury results from the acid. When the acid is poured on the ground rock and mixed with it the phosphoric acid in the rock is set free and the lime the other element in the rock unites with the acid and becomes sulphate of lime exactly the same substance which is sold as land plaster and is applied in large quantities and with excellent effect on some lands. Rock or shell lime is chemically carbonate of lime. Plaster is sulphate of lime, and they both are valuable as sweeteners of the soil and as solvents of inert plant food. If in the acid phosphate applied to land there is any free acid, that is to say if the fertilizer manufacturer has wasted sulphuric acid by applying to the rock more acid than the lime will appropriate in its conversion into sulphate of lime this free acid has such an affinity for combination that as soon as it gets into the soil it unites with some mineral base therein and becomes fixed and does not burn up the humus or vegetable matter in the soil. Hence the use of acid phosphate is never attended with danger to the crop though it may in some cases amount to a waste of material and lime might much more profitably be applied to set free the abundance of phosphoric acid existing in the soil. We are also not able to agree with our correspondent's views as to the relative richness of potash in sandy and clay soils. Analysis goes to show that clay soils are as a rule much richer in potash than sandy soils and especially is this true of the clay soils of the Piedmont sections of the Southern States. Clay soils are a product of the decomposition of silicates and contain alkalis and alumina. Lime combines with the silicic acid and sets free the potash. This action, of course, takes place in all soils whether sandy or clay and the relative benefit from its use depends to a considerable extent upon the natural potash and

phosphate content of the soil, though not solely confined to this action as above pointed out. If we can only induce Southern farmers to use lime freely and to grow humus making crops there is no doubt but that our lands will improve as fast as those of Maryland and Delaware did under similar treatment. We note that one of the largest and most successful corn growers in Pennsylvania, Mr. Long, of Lebanon county, is one of the most extensive lime users in the State, although his farm is on a limestone formation. Every acre of his 500-acre farm has had at least 1000 bushels slaked lime applied to it during the past 20 years. Lime is applied to grass lands with a manure spreader, any time after wheat harvest up to April 1. All the lime used is burned on the farm. The limestone is picked up from the fields.—ED.

SOME RANDOM NOTES ON MAY NUMBER.

Editor Southern Planter:

One of your subscribers, referring to my letter in your May number, says that he likes the way I write. I am always glad to know that people approve of what I contribute, and hope that any suggestions I may make will be of value to many.

SORGHUM AS A FORAGE CROP.

One of the greatest values of sorghum as a forage crop comes from the ease with which it may be kept all winter. It is especially valuable to those who are short of house room, for while it never really cures in the same way that Indian corn does, it can be shocked up in an upright shape out of doors, and will keep in a succulent state all winter through, and will be a very acceptable addition to the feed on account of its not curing, but keeping in a sweet and succulent state. Still to those who have a silo I cannot think that sorghum has a special value, since it is merely a carbonaceous feed, and we need more protein feeds to supplement the corn, which is the greatest of all carbonaceous feed materials in this country. And not only this, but we need the legumes rather than crops that are exhaustive in their nature.

COW PEAS AS A HAY CROP.

The Arkansas Station is evidently under local conditions that do not prevail to the same extent in lower altitudes in the same latitude, for they say that the Unknown or Wonderful pea failed to mature or even to bloom. Hence, while their conclusions may be all right as based on their conditions, they do not agree with my experience. They say that cow peas in a vigorous state of growth are hard

to cure. I have cut them at all stages and have never had any difficulty in curing them at any stage of growth. But it is true that the best time to cure them is when mature to the extent of the pods turning yellow. At that time some here succeed in curing them by shocking as fast as cut and letting them cure in the shock perfectly. I prefer my own method as making less damaged hay or at least hay of a better color. They say that late, shallow culture prolongs the season of growth. True, but if the crop is for hay, it should never be cultivated, but be sown broadcast. I have tried the row and cultivating plan and got a heavy growth, but the vines tumbled across the rows flat on the ground, and the mower failed to get them so that we had to go through with hand scythes and cut them loose from the rows. Therefore, if for hay, I would never put them in rows. Here, if the crop is left till one-third of the pods are perfectly ripe there will be a great loss of leaves, for they begin to drop as soon as the pods ripen. The very late varieties are harder to cure than the earlier ones, since the weather late in the season is apt not to be so favorable and the hay must be left out longer. They say that varieties producing the heaviest crop of peas are most easily cured into hay, while those producing a few peas or none at all, were the most difficult to cure, since they habitually continue in vigorous growth until checked by frost. This may be true under the conditions up at Fayetteville. But the earlier ones which make a heavy crop in proportion to growth make a smaller yield of hay than those like the Unknown (Wonderful), which, where they mature, will make a very heavy crop of peas and a far heavier crop of hay than the earlier sorts that make less vine. Cow peas must be of such sorts as are adapted to the climatic conditions where they are grown. Where the summer is long enough there is no variety that will surpass the Unknown (Wonderful) in yield, and where it fails to mature or even to bloom, as it did at Fayetteville, it should not be used.

SAWDUST.

Is it not odd how often that query about sawdust as a manure comes up? I should suppose that a little thought on the part of any one in regard to the nature of sawdust would settle the matter, but week after week the same query comes from people who have a big pile of sawdust handy. I have found it a poor thing when used as an absorbent for manure, and have compared it with manure in which other absorbents were used, and I would hardly haul sawdust manure as a gift.

SALT, SULPHUR AND LIME MIXTURE.

The best thing in connection with this is the discovery that it is just as effective if the sulphur and lime are slaked together, 40 pounds of lime and 20 pounds of sulphur, with 16 pounds of salt added after slaking, and then diluted with 60 gallons of water and used at once as though boiled, as most of the Entomologists insist is needed. There is no longer any need for the troublesome and tedious boiling, for the lime will make all the heat needed in its slaking.

GINSENG.

Doubtless there is money in ginseng to those who are engaged in selling plants and seed to those who expect to make money in the maturing of the roots, but whether there will be money in it to those I think is doubtful. Certainly not in the warmer parts of the South away from the mountain country where it grows naturally.

TOBACCO FERTILIZER.

Your Dinwiddie county correspondent says that he used a fertilizer containing 2 per cent. nitrogen, 9 per cent. phosphoric acid and 2 per cent. potash. Being a manufactured article, there is no knowing what the source of the potash was, and in my opinion from considerable experience in fertilizing tobacco, he had too much phosphoric acid and far too little potash in the mixture. One reason why some fail in growing tobacco after a legume crop is that they overlook the fact that the legumes have left a large amount of organic nitrogen in the soil, and apply the usual amount in the fertilizer and get a coarse tobacco. I would never use more than 6 per cent. of phosphoric acid nor less than 10 per cent. of potash from high grade sulphate for tobacco. If after a legume crop 2 per cent. of nitrogen will be enough, but if not, then nitrogen in the form of dried blood and nitrate of soda should be added.

NAVY BEANS.

You are right in saying that the crop can be *grown* in the South, but they will never be as profitable here as in the North, because of the large percentage of damaged beans from the great humidity in our atmosphere in our July and August weather. The little bush Limas can, however, be made a profitable crop here I believe.

VELVET BEANS.

Down in the southeast corner of this State they claim that the great mass of the velvet bean is easier saved and easier cured than cow peas. It is hard for me to realize this, however. But they are planted so wide apart that there are fewer attachments to the

soil and the mass is more easily loosened and rolled into windrows. But from here northward there is little value in the velvet bean.

HOLSTEINS AND JERSEYS.

Though it has been years since I was actively engaged in dairy work my experience is similar to what Mr. St. Pierre suggests. I had both breeds, and I found that I could get better results from the same amount of food fed to Jerseys than I could from Holsteins. Just now there is a disposition to boom the Holstein as a dual purpose animal just as though mere size was all that is needed to make a beef animal. If the Holstein is bred, as she should be, to a perfect dairy type she cannot be at the same time a good beef animal, and no breed on earth can be at the same time the best for dairy and the best for beef. The Holstein breeders had better be satisfied with making a fine dairy producer and let the beef men breed the beef animals. There are doubtless dual purpose animals, but they are not first class in either purpose, only part dairy and part beef, and they suit only those who are neither dairy men nor beef men, but are satisfied with an "'arf and 'arf" cow.

W. F. MASSEY,

Editor of Practical Farmer.

FARMING AS A BUSINESS.

Editor Southern Planter:

In answer to "Virginian," permit me to say that I am following exactly the course advocated in my article on "Farming as a Business." I am doing this not on sand, but on lands with a good clay foundation.

I have also tried harvesting the pea crop as suggested by "Virginian." I had 35 acres of cow peas last year that would have yielded about 3 tons of hay per acre. Tried to mow the mass of tangled vines, standing nearly four feet high, and so thick that I could hardly walk through. The wheels and blades of the mower sank so deep into the soil, made mellow by the luxurious vegetation, that the machine would not work. Tried every way known to me, hired even men with blades, and had to give it up.

"Virginian" is correct in saying that peas do not require lime, yet if untreated rock lime is to be used on the land, I prefer to spread part in the spring for the winter crop. If "Virginian" should ever use acid phosphate or potash on any crop he would destroy every bit of vegetation. He probably means use "phosphorus and potassium," which are very different articles. For information as to their use, I refer to my previous article. As to cost of lime, I

beg to refer "Virginian" to an article by Mr. Otho Hull in the April issue of the SOUTHERN PLANTER. As to keeping a lot of stock as a means of improving the farm, I beg to submit that I have tried this also, and the lesson has cost me a good many thousand dollars. I repeat, don't do it. Improve your farm, plant as many acres as you can to alfalfa and grass for hay and lay down your pasture to tame grass before attempting to keep more stock than absolutely necessary. Broom straw and Bermuda pastures in this State are late in coming and early in quitting. Don't go into the live stock business until your farm produces an abundance of feed for it. Don't put the cart before the horse.

It is of no use to try to improve a farm by poor crops of peas yielding perhaps a ton of dry matter to the acre. It is better to sow fewer acres to peas and fertilize these heavier. If you have a way of harvesting the pea hay, and if you find that the cost of harvesting, feeding and of hauling and spreading the manure is no greater than the profit, by all means do so. It is an easy matter to figure the cost. But bear in mind that pea hay is not easily cured, that it spoils readily, that if you have a fair crop it is extremely difficult to cut and to handle. It costs money also to haul and spread such quantities of manure. Theoretically, it is correct to feed the crop. In practice, I have found it cheaper to plow the peas under. Beware also of depending too much upon your pea hay to feed your stock, because of the difficulty of properly curing it.

The great inducement for men to buy run down lands in the South has been and still is the erroneous belief that they are getting something cheap. Had they considered that the value of land consists only in its productiveness and fertility many disappointments would have been avoided. Land yielding 50 bushels of corn or from 3 to 4 tons of hay in Virginia will yield higher profit than Western lands equally productive because of the higher market price of the products. If lands here can be made to yield such crops, and I know that it can be done, the quicker it is done the better. Time is money. If the work can be done in two years, it is poor business to waste a lifetime at it.

N.

Hanover Co., Va.

SOY BEANS.

Editor Southern Planter:

The soy bean is one of the richest, if not the richest, of all the beans in fat and flesh forming matter.

Not like cow peas, rich in protein and poor in fat, or corn rich in fat and poor in protein, but rich all around as we want it, especially for milch cows and growing stock.

Bulletin 58, page 14, Department of Agriculture, says: Soy beans contain almost 2 1-2 times as much digestible protein and over 5 times as much fat as common roller process wheat bran.

They contain three times as much crude protein and nearly 3 1-2 times as much fat as oats. Nearly 3 1-2 times as much protein and about 3 times as much fat as corn.

Soy beans resist drouth and water damage and are consequently, under ordinary circumstances, surer to succeed than most other crops.

The following table of comparative values will throw light on the subject:

Soy beans cut and cured for hay contain:

Protein, 15.4 per cent. (flesh and muscle forming matter); carbohydrates, 38.6 per cent. (fat and heat producing matter); fat, 1.5 per cent.

Threshed seeds contain:	Per cent.
Protein	34.09
Carbohydrates	28.08
Fat	16.09

Cow peas cut and cured for hay contain:	Per cent.
Protein	16.6
Carbohydrates	42.
Fat	1.5

Threshed seeds contain:	Per cent.
Protein	28.8
Carbohydrates	55.
Fat	1.7

Authorities differ as to the contents of soy beans and cow peas. One authority places the protein in cow peas at 20.2 per cent. The above may be considered a fair average. The yield of soy beans is another thing in their favor. At the North Carolina Experiment Station an acre produced 2 1-2 tons of well cured soy bean hay, while an acre of cow peas, under similar conditions, produced less than a ton.

The soy bean is a legume and draws its nitrogen principally from the air. Hence the large yield makes it one of the best crops to be turned down for improving the soil.

100 BUSHELS PER ACRE.

Mr. James Bellwood, of Virginia, reports that he grew on rich bottom land over 100 bushels of soy beans per acre.

SOY BEANS AS A BALANCE.

At the Kansas Experiment Station one part soy

beans and five parts Kaffir corn mixed made double the amount of pork over Kaffir corn alone.

One part soy beans to three parts of corn will largely increase the feeding value of the corn.

If soy bean hay be mixed with corn fodder, shredded corn stalks or timothy hay, half and half, a great saving will be effected over feeding the different foods separately. There appear to be at least three varieties of the soy bean—the Early Yellow, the Medium Green and Mammoth. The Medium Green is a good all round variety, but at the Kansas Experiment Station the Early Yellow gave the best satisfaction.

TIME AND METHOD OF PLANTING.

For hay soy beans may be planted in drills 2 1-2 to 3 feet apart as early in the season as the weather will admit of, say, about the 15th of May. Single seeds may be dropped in the drills from 1 to 3 inches apart.

Cut while in bloom or soon after the pods form.

A mixture of soy beans and Kaffir corn, 3 to 5 seeds of each per foot, makes an excellent hay. If planted early the hay harvest will come off about the 15th of August, when we are apt to have fine weather for curing.

For seed they may be planted in drills 3 feet apart from May 15th to July 10th. Single plants may be left in the drills 12 to 18 inches apart. The soy bean is a bushy, upright plant from 3 to 5 feet high and requires distance. Late beans, to mature a little before frost, are not apt to be molested by weevils.

The large percentage of fat in soy beans is apt to cause them to heat in bulk, thus destroying their vitality. Therefore they should remain in the hull until thoroughly cured.

Whether soy beans be grown for hay or seed, cultivation is desirable. If soy beans be used for human food, they should be soaked in water and the hulls removed; thus treated they make an excellent soup. In their natural state they appear to be too strong.

The ranker the growth, the more nitrogen will be drawn from the air. Therefore it pays to fertilize liberally.

FERTILIZER FOR SOY BEANS.

Mix 400 pounds of muriate of potash with 1,600 pounds of acid phosphate, and apply of the mixture in the drills, preferably a few weeks before seeding, 400 to 600 pounds per acre, mix with the soil and plant as aforesaid.

BRYON TYSON.

Moore Co., N. C.

In our experience soy beans should not be planted in this State later than 20th June to make a good seed crop. They are slow to mature. Planted up to July 10th they will make a hay crop.—ED.

ENQUIRERS' 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.

Rotation of Crops.

I read with great interest the enquiry from Dr. T. T. Arnold, of King George county, on "Rotation of Crops," and your reply thereto. As you made him many good suggestions, I will give you my rotation and wish you would treat me likewise.

First year, corn land in wheat, after wheat is threshed (usually by the 20th of June) sow in peas, cut peas for hay (after picking) and sow this stubble in red clover and red top after a thorough disc harrowing and rolling. Second year, mow red clover and plow after mowing and sow in peas. Cut peas and sow German clover. Third year, fallow German clover in and use 300 pounds per acre of 12-2 fertilizer for corn.

I have been trying this rotation for about eight years and my land is improving very fast, with but little cost. You will see I only cut the red clover once, as our land is a light loam, and if I were to leave the red clover until the second year it would be more broom straw than clover, and the peas will make me far more hay than the second cutting of clover. I am glad to say my farm is not a large one, therefore, for greater convenience I have it cut up into lots ranging from five to eight acres (except standing pasture). I have learned from experience that large fields are a disadvantage now that labor is so scarce and inferior. I plow a little deeper each time. I have not tried subsoiling, but will when I turn down my German clover for corn. I might add I put all my manure on the German clover and try to cover one of these lots every winter, hauling it right from the stables,

Richmond Co., Va. W. GRAY BROCKENBROUGH.

You have adopted a rotation which is bound to improve your land and result in good crops. The only suggestion we would make is that you give the land a dressing of lime, say 25 to 50 bushels to the acre once in the rotation. We would apply this after plowing the pea stubble and before seeding the German clover. We think you will find subsoiling to help you.—ED.

Curing Clover Hay.

In enclose you an article clipped from the Farm Journal, of Philadelphia, entitled, "The experience of a veteran with clover hay." I learned fifty-three years ago to cut clover when in bloom. Cut in the forenoon, stir thoroughly and be sure it has all wilted.

Do not allow any of it to go into the barn with any dampness, dew or rain.

Commence hauling right after dinner; three or four hours after cutting is long enough for it to wilt. Keep cutting day after day and be sure that no salt is allowed on hay of any kind. It does great damage to the hay; it turns it black and produces a disagreeable smell.

When it is put into the barn, as I tell you without salt, it comes out in the winter with green leaves and pink bloom, just the same color as it went into the barn. Butter made from cows that are fed on such hay will be yellow, same as butter from grass.

Cut your timothy hay when it is in bloom, put it in the same as clover. I have been doing this kind of haying all my life. Never lost a pound of hay and I cannot get, nor ever have gotten, more than five men to practice this mode, and they could not be hired to practice the old style—dry it a week. There are some men on the prairies who start their mower as soon as the dew is off, and in a few hours start their wagons to hauling to barns or stacks, and their hay is worth one-third more than that which has been dried to death. Any man who tries it once will never go back.

Cobden, Ill.

S. W. BECKWITH.

Having never tried this method of curing hay I would be glad to have your opinion and experience on the subject. Could such a method of curing hay be successfully practiced here in Midland Virginia? Would not the hay cured in this way become so heated and afterwards molded as to destroy its value as food for stock? Please answer through the columns of the SOUTHERN PLANTER in the June issue if you can, and oblige a subscriber.

CHAS. M. MOSS.

Louisa Co., Va.

We have given our views on the proper method of curing clover and grass in our article on "Work for the Month" in this issue. This is based on a 35 years experience in curing hundreds of tons of hay. The advice to cut when in bloom is good also the advice not to use salt and the advice not to haul when damp with rain or dew, but we cannot endorse the advice to haul into barn as soon as wilted. Something more than mere wilting is necessary. It must be sufficiently dried to reduce the watery sap natural in the plant to such a minimum as will prevent overheating in the mow after it is hauled. To put it in a mow only just wilted would be likely to make good silage but very poor hay.—ED.

Will you please give me some advice as to what to do with a field now in wheat. I expect to put it in grass in the fall. Shall I have to leave it bare during the summer?

W. H. RANDOLPH.

Montgomery Co., Va.

The field should not be left bare. Cut the stubble

up with the disc harrow as soon as the wheat is cut and sow in cow peas. This will make either a seed crop, a grazing crop for hogs, or the vines may be cut for hay in time to seed with grass in the fall.—ED.

Burmuda Grass.

Could you please tell me in next issue of PLANTER whether there is any material difference between the genuine Bermuda grass and what we in Eastern Virginia call Wire grass? W. V. N.

Westmoreland Co., Va.

Southern wire grass and Bermuda are the same. The grass known in the Middle and Northern States as wire grass or quack grass is not the same Bermuda. Some of this Northern wire grass is to be found here and there in some of the Eastern States. Genuine Bermuda is a semi-tropical grass and will not grow far north of this State. The winters kill it out.—ED.

Grass for Name.

Please find enclosed a sample of grass for name. Is it of any value, and if so, how many seed would be required per acre? P. H. BURTON.

King and Queen Co., Va.

The grass is Wild Rye. It has some value as a pasture grass but we are not aware that you can buy the seed anywhere.—ED.

Best Laying Hens—Peas and Sorghum—Cow Pea. Storing Turnips—Profitable Crops for Late Sowing—Beet Cutter.

1. Last fall I noticed the reports of some egg laying contests in Australia, in which Buff Orpingtons and White Wyandottes took a leading part. The Orpingtons particularly seemed to take the lead. Why are all these egg laying contests held in Australia? We like the Wyandottes but all white chickens are hard to raise. Are the Buff Orpingtons as good or better layers than the Wyandottes as raised in this country?

2. In sowing peas and sorghum together in rows for hay would you use a wheat drill, a corn planter, or what?

3. Will peas sown thus in rows do the land as much good as if sown broadcast?

4. What is the best variety of peas to sow with sorghum, for hay, when sown as late as June 15th to 30th?

5. I noticed in last month's PLANTER it is recommended that turnips, to be kept over winter, be piled on two sides of a fence and covered with fodder. Why will not piling in a long ridge do just as well?

6. What is the most profitable garden or farm crop

that can be planted as late as June or July, where no stock are kept, and the crop must be marketed?

7. Is there a machine made for cutting up beets, etc., for stock, and where may it be obtained?

“THREE S’.”

1. The egg laying contests in Australia are promoted by one of the leading newspapers in the colony and are an annual institution there. We have just received the report of the contest for 1903-'04. In our poultry columns you will find a summary of the results. The White Wyandottes come first, Black Orpingtons second. Buff Orpingtons are low down on the list but they do not appear to be a breed much kept there. We have some excellent reports of their work here.

2. We would sow the peas and sorghum with the wheat drill. If we were prepared to work the crop which is advisable for the best results, we would stop up sufficient spouts in the drill to sow the crop wide enough apart in the rows to permit cultivation.

3. Yes. They will make a sufficiently heavy growth to cover and shade all the land and thus promote nitrification whilst the stronger growth will result in more nitrogen nodules on the roots.

4. The Clay or Whippoorwill.

5. We do not know why the writer of the article advises storing on both sides of a fence except it be to keep the pie from settling too closely. We never stored turnips with the tops on as there advised. We have made hundreds of pies of turnips without the tops and in doing this work desired that they should pack as closely as possible.

6. This is a difficult question to answer. Possibly a cow pea crop grown for the seed under the conditions named that is with no stock to consume the waste. Cow peas always sell well. This year they are very scarce and dear. In suggesting this crop we take into account not only the value of the peas but the value of the vines and roots as improvers of the land. For a garden or truck crop probably a cucumber pickle crop would be as profitable as any, though possibly in a section where a late crop of Irish potatoes could be grown this would run it close, as second crop Irish potatoes always sell well for seed.

7. Yes. The implement dealers in this city whose ads. you will find in this issue sell the machine.—ED.

Applying Nitrate of Soda—Irish Potatoes.

I have about 85 acres in cotton, 40 in watermelons, 8 in cantaloupes and 2 in cucumbers. When planted I applied about 700 pounds of a mixture of

cotton seed meal, kainit and acid to the cotton. I put 600 pounds of Boids Animal Bone on watermelons and 800 of the same to cantaloupes and cucumbers. I am thinking of applying nitrate of soda to these crops mixed with cotton seed meal, 100 pounds of each to the acre. Will this be advisable, if so when? Is there any danger of injuring the land by using this amount of soda? I have a large crop of early Irish potatoes which will soon be ready to ship. Can you give me some ideas in regard to saving and shipping? When is best time to dig and what kind of barrels to use? At what price ought they to sell?

A SUBSCRIBER.

The party sending the above enquiry neither signs his name nor gives his address. We have repeatedly stated that we must decline to reply to queries where the name and address of the writer is not given and should have followed this course in this instance, but desired to use the case as an illustration of the necessity of the rule. In this case we are asked to advise as to the sale of early Irish potatoes when we do not know where they were grown. It is impossible for us to advise intelligently in such a case. The most we can say is ship them to a Northern market as soon as they are fit to dig. Ship in barrels. As to the nitrate of soda and cotton seed meal proposed to be used as a top dressing we would advise the use of the nitrate of soda alone. The cotton seed meal will be practically wasted. Nitrate of soda will not injure land and will greatly help the growth of the crops.—ED.

Celery Growing—Irish Potatoes.

1. When should celery seed be put in hot bed for fall planting?
2. What sort of land and fertilizer will make best results?
3. How many bushels of Irish potatoes does it take to plant an acre?
4. Please give me name of best variety for this section?

MRS. R. H. WILSON.

Charlotte Co., Va.

1. In this issue in the article "Work for the Month" in the garden department you will find advice as to sowing celery seed. The plants should not be raised in a hot bed but in the open air.

2. In our next issue we will say something as to the land and fertilizer required by this crop.

3. Eight to ten bushels.

4. Improved Peach Blow, Rural New Yorker No. 2, Burbank, Peerless.

Vinegar Making—Sowing Alfalfa.

1. Please give in your next issue a good method of

handling apple cider (crop 1903) so as to convert it into vinegar of good quality?

2. Is spring or fall the best time to sow alfalfa?
Culpeper Co., Va. A. Y. PARR.

1. Send to the Experiment Station, Blacksburg, Va., for their Bulletins on cider vinegar making. These will give you the fullest and best information.

2. In all except the mountain sections of the South the fall is the best time to seed alfalfa. In the mountains seed in spring.—ED.

Wolf Teeth in Horses.

Is there such a thing as wolf teeth in a colts mouth and ought they to be knocked out?

Lancaster Co., Va.

J. E. CONNELL.

Yes, sometimes but not frequently. Wolf teeth are small supernumerary teeth which make their appearance just anterior to the first molar. They cause no inconvenience or injury to the horse. If it is decided to remove them a small pair of forceps should be used. Knocking them off is cruel and does no good.—ED.

Worms in Turkeys.

Please tell me if you can in your next PLANTER some remedy for the long flat worm, presumably tape, in young turkeys? I lose some every year from this trouble. They commence to droop at the age of six weeks, have enormous appetites and death soon follows.

MRS. W. T. BROCKENBROUGH.

Lancaster Co., Va.

Mix some turpentine in their food. If they will not eat it then make it into pellets and cram it down their throats. A drop or two in each pellet is sufficient at one time. It is best fed to them on an empty stomach.—ED.

Lime—Alfalfa.

Please answer the following enquiries in your next issue:

1. Where can I get lime or land plaster? How much is it per ton? Can I get it by the bags or barrels? Can the lime be sowed with other fertilizers?

2. When is the best time for sowing alfalfa? How much per acre and what preparation?

S. E. BEALE.

1. Lime is advertised in our columns by a number of parties. Write them for quotations. The cheapest way to buy it is in bulk in carload lots. For agricultural purposes it ought always to be bought in this way. You should buy it at about \$3 per ton at most. We have information that it can be bought for this price delivered in Southside Virginia.

2. The fall for all sections of the South except in the mountains. We hope to deal fully with this question in our next issue.—ED.

Vinegar Making—Tanning a Hide.

Will you kindly let me know through your paper what is the best way to turn cider to vinegar? Also the best way to tan a hide and retain the hair on it?

Albemarle Co., Va.

C. I. H. C.

Send to the Virginia Experiment Station, Blacksburg, for their Bulletins on Cider Vinegar making. These will give you much fuller information on the subject than we can find space for.

The hide can be preserved so that the hair will not come off by sprinkling the inside with a mixture of two parts saltpeter and one part of alum. Pulverize finely and sprinkle all over the flesh side. Fold the skin flesh side to flesh side and roll up and let lie a day or two, then with a dull knife remove the meat and fat if any on the skin and hang to dry. When about half dry rub and work to make the skin supple and continue this at intervals until the skin is dry.—ED.

Abnormal Growth of Irish Potatoes.

I send by this same mail a potato set that is causing a good deal of amusement among our farmers. As you will see there are three well formed young potatoes attached but no sign of leaves or vines, nor has there ever been. This is not a single sporadic case, as one farmer in preparing to plant corn in apparently dead hills found as many as ten successive hills filled with these potatoes. We wish to ask an explanation for this. How can the young potatoes be so well developed with no leaves at all? Will they continue to grow, or as soon as the original piece is exhausted will they die? What a fine variety it would be if they will continue to grow. For once we would have the advantage of the bugs! I have replanted some to see how long they will grow and what sort of crop the anti-bug potato will prove.

Smyth Co., Va.

N. C. PRESTON.

We have seen a similar abnormal growth of Irish potatoes several times before but are unable to explain it. Evidently the young potatoes obtain their nourishment from the old set which instead of producing a vine and leaves is thus using up its substance. When this is finished the young potatoes must cease to grow any larger as they have neither roots nor leaves to convey nourishment to them. We are afraid there is no chance of perpetuating the variety and thus getting ahead of the bugs, as no plant can live long without leaves. They are the lungs of the plant.—ED.

Hogs in Orchard—Fertilizer for Beans—Dairy Cow.

1. I have a young orchard sowed in clover, trees two and five years old, and would like to turn my hogs in the same, but have no time to fence around each tree, could I wash the trees with something that the hogs wouldn't touch?

2. What's the cheapest and best fertilizer for beans (navy)?

3. Would you advise to raise a calf for milk cow from a young cow but two years old? The calf is nice and strong.

JNO. GIBERT.

Lunenburg Co., Va.

1. We know no wash that could be applied to the young trees that would prevent the hogs injuring them. The easiest and cheapest way to protect them is to buy a few yards of wire poultry netting and cut it into strips about four inches wide and put one these strips around each tree just doubling the wire ends into each other. The wire only cost about 4 cents per yard and a yard would make a protector for eight or nine trees which could be put on in a few minutes.

2. Use acid phosphate and muriate of potash, say 300 pounds of phosphate and 50 pounds of potash per acre.

3. Yes, if the mother and sire of the calf are of good dairy type and form.—ED.

Preparation for Corn Crop.

I have a field that is planted in corn this spring, very good land, and it is desirable to plant it again next season, in corn, which is contrary to our usual rotation here, and would be glad to know if it would be practicable to sow either cow peas or German clover, just before plowing the corn the last time, and let it make all the growth possible until late this fall or winter, and then plow it again for corn in the spring. Would this growth of peas or clover, turned down as vegetable matter, keep up the fertility of the soil to the extent that the corn crop would exhaust it? The corn would be cut up in September, and the peas or clover would have several fall months to grow before the cold weather would set in. I thought that this amount of vegetable growth would to a great extent at least, tend to keep up the fertility of the soil, and stand another corn crop. The land will produce fifty to sixty bushels corn without fertilizer, in a fair season. If you will answer through your paper will be under obligations. How much clover or peas to acre?

Augusta Co., Va.

JAMES R. KEMPER.

The growing of either cow peas or German clover will help the land to carry another crop of corn as either crop will supply humus to the land and add to the nitrogen content of the soil. Both crops, however, and cow peas especially, are large consumers of

the mineral fertilizers, phosphoric acid and potash, of which corn is also a large consumer and would not therefore recuperate to the land the mineral matter taken out by this year's corn crop, but probably your land is good enough to stand this draft if kept well filled with humus and well supplied with nitrogen. If you want to plow in the fall or winter for next corn crop we would not sow clover as the growth it would make would not be sufficient to warrant the cost or be of any practical use. If clover is sown the plowing should be deferred until late in spring, say April or May. Cow peas can be sown and be plowed down in the late fall or winter with great benefit and if 25 or 50 bushels of lime was applied after plowing down the peas this would make available sufficient of the phosphoric acid and potash in the soil to produce with the peas an average crop of corn the following year.

—ED.

Poultry House.

I am going to erect a poultry house with a coop for 1,000 hens and prefer one straight building with partitions and runs—have plenty of ground—please give me a plan keeping in mind plenty of room in runs and general convenience.

Anderson Co., Tenn.

GEO. MARGROVE.

You had better get the little book on Poultry Architecture by Fiske, price 50 cents, which we can supply. This gives a variety of plans to meet varied conditions. There is wide difference of opinion as to the best form of house to build. Our own views are wholly against one large house. We would always build a number of isolated houses to obviate loss from contagious diseases.—ED.

Salt.

Will you please inform me where I can get the genuine Liverpool salt? Years ago I got it in 240 pound sacks. It did not get so hard as the salt I get now and I like it much better.

J. M. SHANKEL.

Sullivan Co., Tenn.

Davenport & Co., of this city, used to import the Liverpool salt. We presume their successors in business, Saunders Sons Co., of this city, still do so and can supply it.—ED.

Obstructed Teat of Cow.

About two months ago my cow, then fresh, injured one of her teats with her foot while getting up. The teat was much bruised and lacerated, but not cut to interior. I used a milking tube while it was sore. It has now apparently healed, but is much strictured at the tip. It is impossible to milk it without first in-

serting the tube. When the tube is withdrawn a small stream can be forced out. Kindly tell me what to do for it and oblige.

J. M. HARRISON.

Alexandria Co., Va.

You will have to have it opened by the use of an instrument called the hidden bistouri which cuts the sides of the gland. The enlarged opening must then be kept open by a dilator until the wounds are healed.—ED.

Canning Snaps and Tomatoes.

Will some reader of the PLANTER please give me information in regard to canning snaps; also for canning tomatoes? I will appreciate very highly any reliable recipes given.

A SUBSCRIBER.

Pittsylvania Co., Va.

Destroying Horns by Caustic.

Please let me know at what age and how often you apply stick caustic to calves to prevent the horns from growing.

B. S. H.

Albemarle Co., Va.

The caustic should be applied as soon as the hard button from which the horn springs can be felt. This will be in a few weeks after birth. Clip the hair from the button and just around it and apply the caustic two or three times until the embryo horn is burnt out.

—ED.

Cow Peas for Hay.

We have about three acres in Irish potatoes upon which we put about 800 or 900 pounds of Baugh's 10 per cent. to the acre. I want to put the same piece of land in black peas. Do you think it best to mix anything with them, if so what and how much? Want to cut them for hay.

W. T. A.

Gloucester Co., Va.

We are strongly in favor of mixing sorghum with cow peas for hay. In our experience, and in this we are confirmed by a number of our friends, the mixture makes better feed as it is more nearly a balanced ration, makes a heavier yield and is easier to cure. Sow about half a peck of sorghum to the acre.—ED.

Crimson Clover.

When Crimson Clover is sown at the last working of corn should it be sown before or after the plowing?

Franklin Co., Va.

SUBSCRIBER.

The Crimson Clover should be sown and be worked in with a cultivator, but not with a plow, as that would bury it too deeply. A cultivator and not a plow should always be used to work corn, and thus keep the surface level.—ED.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

The work of gathering the berries and early fruits and cutting and picking the early vegetables and shipping the crops to market, or preserving and canning them at home, will make the month a busy one for the gardener and trucker. See to it that crates and baskets are on hand and that they are clean and of standard size and make. Have all arrangements made with commission men as to time of shipment and as to the requirements of the different markets shipped to in the way of sizes of packages and consignments, also have complete arrangements made with the express and transportation companies so that no delay may occur in delivery. Let all shipments be made under a guarantee as to quality and mark the crates and packages plainly with the grade of contents. Do not mix first and second rate products, ship each separately and then the full value may be expected to be realised.

The planting of successional crops of beans, peas, corn, melons, cantaloupes, cucumbers, squashes, peppers and tomatoes must have attention to keep up the supply as the early crops are shipped or consumed. Keep the cultivators running in the earlier planted crops and encourage growth with top dressings of nitrate of soda where crops are not making the progress desired. Look out for insect pests and attacks of fungoid diseases and act upon the advice given in the spray calendar published in our March issue for combatting these. A vigorous quick growth of crops will do much to protect them from damage. Usually the crops which have received a check in growth are those attacked by insects and fungoid diseases.

When setting out tomato plants plant a hill of corn here and there in the rows. The worms will attack these in preference to the tomatoes and the corn can be cut and fed to stock and thus save the tomatoes. A row of mustard sown here and there amongst cabbage plants will save the cabbages from the attacks of the terrapin bugs. The bugs will settle on the mustard and this should then be sprinkled with kerosene and be burnt. Look out for potato bugs on the Irish potatoes and egg plants. Give them a dose of Paris green, Bug Death or Slug Shot.

Cucumbers for pickles should be planted. They may be set out either in rows four feet apart or in

hills three feet apart each way. Prepare the land well and fertilize with a complete fertilizer having about 5 per cent. nitrogen, 7 per cent. phosphoric acid and 8 per cent. potash. The wholesale pickle factories are always open to buy this crop and if not grown sufficiently near to a factory for delivery as gathered the "cukes" can be preserved in brine in barrels as gathered and then be shipped to the factory as required.

Celery seed should be sown this month. Select a piece of moist ground for the seed bed and prepare it finely and make rich with well rotted farm yard manure. Rake fine and smooth and then sow the seed thinly over the bed, rake in lightly then tread or roll firm, sprinkle with water and cover the bed with old bagging to conserve the moisture. Celery seed germinates slowly and must be kept in moist ground. As soon as the seed begins to germinate raise the bagging on sticks and so gradually unveil the young plants to the air and sun. Shading the beds even until the plants are nearly large enough to transplant is a good practise as it insures better plants. The last half of June is soon enough to sow the seed. When the plants are large enough to handle they should be transplanted into a rich bed, being set out about three inches apart each way and be allowed to grow on slowly until time to set them out in the rows or beds in August or September. The large white variety is the best to grow here.

Salsify seed should be sown this month. It will make better roots sown now than earlier.

Cabbage seed for the fall crop may be sown towards the end of the month or early in July. The mistake usually made is sowing the seed too early and the plants get eaten up by the worms in the hot weather.

The onion crop should be harvested as soon as the plants have completed their growth and the tops are dying. Pull the bulbs and throw them into rows and leave to dry for a few hours. Then place them in an airy shed to dry off a few days. Let them be got ready for market and be shipped as soon as possible as they should be sold before the Northern crop comes on the market. Southern grown onions will not keep over the winter like the Northern ones.

As soon as the strawberry crop is gathered if the

bed has stood two years plow it up and prepare the land and seed with cow peas or crimson clover. Begin to prepare other land for setting out a new bed. Land that has grown Irish potatoes makes a good place for this bed. If the old bed is to stand another year mow off the leaves and sprinkle straw on them and burn them. This gets rid of weeds and insect pests.

THE FRUIT CROP.

We have very varied reports as to the prospects of the fruit crop throughout this and the adjoining States. In many sections of Middle and Eastern Virginia, North Carolina and Maryland practically all plums, pears, peaches and early apples are destroyed. This also is the case largely in the Piedmont and mountain sections in the valleys. On the mountains, and in much of the middle sections of these States on high lands, the promise for winter apples and late peaches is good, though we hear considerable complaint of dropping of the fruit, no doubt as a result of the injury done by the late frosts. We should esteem it a favor if growers would report to us the prospect in their sections for publication in our July issue.

TRUCKING.

Editor Southern Planter:

Don't make the mistake of starting into the business of truck raising before you are ready. By so doing, you simply invite defeat, and a disastrous and expensive failure is, in the very nature of things, bound to be the result.

There are three, at least, "essentials," the absence of either of which will pretty effectually militate against any possible profit from either market gardening, or truck farming; these are:

1. A sure and remunerative market for the products when raised;
2. A thorough knowledge of his soil and its adaptability to the vegetables to be grown thereon, and an equally intimate knowledge of the plants he intends to cultivate, together with their cultural and plant food requirements, and
3. Rich land.

It is a waste of time to attempt the utterly impossible feat of raising profitable crops of tender, succulent vegetables on any but the very richest of land.

No matter how fertile the land may seem to be, good truck crops can only be grown thereon by high-manuring. While, in ordinary grain or cotton, or tobacco farming, one can, by a judicious rotation and by the free use of leguminous crops, get along with-

out the purchase of nitrogenous fertilizers, the market gardener must be lavish with his fertilizers, both nitrogenous and potassic. Nitrogen forces early growth and gives large succulent leaves and stems. Potash gives solidity and crispness and increases the sugar and starchy parts of seeds. Phosphoric acid tends more especially to develop the seeds of plants, hence the chief ingredient in a good fertilizer for vegetables of which the leaves or stems are the edible portion, is nitrogen. For root vegetables, phosphoric acid and potash are fully as important as nitrogen. For vegetables of which the seed is the edible portion, like the garden pea, for instance, phosphoric acid is the leading element.

For vegetables, like the tomato, potato, egg plants, celery, melons, etc., potash is the most important.

Nitrate of soda is the best form of nitrogen and the sulphate is the best available form of potash, for garden vegetables of all kinds, cotton seed meal, as a source of nitrogen, and the muriate as a source of potash, being next; kainit is altogether out of place in the garden or truck farm. Potash salts are just the thing for truck farming. The cheaper muriate of potash gives equally as good results on cabbages and beets as the more expensive sulphate, but the latter appears to be superior to the muriate in increasing yield of tomatoes, spinach, lettuce and onions. For vegetables, the controlling elements are potash and nitrogen; and very few of the brands of mixed fertilizers have as high a percentage of potash as most truck crops require. It is known on all sides that potatoes are dear lovers of potash, but it does not appear to be so generally known that the cabbage crop is also a potash eater; turnips come next and cauliflower third, in their demand for potash; hence, if a heavy yield of either is desired, they must be planted on soil that already has plenty of potash in it; or, plenty of it must be applied. No soil is naturally so strong that many good crops of vegetables can be raised in succession thereon, except potash be added just as often and just as liberally as nitrogen. We have this much to say about potash for the reason that, to our certain knowledge, many market gardeners limit themselves exclusively to manure obtained from city stables, and stable manure, let it be ever so good, is not a properly balanced fertilizer for vegetables and cannot bring best results. A good general fertilizer for all garden vegetables would be

150 to 225 pounds acid phosphate,

250 to 375 pounds sulphate of potash,

150 to 225 pounds nitrate of soda.

Mix phosphate and potash and apply previous to

planting, apply nitrate beside, or around the plants, after crop is up.

If ground is well supplied with humus, above amounts may be doubled or trebled with manifest advantage. In all cases, we most decidedly prefer to apply broadcast; and, by thorough preparation, thoroughly incorporate the fertilizer with the soil. This done, when drouth sets in, wherever the application was heaviest, there the crop will be the greenest, let the crop be what it may.

As muriate of potash and cotton seed meal are preferred by some, we subjoin the following mixture:

700 pounds acid phosphate,
300 pounds nitrate of soda,
750 pounds cotton seed meal,
250 pounds muriate of potash.

Mix, for one ton. Apply from 1,000 to 2,000 pounds per acre.

For Irish potatoes, leave out 150 pounds nitrate of soda, and add 150 pounds more of the muriate.

Mississippi.

G. H. TURNER.

TRUCKING NOTES—EASTERN VIRGINIA—NEAR THE SEA.

Editor Southern Planter:

May continues cool, with the exception of one or two days. The berry crop, usually moving in full force at this date (May 10), is moving very slowly indeed. Last year thousands of 60-quart crates of berries were sent to market in April. This year only one lone crate was sent in April, and the May shipments have been small, very small indeed.

April, 1904, was a normal month, as regards temperature, the average thermometer for the month being 56 degrees, which is the regular average temperature for the month for the past 34 years. But the month was preceded by a winter considerably cooler than the average, which kept fruit and early vegetables back at least two weeks.

April was drier than usual. The average April rainfall for 34 years being 3.82 inches; but April, 1904, gave us only 1.13 inches. The month was, therefore, not a very satisfactory month for our farmers and truckers. But very little corn was planted in April and the potato crop which was planted in March came up slowly and irregularly. The liberal rainfall of last night starts everything growing more rapidly, and we may now safely calculate upon regular growing summer weather.

Radishes are about done for the season. The shipments were large and the radish good crisp and ten-

der. The crop paid very well. It shows the open character of our winters when, in the coolest winter for many years, we could plant or sow radish in the open air from last of February to middle of March without serious loss from frost.

Lettuce is now running heavily to Northern markets. The crop is good, but is not heading up quite so good as usual, on account of the cool winter. The seed was sown thickly in beds last September, and covered with a thin layer of marsh grass, so thin that every plant could be clearly seen through the grass, and from these beds the lettuce was transplanted in March in the open fields. We saw one patch where the trucker had set out 175,000 plants and we could not find a missing plant in the entire field.

To show the intensity of truck farming, we may state that on the 22nd of February, 1904, we visited the same section in company with a delegation of Western farmers, and found the truckers, at that date, cutting and shipping spinach, young spinach, sown the previous September, at the rate of 100 barrels to the acre, and worth, at that date \$5.50 per barrel in New York city.

Last Saturday—May 7th—we visited the same fields and found them all set to lettuce, from which the truckers were just beginning to ship.

The lettuce was set out in narrow beds, four rows to the bed, and on the edges of each bed was planted a row of snap beans.

The price of lettuce this spring ranges from \$1.25 to \$2.75 per basket, and each basket holds from 25 to 60 heads according to the size of the heads.

After the trucker ships his lettuce, he will cultivate his snap beans, which in early June will be marketed, and on the same land, if he so chooses, he can plant corn and grow 60 bushels of shelled corn to the acre, thus making four crops from the same land during one year, viz.: Spinach, lettuce, snap beans and corn.

This is trucking intensively; and when general farming is carried on here, equally intensively, as it may be and should be, we shall see the "garden spot" of America. We need a few thousand "genuine, all wool, and yard wide" stock farmers. We need stock, stable manure, silos, deeper plowing, more thorough tillage, better implements, higher aims, broader views, and a deeper insight into the science of agriculture.

Norfolk Co., Va.

A. JEFFERS.

When corresponding with advertisers, kindly mention the SOUTHERN PLANTER.

Live Stock and Dairy.

FIGHT THE CATTLE TICK AND ENFORCE THE QUARANTINE LAW, IF YOU WISH TO GET RID OF THE QUARANTINE LINE.

Editor Southern Planter:

During the last two years I, as State Veterinarian, have talked with quite a number of stock men who live south of the cattle quarantine line through this State, and I have been impressed with the fact that nine out of ten of these gentlemen seem very anxious to have the Board of Control move the quarantine line further south, each individual wanting it south of his county, or at least his private farm. When I suggest that they first get rid of the cause for this line (the cattle tick, *Boophilus Annulatus*), their reply is that the ticks have nothing to do with the trouble, because they have always had them on their cattle.

Now the fact that this particular cattle tick is the carrier of the disease known as Texas fever, among cattle, has been proven, beyond all doubt, by professional men after years of study, with practical experiments. A description of the particular tick, together with its life history has been published in a bulletin by this department, therefore, it would simply be a repetition of what has been written in the past, to explain in this article how the cattle tick produces the disease in question. I state as a fact, which leaves no room for argument, as arguing always delays work, and work is what we want in order to get rid of the quarantine in this State, that the fever is caused by this particular cattle tick and that the existence of the cattle tick in the southern portion of this county caused the quarantine law to be passed, and the line to be established where it is, in order to protect the northern portion of the State and all the States north of this State from this infection, which was causing all horns, and no beef, to be raised in the southern counties of Virginia. The cause must be removed before the condition can be relieved, (you would not expect to get the soreness out of your finger until you had removed the splinter which was causing the pain?) You are all willing to acknowledge that the quarantine line through Virginia is an "eye sore" to the counties south of said line? Then just remember that this inflamed streak is caused by the existence of the cattle tick in your county, and get to work to first remove the cause of this law, and line, remembering that the condition can then be easily improved. However, it will take work, and time, to accomplish this end. You can get rid of these ticks by, first,

stopping all cattle from running at large on the commons, have a "no-fence" law, second, put no cattle where ticky cattle were last year. Look for and destroy every tick that you can find this summer. Use the sulphur, sodium chloride, and potassium nitrate mixture, which Mr. Cobbs, of Somerset, Orange county, Virginia, advised in the *PLANTER* some time ago. In fact, do everything that you can to destroy the ticks, and enforce the quarantine law, and as a sequel of your work, the quarantine line will be removed further and further south, until you will all be out of the infected district. J. G. FERNEYHOUGH,

State Veterinarian.

Experiment Station, Blacksburg, Va.

The point farmers overlook in this question is that only one particular cattle tick causes Texas fever. Your cattle may be covered with ticks but if this particular tick is not amongst them you will have no fever. If it is you will sooner or later have the fever and every cow which has not been rendered immune either by natural means, that is to say by having had the fever recently in a mild form or by inoculation which gives the fever in a mild form, is liable to die from it. Any cow brought from a section north of the quarantine line or from any place within the quarantine district where this particular tick is not to be found, and there are many such places, will certainly take the fever if these ticks get on to her unless she be inoculated before the ticks reach her. The removal of the quarantine line south of Virginia is well within the bounds of possibility if only farmers themselves will help in the way we have pointed out in the *PLANTER*. Let each man get rid of the tick on his own place and see that a "no-fence" law is put into operation in his section.—ED.

RED POLLED CATTLE.

Editor Southern Planter:

It is difficult in the limited scope of a short article, to say all the things that can well be said, aye and repeated, about the dual purpose breed of cattle, Red Polls.

We take it for granted that all know the meaning of "dual purpose."

We have special purpose cattle, like the Jerseys or Guernseys, for production of butter. The Short Horn or the Angus for production of beef. The dual purpose combines both these qualities, and the Red

Polls are the leaders in that class. They will make profit in either the dairy or on the block.

We know a farm, called a "milk farm," the chief business of which is selling milk to the consumer. Red Polled cows are the ones used on this farm. The gentleman who owns and runs the farm told us that he was satisfied with the milk production from the cows, and his prime object is to get milk and a lot of it.

Another man who has been a successful farmer for sixty years, recently stated to us that in all his years of making butter, he had never made so much as he had in 1901, with the same sized herd. His cows are Red Polls, and during all these sixty years he has tried nearly all the recognized breeds.

Statistics and reports of slaughter tests show that the Red Polls make beef of the very finest quality. Also that these animals dress nearly if not quite two-thirds of their live weight.

We know from personal experience that it costs no more, and in fact not so much, to feed our Red Polls and keep them in proper condition, as it does to feed our Jerseys.

We also know that Red Polled calves can easily be made to weigh from 800 to 1,000 pounds at one year old. We shipped a registered Red Polled bull calf to a customer in Mississippi, not long ago. The calf was seven months old and weighed 525 pounds. He was kept growing. We never stuffed him or forced him. In fact four months of that time he was in pasture, and had not a spoonful of grain. Red Polled cows weigh from 1,000 to 1,400 pounds. Bulls from 1,500 to 2,200 pounds.

Here is another (a minor point). We never yet had to teach a Red Polled calf to drink. The first chance they get at a pail of milk, they stick their heads into it and "they're off."

These cattle are hornless, very docile and gentle. Extremely easy to handle. In color, a rich dark red, little white on tail tip. Udders and teats of good size.

The Red Polls have been derided, snubbed and held up to ridicule times without number. It has only served as a good advertisement for the breed. They are good enough to stand on their own merits. The demand for them is steadily increasing. They are gaining the confidence of the farmer. What is farming but a general purpose business? Why does a general purpose farmer desire a special purpose breed of cattle? Sometimes the price of butter is so low that it does not pay the farmer to make it. Then why not make beef? Sometimes the price of beef is so low that the farmer cannot realize a conservative profit. Then why not make butter? If he is well

stocked up with Red Polled cattle, he has the correct answer to both questions.

W. A. SARGENT.

Albany, Vt.

POLLED DURHAM CATTLE.



The above picture is from a photograph of three Polled Durham calves bred by Mr. Jno. S. Funk, of the Glen Farm, Singers Glen, Va. Mr. Funk has a fine herd of Polled Durhams headed by a Blood Red sire weighing 1,650 pounds, two years old past. Polled Durhams are a very desirable dual purpose breed, having all the good qualities, both milking and beef making, of the best Shorthorns. Being hornless they commend themselves to those parties who have a prejudice against horns.

REMEDY FOR NODULAR DISEASE OF SHEEP.

Editor Southern Planter:

On page 328 of the May issue D. J. Waller, of Spotsylvania county, Va., says his sheep have died this spring and he found on examination their intestines covered with small nodules, which you say is a disease commonly known as "knotty gut." Your diagnosis is correct, but your reply as to treatment has not been my experience. I am not going to take issue with you, but merely to give my experience for the benefit of Mr. Waller and others who may be so unfortunate as to get this disease in their flock. Three years ago my sheep got droopy and began to die and it did look as if the whole flock would die before I could get anything to stop the disease whatever it was. I was a subscriber to the American Sheep Breeder and having read about "knotty gut" being so fatal among sheep, I butchered a lamb and examined its intestines and found them covered with such nodules as Mr. Waller describes. I immediately ordered by express a can of Toxaline, the new remedy

I saw advertised in the Sheep Breeder. By the time it arrived I had lost thirty-two head and half a dozen were at death's door. I commenced immediately to give the Toxaline by directions and did not lose another one of the flock except one ewe that got strangled and died in less than a minute after drenching. Since then I keep the remedy on hand and whenever a sheep begins to droop or has a hacking cough I give it a dose of Toxaline and through the winter and spring I give my sheep Summers worm powders about once a month, which keeps the worms in check. Once a flock has become infected I doubt very much whether the disease can ever be eradicated, but by the use of these remedies I am satisfied it can be kept in check so as to do no appreciable harm to the flock. Sending the flock to the butcher would do no good if other sheep were bought and placed on the same pasture or barn.

A. J. SMITH.

Laurens Co., S. C.

We are glad to hear of this remedy for the "knotty gut" trouble. It is the first time we have heard of any remedy being effective and we have had a life time experience with sheep. The veterinarians are so far as we know all of opinion that remedies are of no avail. The worm is so encysted in the nodules that no medicine can reach it. However this may be, our correspondent's testimony is satisfactory as to the effectiveness of the remedy named in his flock.—ED.

REMARKABLE MILK RECORD OF JERSEY HEIFER.

Editor Southern Planter:

I hand you for publication a picture and sketch of



one of my herd of Jerseys which has quite an uncommon milk record. I ask you to publish this to show

to your readers that we have some good dairy cows in Virginia. I have been breeding Jerseys for a great many years. Commenced by buying a few cows and a bull, the best I could find, and have bred and retained in my herd the best.

"Lady Madelin," the heifer in question, is entitled to registration. Her dam Madelin Mapp, herd number 85299; her sire Tenor, herd number 59277. "Madelin Mapp" is a very heavy milker, not tested. Tenor was sold to the Virginia Polytechnic Institute to head their herd. Madelin Mapp's dam, Thorncliffe Pet, No. 69880, gave 16 pounds of butter in seven days. Tenor's dam, Rioters Prima Donna, No. 45692, gave 5 pounds of butter from four milkings. I never tested her for a week.

"Lady Madelin" represented in this picture, weighs 585 pounds, and gave in 30 days during the month of April 782 pounds of milk, and for the seven days just past (May), 196 pounds milk, and has a bull calf dropped March 4, 1904, by Coquette's John Bull, No. 63980. I have not tested her milk but the butter fat of the milk of my herd (an average sample) is 4 6-10. You will see she is quite a wonderful milk-er. She gave nearly 200 pounds more milk in a month than her own weight.

Prince Edward Co., Va. A. R. VENABLE, JR.

DO GRADE DORSET LAMBS BUTCHER WELL?

Editor Southern Planter:

The above query has been sent to me by a reader of the SOUTHERN PLANTER. It gives me pleasure to present a few facts that have come into my possession.

It is well known that Dorset ewes lamb in the fall and many Virginia sheep breeders who want lambs just as early as possible have seriously considered the advisability of using Dorset ewes in their breeding flocks. The purebreds are most too expensive yet for stock sheep, but as high grade ewes are found to lamb with great regularity in December, they have been buying Dorset rams and introducing Dorset blood. Many have had good success, but it seems that in one or two counties in the State that buyers of market lambs, who in some instances, to my certain knowledge, have been interested in other breeds, have advised certain farmers against the use of Dorset rams, by telling them that the grade Dorset lambs do not butcher well.

I have handled Southdown, Shropshire and Dorset lambs. As purebred sheep, I must admit that the

Southdown is the finest mutton sheep on earth and I notice in the carcass tests in our big fat stock shows in England and America the Southdown is more frequently at first place in spite of the fact that other breeds have double as many entries. In spite of this fact, however, the raisers of early lambs found it more profitable to use Shropshires or Hampshires than Southdowns. I would be willing to say that any of these three breeds would butcher better than the purebred Dorsets, as they have been bred for a longer time with this one thing in view. The Dorsets are rapidly pushing to the front among the mutton breeds. Twice in this country a Dorset has taken sweepstakes over all mutton breeds in large shows. This happened last at Omaha, when a Dorset ewe was named the best sheep in the show.

But leaving this to one side, I beg to say that some of the finest types of mutton lambs I have ever seen are the Dorset-Southdown and Dorset-Shropshire crosses. My own personal experience will enable me to answer the query directly. Some years ago, as a matter of interest, we were testing Dorset and Shropshire rams for producing market lambs, using the same type of ewes, highgrade Southdown and Shropshire. For three years the Dorset lambs were the winners on the scales. One year the Dorsets averaged five pounds more per head. A Shropshire man who saw them weighed remarked that he believed they would lose this advantage when butchered. I thought it would be well to investigate, so I marked the carload carefully and shipped them to a well known firm at Jersey, asking him to follow up the butchering of this fine carload and report. The load was an extra one, averaging over 80 pounds. I have the report on this load, which was bought and butchered by two of the best firms in New York city. The report states that no finer lambs had come to the market that season than the Dorset lambs of that load and that the best carcasses in the load were among the Dorsets. This seems much to the point.

References to the prize lists of the Great Fat Stock Show at Chicago for 1901 and 1902 will show that in the carcass contest for lambs in which all breeds were entered and with from thirty to forty entries, more than half of which were either purebred or grade Shropshires, grade Dorset lambs got into the money both years, winning second and third place. The grade Dorset lambs were either Dorset-Southdown, or Dorset-Shropshire crosses. Not more than three of these grade Dorsets were entered. For these to have taken second and third place among so many entries speaks volumes for the grade Dorsets, and I

beg my enquirer to notice that the test was on the block. Winners of first prizes were a Southdown and an Oxford purebred. I did not see the report of this show last December, but I would not be surprised to know that Dorset blood was to the front again.

Some might remark that it was the Down blood that made these lambs winners. I think that much could be said to show that it was more the combination. To say the least, the Dorset blood did not keep them from winning.

At two of our leading agricultural colleges Dorset ewes are kept to produce this Dorset-Down cross, which is becoming a prime favorite with the butchers.

Maxwelton, W. Va.

H. B. ARBUCKLE.

DORSET SHEEP.

Our correspondent Mr. H. B. Arbuckle, of Maxwelton, W. Va., writes us that he is about to sail for England as the representative of the Continental Dorset Club to purchase a flock of Dorset Sheep for importation into this country. He will sail on the 4th June and will be glad to hear from any parties who may desire sheep, either Dorsets or other pure breeds bought in England. This will afford a good opportunity for securing fine stock to head the flocks of our Southern breeders. Any stock bought will be personally selected by Mr. Arbuckle, who is an excellent judge of sheep, and will receive his attention and care until delivered to the owners here.

ADMINISTERING BENZINE OR GASOLINE TO SHEEP.

Editor Southern Planter:

Having been asked to give more detailed information about administering gasoline to sheep to rid them of stomach worms, I will for the benefit of those who may desire to try the remedy this summer offer the following suggestions:

1. Use gasoline instead of benzine. The two substances are almost identical, being the products of the fractional distillation of petroleum. Gasoline is the more volatile, seems to act more quickly, and is cheaper.

2. Instead of milk flaxseed tea can be used for making the dose. In either case use about six ounces.

3. Never give over one ounce of gasoline, which is about one large tablespoonful, to a grown sheep; half this amount to a sixty pound lamb. Shake well before giving the dose and *do not force the dose*. Give the sheep time.

4. Never stand the sheep up on the rump or throw it down on the side. You want the dose to go at once to the fourth stomach, where the worms are. Experiments conducted by the United States Agricultural Department show that when a sheep is standing almost the entire dose goes at once to the fourth stomach.

Push sheep back into a corner of the shed, stand straddle of the neck, with left hand hold the sheep by lower jaw with head just slightly elevated and with right hand bring drench bottle carefully into the mouth just after you have shaken it well. If you have a rubber tube in mouth of bottle, you can check flow of dose by pinching rubber tube, if sheep struggles. Don't take any chance on rushing dose into the lungs, as it will prove fatal.

5. Keep a bottle of aromatic spirits of ammonia near by, so that you can at once give the sheep two teaspoonsful, if it is much affected by gasoline. Sheep with pleurisy or heart trouble are often seriously affected. A hypodermic of strychnine would be a good remedy in case of heart failure.

6. Fast sheep fifteen hours before giving first dose. Turn out to grass two hours after gasoline is administered. Fast twelve hours before next dose. Turn to fresh pasture, where there is no water standing in low marshy places.

7. Do not give gasoline to sheep, unless you are sure it is necessary, as it is in no sense a tonic and does not of itself do sheep good. If your sheep are healthy, the lambs fat, and there is no hacking coughs, harsh fleeces, pale skins, do not think of giving gasoline.

8. Gasoline will not cure knotty guts, but may expel the worms that are not yet encysted. (More of this in a later paper.) Gasoline may not kill stomach worms, but there is abundant evidence that it expels them. Gasoline will not expel tapeworms and will not expel hook worms of the intestines.

9. The objections to gasoline are numerous. Chiefly, it must be administered, at least, three times, and it causes great distress to the sheep.

10. A one per cent. solution of coal tar creosote has given good results as a substitute, but there are objections to it. At present the subject is receiving attention from many quarters and the outlook is promising.

H. B. ARBUCKLE.

Maxwelton, W. Va.

When corresponding with advertisers, kindly mention the SOUTHERN PLANTER.

SOW EATING PIGS.

Editor Southern Planter:

I read with much interest "Subscriber's" communication from Dinwiddie county, and your reply relative to sow eating pigs, and thinking that my experience might be of interest to some of your readers and "Subscriber" particularly, I give it to you.

I bought a very fine Duroc Jersey sow last summer in Ohio. She was being prepared for the fall shows, and was very fat. I had her bred and shipped home, and she was fat enough for the show ring when she farrowed. She ate all the pigs except two, which we managed to get away from her before she got her mouth on them. As she was a very fine animal, I did not want to make pork of her, so I began to enquire of old breeders what they did in such cases. There was a consensus of opinion that only fat sows would eat their pigs, and that if fed very sparingly for a couple of weeks before farrowing time, there would be no trouble. I bred the sow, and two weeks before she was due to farrow I put her in a pen by herself and fed only one small feed of swill daily, and the day she was to farrow gave the swill hot. She farrowed 9 pigs in January and proved to be one of the best mothers I ever owned, raising the entire litter in spite of the awful weather conditions, and not a "runt" in the bunch. As the Duroc puts on fat fast, I found this spring all my sows in "show" condition at farrowing time, so I adopted the same plan with them all, and not a sow had a mishap or ate a pig. As you say, the sows at farrowing are in a fevered condition and a heavy or even regular feed only helps to heat and excite them. I feel quite sure if "Subscriber" will put his sow up for two weeks before farrowing time and the day she is due feed the swill hot, feeding only one small feed a day, that he need not make pork of her, and she will not eat the pigs.

WM. G. OWENS.

Chesterfield Co., Va.

Corn Stover for Cows.—Corn meal 280 pounds, wheat bran 392 pounds, fed in connection with 2,374 pounds of corn stover produced at the Wisconsin Experiment Station 1,120 pounds of milk, from which 57 pounds of butter were made.

One Ton of Cottonseed, according to tests made by the Mississippi Experiment Station, will produce about one-sixth more beef than a ton of corn, and a ton of cottonseed meal will produce about twice as much.

The Poultry Yard.

AUSTRALIAN EGG LAYING CONTEST.

Last year we published the results of an egg laying contest conducted in Australia. The contest has been repeated again in 1903-1904, and the results have just appeared. We take the following notes upon it from Commercial Poultry. In the contest this year there were several pens of American birds entered and two of them have come out high in the list of producers. The following 5 pens of 6 pullets each produced the highest number of eggs:

	Eggs.
R. E. Warren, Silver Wyandottes.....	1,308
W. Wild, Black Orpingtons.....	1,274
W. F. Evenden, Andalusians.....	1,242
C. A. W. West, White Leghorns.....	1,225
Mrs. A. H. Hansel (American) Rose C. B. Leghorns	1,203

These were the only pens which laid more than 1,200 eggs in the year, and it will be noticed that they were representatives of five different breeds.

Mr. R. E. Warren's winning Silver Wyandottes laid steadily and well from start to finish. At the end of the first six months they stood sixth, but gradually overhauling the leaders, they went to the top at the end of February, and finished with 34 eggs to spare. An important factor in their success is that they went right through without breaking into moult, but this must not be allowed to detract from their magnificent record of 218 eggs per hen. To show the value of breeding from proved layers, Mr. Warren states that they were bred from a pen of hens that averaged 214 eggs in a year. Like all the other successful Silver Wyandottes, they are smallish in size and have been moderate eaters throughout. An offer of £50 for the pen has been refused.

The American competitors have amply justified their acceptance of the committee's challenge to send better layers than those that had been tested here. Two of the three pens from the United States have exceeded by 90 and 48 eggs respectively the best record in the first competition, while the three have laid in the aggregate 53 more eggs than the three leading pens in the first test. The merit of their performance can only be adequately gauged by those who know in what bad condition the American hens entered the contest after the long voyage, and their achievement is enhanced by the fact that most of the hens moulted three times in the twelve months. Mrs. Hansel's Leghorns are among the classic band of 200 egg hens, and as profit givers made their great tally of eggs on half the average quantity of food con-

sumed by the whole of the pens. Mr. Hays' White Wyandottes have proved themselves ahead of any pens of the breed yet tested in Australia.

The conspicuous feature of the general success of the competition is that the production per hen increased from 130 to 163 eggs, as compared with the first test. No less than 15 pens eclipsed the record of 1,113 eggs with which the Grantham Poultry Farm won first place last year.

"The success of the competition, reports Mr. Thompson, "augurs well for future work in connection with the improvement of the egg production of the State. This work is making good and practical progress as a direct result of the object lessons which these public tests afford.

"Our egg yield showed an enormous increase over that of the first competition, from the following causes: A more favorable season, improvements in attention and feeding, and last, but not least, by the work of the competitors themselves in improving their laying stock and in the earlier breeding and maturity of their birds. Notwithstanding that the general average of eggs produced was so much larger than in the first competition, and the totals of the leaders this year are far away ahead of those of last, it is satisfactory to note that competitors, who have taken part in both tests with the same breed, have in most instances improved their production.

"The hens have been fed on the simplest diet possible throughout the competition. The morning meal consisted of bran and mash at 7 o'clock. The mash was scalded with liver soup two days a week, and on the other five days it was simply mixed with water, the quantity given being an average of about one Imperial pint per pen, the big eaters taking considerably over the pint, and the small eaters a little under. In the afternoon, between 4 and 5 o'clock, the hens were grain fed, one pint, more or less, according to appetite, of crushed maize and sometimes wheat. Cut up liver was given twice a week, at the rate of about two ounces per head. Shell grit was always before them, and clean water was given every morning. In the way of green food, rape was fed for three months during the winter, when the grass was withered. For the other nine months the only green food the hens got was the natural grass in the pens. The rape was fed whole in the leaf, at the rate of about a dozen leaves to a pen every second day.

"The grain used consisted almost exclusively of crushed maize throughout the year. This shows the fallacy of the theories of most authorities in England and Australia, who condemn maize feeding for laying

hens. Americans discovered simultaneously with ourselves that maize is a much-neglected poultry food. The demonstration of its value is alone worth thousands of pounds to a maize-producing State like New South Wales. Although we fed successfully on maize alone, we do not advocate feeding on that principle if wheat can be as cheaply obtained. But as soon as wheat is higher in price we have no hesitation in using maize exclusively. At equal prices we prefer its use alternately with wheat; but we prefer good crushed maize to inferior wheat at all times. By inferior wheat we mean any but the best milling grain."

"The monthly laying was: April, 1,284 eggs; May, 3,124; June, 4,821; July, 6,636; August, 8,577; September, 8,476; October, 7,834; November, 6,608; December, 6,249; January, 5,804; February, 5,103; March, 4,056. Grand total, 68,572 eggs, or 5,714 dozen from 420 hens.

"The market value of the eggs was £373 15s 2d (\$1,869), from which deduct cost of feed, £122 0s 8d (\$610), and a profit of £251 14s 6d (\$1,259) is left on the cost of feed, the pen returning the smallest value leaving a margin of 6s per hen (\$1.50)."

PIP IN CHICKENS.

Editor Southern Planter:

The crust which is seen on a chicken's tongue when it has pip, is generally taken for the disease itself, whereas it is only a symptom of the disease. Pip is a disease which attacks the digestive organs of chickens, the stomach, the bowels, and it also affects the tongue. It is generally contracted from taking cold, improper feed, and other causes, which, to use a popular expression, gets the stomach out of order. In severe cases the whole body is affected, the functions of all the other organs is depressed, and if the body has not strength enough to throw off the disease the chickens will die. The tongue, on which the disease is generally noticed, suffers from inactivity, the superficial epidermis, which falls off continuously in the healthy chicken, is only partly removed, hangs on here and there, thus the saliva causes the parts to stick together and they form a crust on the tongue. If this becomes so thick that it interferes with the taking of feed, it may be removed if it can be easily done, otherwise it is cruel to do it.

The sick chickens should be separated from the others, kept in a dry and warm room and be given soft lukewarm feed with a dash of a condition powder. A mixture of 8 parts pulverized rhubarb, 2

ginger, 2 licorice and 2 gentian can be recommended. The mouth should be painted twice a day with a 4-5 per cent. solution of potassium chloride. If the chickens sneeze, let them inhale the fumes from a few drops of tar put on a hot brick. With the necessary care and plenty of fine grit, bone, sand, etc., the chickens will soon be all right again.

H. WINKELMAN.

District of Columbia.

REMEDY FOR SICK TURKEYS.

Last season, while experimenting with ailing fowls, I discovered that spirits of turpentine is the best remedy, by far, that I have ever used or ever heard of being used for sick turkeys. The drug must be used sparingly, for it is a strong medicine and young turkeys are very delicate. Sometimes a little one will tumble over after a dose has been given and seem to be dying, but leave him alone; he will get over the bad effect after a little while and jump up and run away to find his mates. The next time he is seen a great improvement will be noticed. When a number of turkeys in one flock begin to look droopy, the most convenient way to administer the turpentine is to mix a little with the feed. Place before them, when they are hungry, about ten drops to half a pint of feed; but experience quickly teaches the practitioner how to use it in the best way. If too much is used in the feed they will refuse it. It is sometimes necessary to catch the turkey and drop a little of the medicine down his throat—one drop for very small birds and two, three or four for larger ones. It is good for them from a few days old to half grown. It is a particularly fine remedy for the bowel trouble that carries off so many young turkeys every year. If intelligently used this remedy will doubtless prove a great blessing to all who are struggling with the problem of how to save the lives of young turkeys.—C. Boyden.

BEST FOR LAYING HENS.

Get ready now for a full supply of properly cured clover or alfalfa hay for next winter. If you cannot grow it look about you so that you can buy it. Clover or alfalfa hay to be the best for the hens should be cut at least a week sooner than it would naturally be cut to be cured for hay for market. In other words, cut early while the stems are tender. In this way, if nicely cured, it will be green clover or green alfalfa hay, and not dark brown or black as it is often seen.

The Horse.

NOTES.

Secretary Percival Hicks, of the Southside Agricultural Association, North, Mathews county, Va., has issued prospectus of the Southside Futurity for foals of 1904, the guaranteed value of which is \$100. The event is to be decided at the 1906 fall meeting of this Association. Any foal owned by any citizen of Virginia may be nominated on payment of \$1. Nominations close September 1, 1904, and 20 foals to nominate. This stake is an indication of the interest in harness horses that prevails in Mathews and adjoining counties, and doubtless the response from breeders there will be liberal.



Two very handsome and promising yearlings are owned by James Cox at Belgravia Farm, Mt. Jackson, Va., both of whom were sired by Kelly, 2:20, full brother to Expressive, 3, 2:12½, by Electioneer from famous thoroughbred Esther, by Express. One of these youngsters is a colt out of Charia, by Axteloid, second dam a sister to Charlie C., 2:13¼, by Sam Purdy, and the other is a filly from Frances S. Dayton, 2:27¾, by Cadmus, Jr., next dam the great brood mare Daisy Dayton. The colt is on the mare order, and promises to develop grand size and with it both speed and race horse quality.



The fine mare, Florence Miles, 2:21¼, by Prophet Wilkes, dam by Red Champion, owned by Free Bridge Commissioner R. C. Broadus, of Manchesterville, Va., recently dropped a bay colt by Great Stakes, 2:20, and bred to Kelly, 2:27, the son of Electioneer and famous Esther. In addition to Florence Miles, many other good mares have been mated with Kelly, and indications are bright for the bay stallion to be favored with the choicest lot of matrons ever sent to the court of one horse in this section.



President J. T. Anderson, Secretary W. O. Warthen, and Manager C. W. Smith, of the Richmond Horse Show Association, are making extensive preparations for the fourth annual exhibition, the dates of which are October 18th, 19th, 20th, 21st and 22d. Entries close October 4th, or two weeks ahead of the show, and the indications are that a number of the greatest show horses in America will be seen here then.

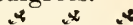


C. A. Pusey, veteran trainer and driver, of this city, who has brought out a number of good horses since his first association with the Blue Bull mare, Lona Guffin, 2:23¼, back in the early eighties, is still in the game, and will take the brown pacing gelding,

The Spaniard, 2:19¼, by Castleton, down the line this season. The Spaniard is entered in several important early closing events, among his engagements being the 2:20 pace, purse \$2,000, at the Narragansett Park Grand Circuit meeting.



In Lepanto, the big, handsome son of Petoskey, Bannister and Rhodes, of Roanoke, Va., are offering the breeders of that section the services of a trotting stallion whose claims should not be neglected. Petoskey is standard and registered himself, and has shown his potency in siring standard speed. As a yearling, he swept the show ring in the Blue Grass region of Kentucky, and while still in his colthood was sold from there and brought East. Lepanto was sired by Petoskey, one of the best sons of George Wilkes, and through his dam he gets the potent thoroughbred blood of Lexington, a refining factor in a number of trotting pedigrees.



Col. Barton H. Grundy, of this city, owns a grand looking horse in Javanais, the imported French Coach stallion by Agnadel, dam Rapide. Javanais was formerly owned by the Hon. Joseph C. Sibley, one of the most advanced students of breeding in America, who thought so highly of the brown stallion that he bred many of his mares to him. The large handsome son of Agnadel is in the stud at A. Pollard's Dunraven farm, near Richmond, where he will make the season. Upon request, either Col Grundy or Mr. Pollard will forward an interesting stud circular of Javanais.



Robert Ransom, 2:29¾, the brown stallion by Gambetta, dam Black Maria, by C. M. Clay, Jr., bred and owned by Joseph Lassiter, of this city, died here recently, his death being due to an attack of acute indigestion. Robert Ransom was foaled in 1887, and passed the greater part of his life in the stud.



C. Klocke, of Woodville Farm, Crewe, Va., has lost by death from influenza the brown stallion Northwood, by Norfolk, dam Maggie A., by Chosroes. This horse had recently been purchased by Mr. Klocke from Joseph Lassiter, of this city. Northwood was bred by the late H. C. Chamblin, at Whitby Farm.



Robert Bradley has leased to Bolling Island, Stokes, Va., the handsome thoroughbred stallion Ray S., by imp. Speculator, dam Helianthus, by Hyder Ali. He will be used mostly as a sire of hunters and jumpers, for which he seems well fitted, having fine size, good muscular development, and an even temper.

BROAD ROCK.

Miscellaneous.

ON WHAT DOES THE FERTILITY OF A SOIL DEPEND?

Editor Southern Planter:

It is a well known fact that the crops which a soil under general farming conditions profitably produces are limited to certain crops for each soil. We speak of wheat soils, rye and barley soils, of potato and sugar beet soils, etc., with the understanding that these soils are especially adapted to producing these crops, and that these crops are the leading crops for those soils, and on which the farmer can depend. With manure and fertilizers we can increase the yield of crops, but we cannot change the adaptiveness of a soil for certain crops—that is to say, we cannot change a rye or barley soil into a wheat soil or a potato into a sugar beet soil, though under very favorable conditions a satisfactory yield of these crops may, off and on, generally once in a rotation be obtained.

The better yield of one or two crops on a soil over all other crops, all the properties of the soil being represented so to speak in that crop, has been used abroad to classify the soils according to crops. It is something permanent, not subject to changes, for even the poorest treatment of a soil, though it may considerably reduce the yield of that crop, does not rob the soil of its adaptness for it.

The yield of crops, good physical conditions provided, is generally attributed to the difference in the amount of plant food. There is no doubt that the rich diked marsh soils bordering the North Sea, contain more plant food than most upland soils, and a clay soil more than a sandy soil. But this does not explain why a sandy soil, if it is provided with all the plant food the loam and clay soil possesses, does not produce the crops indigenous to these soils. It occurred to me that whilst the larger quantities of plant food applied to sandy soils on farms with a very intensive management were entirely insufficient compared with those contained in the clay and better loam soil, possibly by doubling or tripling the quantity the crops could be grown. Experiments which I undertook to test this showed that I was mistaken. It then occurred to me, that possibly the inability of sandy soils to produce the crops was probably due to the inability of the plants heretofore grown on heavier soils, to take up food on sandy soils. Owing to the greater fineness of the prevail-

ing clay soil grains on the heavier soils the roots would come in contact in the heavier soils with a greater number of soil grains, and it would probably be necessary for plants to adapt their root system to the coarser and therefore less numerous grains of the sandy soils before the plants could take up the food contained in these soils. But, as I will show later on, this also proved to be wrong. I was then almost ready to give up the problem when I thought of one more explanation. Was it not possible that the poor growth of crops indigenous on heavy soils if grown on sandy soils, however well they were fertilized, was due to the inability of the soil grains to supply the plants with food? Was it not possible that plants could take up food, with the exception of nitrogen, from the soil grains only, that the grains must contain the food, and that the applied food must first enter into an available compound with the soil grains before it could be taken up? And was it not also possible that if the applied food could not do this, due to the chemical composition of the soil grains, that it could not be taken up at all by the plants, no matter how much of it was preserved in the soil?

To test this to see if the quality of the soil grains would influence the assimilating of food by plants in the presence of large quantities of it, I selected a gray loamy sand, which heavily manured, would produce a poor crop of red clover only. For improving the quality of the soil grains I selected a very stiff red clay, and for decreasing the quality, quartz flour. The check soil after it was mixed in certain proportion with the clay and quartz flour, was filled in eight inch pots, ten pounds in each pot. The soils were mixed in the following proportions:

Pot 1. 9 pounds check soil, 1 pound clay.

Pot 2. 9½ pounds check soil, one-half pound clay.

Pot 3. 10 pounds check soil.

Pot 4. 9½ pounds check soil, one-half pound quartz flour.

Pot 5. 9 pounds check soil, 1 pounds quartz flour.

To the pots containing the clay were added 40 grams dry cattle manure, 15 grams lime, and to each of the other three pots, 3, 4 and 5, in addition, 3 grams hardwood ashes, 100 c.c. of a very rich liquid manure. These quantities correspond approximately for the two pots to the following quantities per acre: 12 tons manure, 2,000 pounds lime, and for the three pots in addition 400 pounds hardwood ashes, 700

gallons liquid manure, more than sufficient to produce a good crop of clover.

When the soil had been mixed, the lime and ash was added, and the soil kept moist for four weeks to give the lime time to act. The manure was then applied and also given four weeks time to decompose. The liquid manure was finally added, and two days later red clover sown. The pots were kept in the cool part of a green house approaching outdoor conditions. The result was:

Pot 1. One pound clay, extra fine clover.

Pot 2. One-half pound clay, fine clover.

Pot 3. Check soil, poor clover.

Pot 4. One-half pound quartz flour, poorer clover.

Pot 5. One pound quart flour, very poor clover.

Plants came up and stood still, some died out.

The results of this experiment are very interesting in so far as they show that plants can be surrounded by large quantities of easily available plant food and still suffer from want of food, because the conditions are such that the plants cannot take it up. The results indicate that plants take up food from the soil grains only, that the soil grains therefore must contain the food the plants need and that the applied unnatural food will only benefit the plants if it can enter with a sufficient number of the soil grains into the available food the growing crop needs. The soil grains may contain food and the applied mineral food may combine with the soil grains, foods which will produce good yields of probably half a dozen other crops, but if the soil grains, directly or indirectly, cannot supply the growing plants with the proper food, the plants will make a poor crop only. We know that some soils produce a splendid crop of rye, but a poor crop of wheat; that good pea are poor bean soils, and that the best potato soils seldom produce good beets.

The experiment also shows that the fertility of soils increases with the increasing number of clay grains, the most profitable percentage varying, however, with the quality of the other soil grains, with the climate, the altitude and general farming conditions. The profitable limit is generally reached with the beginning difficulty in tilling the soil, or keeping it in a good physical condition, and in the resistance it gives to the development of the weaker rooted plants. It is, however, not always the soils which contain the greatest number of clay grains, though they are the most fertile, that are also the most profitable. In some soils the different kinds of grains, clay, silt, sand, are so well balanced that they produce certain crops of such superior quality

and of such large yields that the profits derived from these crops compare very favorably with those of the more fertile soils. That there is a difference in the amount of available mineral matter in different soils is shown by the application of highly nitrogenous fertilizing material. On heavy soils richer mineral food, and larger quantities of nitrogen can be applied with better results than on the lighter soils. Nitrogen food on these soils unbalances the mineral food, causing a rank growth of the stems and vines and an inferior quality of growth of grain and seed, which often even applications of mineral food cannot always overcome. As the applied nitrogen is taken up directly by the plants and the mineral food indirectly has first to combine with the soil grains, the different effect is easily understood.

Whether well decomposed organic matter can take the place of soil grains in supplying plants with food, only to a certain extent, or if it is only beneficial to the soil as a source of carbonic acid and nitrogen, in making the soil loose and porous and increasing its water holding power, remains to be seen. To judge from the vegetation on peat bogs, where we are able to increase and change this vegetation by manuring and fertilizing, it seems that decomposed organic matter can take the place of soil grains. The crops which can be grown on well decomposed peat are, however, comparatively few. The hay, straw and grain is of a very inferior quality, poor in sugar and starch, very light weighted and possesses little feeding value.

I have, of course, no proof that plants can take up food from the soil grains only. But the results of the experiment, as well as the daily experience of thousands of farmers show, that the fertility of a soil increases with the increasing quality of the soil grains. A sufficient percentage of the soil grains must possess the food the growing crop needs or have the ability to combine with the applied mineral food to supply the kind of food the crop needs. If the soil grains, due to their chemical nature, cannot do this, or not in sufficient quantities, the crop cannot be profitably grown, no matter how much mineral food is applied to the soil.

District of Columbia.

H. WINKELMAN.

HAWKS AND CROWS.

Editor Southern Planter:

In the May number you and Dr. Snead take issue on the status of the crow. The Doctor has it in for Mr. Crow all right, but he is not a good prosecuting

attorney, as in indicting said crow he loses sight of the worst count against him—viz.: the constant business of the crow is to destroy eggs and young birds (most country people know this and any one can satisfy himself of the fact by a little observation). If one crow destroys 50 Robin, Wren and Blue bird eggs in a season, where does his usefulness as a grub destroyer come in? That is the trouble with the crow. These birds eat more insects than the crow, and do no harm whatever. If the only harm the crow did was to steal a few chicks or pull up some corn, I agree with you that he would more than pay for it. But the crows are increasing in number very rapidly here, and our song and insectivorous birds are on the decrease owing to the crow, assisted by the blue jay, the grey squirrel and the English sparrow, that dirty pest that has driven our song birds from our yards, where they used to build for protection. You give figures showing contents of stomachs of owls, hawks and crows, but you do not say at what time of year those hawks were killed. The varieties of hawks that kill chickens do so early and late in the season and seldom catch a chick when grasshoppers are plentiful. The Department of Agriculture is great, but it makes some serious mistakes, as witness the introduction of the English sparrow and German carp in this country. Though to be honest, I don't know that the Agricultural Department did introduce the English sparrow. (It did not.—Ed.) But some "wise acre" did so to "destroy grub worms," etc.

You advocate planting cow peas in corn. Will you kindly tell me in your next issue if peas planted in corn at last working will keep until the corn and provender can be hauled in. I wish to sow my corn field in peas and turn in hogs when I get the corn out, provided the peas will not rot by that time. I will not be able to gather them. I planted peas and also sorghum two years ago in rows two and one-half feet, as you advocate in last *PLANTER*, one peck will plant an acre and make more both peas and vines than one bushel sowed. Also I made a heavy crop sowing half a bushel to the acre. H. COMPTON.

Prince George Co., Md.

In our remarks on Dr. Snead's article in the May issue we were only able to speak generally as to the food of the crows, as at the time we wrote we were unable to put our hands on the official reports. We have since placed our hands on them, and quote as follows: "The adult American crow is vegetarian to the extent of two-thirds of its diet, and half of the vegetable food consists of grain. But nestling crows consume large quantities of cut worms, grasshoppers,

May beetles, both larval and adult, thus rendering considerable more service to agriculture than the adult birds. In fact, the quantity of insect pests they consume exceeds in volume more than two to one the corn they take." The data indicate that the service of the nestling crow blackbirds in destroying insect pests, such as cut worms, May beetles, weevils and grasshoppers far outweighs the loss due to its consumption of corn. As to the English sparrow. We are not willing that even this bird should be left without defence. Whilst the old birds are no doubt largely vegetarian in diet, yet the nestlings are insectivorous to the extent of more than half their food. The quantity of insects, worms and grubs which a pair of old sparrows will feed to their many broods in one season is enormous. As to the crime of driving away native birds, this we believe to be much exaggerated. The greatest enemy of all our birds is the boy (white and black) with a gun. He kills indiscriminately all birds and animals he can, and those he does not kill, he drives away. There ought to be a tax on every gun, and then we would soon have plenty of birds, notwithstanding the sparrow.—Ed.

THE PROPOSED AGRICULTURAL BUILDING AT THE VIRGINIA POLYTECHNIC INSTITUTE (AGRICULTURAL AND MECHANICAL COLLEGE).

Editor Southern Planter:

It will be remembered by the readers of the *PLANTER* that I have had considerable to say about the importance of having a good agricultural building at the Virginia Polytechnic Institute (State Agricultural and Mechanical College). I am glad to report that such a building is now within sight, but when it will be completed is not definitely known, certainly not as soon as we had hoped. In a recent interview with the president, Dr. J. M. McBryde, I was informed that the proposed building would cost thirty-five thousand dollars. This is fifteen thousand less than we hoped to see put into such a building, but it is fifteen thousand *more* than the Board at first asked the Legislature for wherewith to build such a building. Whether "airing the subject" a little in the *PLANTER* helped to increase the Board's appreciation of the subject of agriculture at this Institution or not, I know not, still we are glad to get the fifteen thousand additional. It should be stated also that Dr. McBryde informed me that by using his own superintendent, plumber and electric light expert, he could add ten thousand more to the building,

which would make the building be worth about forty-five thousand dollars.

As in addition to the Agricultural and Horticultural Department we learn that the departments of Veterinary Science and Entomology are to be provided with accommodation in the building we repeat our former statement, that thirty-five thousand dollars is not enough. But we are informed that this sum was all the Board asked the Legislature to give for such a building, and the Legislature gave every cent asked for. Now, if a decent building worthy the interests it will represent cannot be put up and be properly equipped for all these departments for this sum, it is very easy to place the responsibility. The farmers want the short course in agriculture, and this course ought to draw, in a few years, one hundred men.

It is intended to make the building a substantial stone structure, with modern improvements. The site selected is a commanding one, with ample room for additional buildings. The school of agriculture has waited nearly twenty years for such a building, and the "long felt want" will, we hope, now soon be met. The Experiment station work has been largely side tracked and the farmers of the State have been calling for more and better station work, but have not been boisterous or impatient. Now, we want to see things "wake up and move out" along this line. We want to see good laboratories for scientific investigation, as well as large rooms for class instruction. Serious problems of far-reaching importance now confront many Virginia farmers. How to improve most economically the worn soil that has become thin by continuous cropping, how to make farm labor remunerative, and the farm laborers contented. These and many more problems are of vital importance to the future welfare of the State. Let us build for the future.

R. H. PRICE.

Montgomery Co., Va.

THE VIRGINIA CORN EXHIBIT AT THE LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, 1904.

Editor Southern Planter:

As previously noted in your journal, the Virginia Commission to the Louisiana Purchase Exposition, as a stimulus for a fine corn exhibit, offered \$120 in premiums, as follows:

\$50 for the best collection of ten or more varieties collected and sent in from any one county.

\$30 for the second best collection of ten or more varieties collected and sent in from any one county.

\$20 for the third best collection of ten or more varieties collected and sent in from any one county.

\$20 for the best 100 ears sent in by any grower in the State.

On March 1st a committee consisting of Mr. W. P. Wood, of T. W. Wood & Sons, Seedsmen, Mr. Howard Swineford, of Chesterfield county, and Hon. D. A. Slaughter, of Culpeper county, met at the Commission ware rooms, No. 14 Governor street, Richmond, Va., and made the following awards:

\$50 for the best collection of corn, to J. Houston Leech, who collected and sent in from Rockbridge county between 35 and 40 samples of corn.

\$30 for second best collection of corn, to E. M. Minnick, who collected and sent in from Rockingham county between 20 and 25 samples of corn.

The \$20 for the third best collection had no entry, and in view of the long list and magnificent exhibit sent in by contestants for the best 100 ears prize, the committee recommended that this \$20 be made into a second, third and fourth prize, in the sums of \$10 for the second, and \$5 for the third and fourth, and be added to the prize list in the 100 ear contest, this recommendation was approved, and the awards were made as follows:

First prize of \$20 was awarded to Wilson Whitmore, of Red Mills, Rockbridge county, on 100 ears of Red Warrior corn.

Second prize of \$10 was awarded to Mrs. A. C. Bransford, of Shirley, Va., on 100 ears of white corn.

Third prize of \$5 was awarded to Mrs. W. T. Sutherlin, Danville, Va., on 100 ears white corn.

Fourth prize of \$5 was awarded to S. A. Ryman, Timberville, Rockingham county, on 100 ears of Yellow Dent corn.

These prizes were contested for from all over the State, there being over 100 entries in the 100 ear contest, and in reaching a decision the committee had a most arduous task, which they discharged in the most conscientious manner, repeatedly comparing rival samples to remove all doubt as to which was best, and their final verdict was that the whole collection was one that reflected great credit upon the State.

All corn that was sent in unwrapped is being carefully gone over and wrapped in paper, so as to be shipped to St. Louis in good condition, to be exhibited in the producer's name, which list of names will also be furnished the exposition authorities at St. Louis, so that they may appear in the official catalogue.

In closing, I beg, in behalf of the Commission, to thank the Virginia corn growers for their cordial cooperation.

Very truly,

GEO. E. MURRELL,

Superintendent Virginia Commission to the Louisiana Purchase Exposition.

When corresponding with advertisers, kindly mention the SOUTHERN PLANTER.

THE Southern Planter

PUBLISHED BY
THE SOUTHERN PLANTER PUBLISHING COMPY.
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.

TERMS FOR SUBSCRIPTION.
THE SOUTHERN PLANTER is mailed to subscribers in the United States and Canada at 50c. per annum; all foreign countries and the city of Richmond, 75c.

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.

THE DATE ON YOUR LABEL shows to what time your subscription is paid.

NO ANONYMOUS communications or enquiries will receive attention.

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

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

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

Address THE SOUTHERN PLANTER,
RICHMOND, VA.

Entered at the Post-office, Richmond, Va., as second-class matter.

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PUBLISHER'S NOTES.

TO ADVERTISERS.

We wish to impress upon our advertisers the necessity of having ALL advertisements, no matter whether new or change of copy, in our office by the 24th of each month. Advertising forms close on the 25th. We are compelled to leave a number of advertisements out of each issue because they are received too late.

Whose Money?

On April 5th, we received a fifty cent piece in one of our self-addressed envelopes, without any evidence of who the sender is. As near as we can decipher it, the post mark is Blacksburg, Va. We cannot, of course, give any one credit until we know who sent the money.

BACK NUMBERS.

In our last issue we advertised for back numbers of the SOUTHERN PLANTER and responses to the ad were so numerous that we readily secured all we needed, for which we are very much obliged to the various senders.

Numbers of our readers did not comply with the terms of this ad and sent us their whole volume for 1903 without our asking for them. The packages we could identify we promptly returned, but we have still others on hand yet that we are unable to identify.

We simply publish this notice by way of acknowledging the kindness of our subscribers and to notify others that we have their papers, which we do not need and do not know to whom to return them.

She: Oh! Mr. Borem, how do you do? I was talking to Mrs. Nextdore just now and I couldn't help thinking of you.

He: And was she discussing me?

She: Not exactly. She was commenting on the weather, and just asked me if I could imagine anything more tiresome and disagreeable.

T. W. WOOD & SONS

Are Headquarters For

Cow Peas and Soja Beans

Cow Peas make a large yielding and most nutritious hay crop even on poor or medium land, and the roots and stubble plowed under improves both the condition and productiveness of the soil leaving it in much better condition than before the crop was grown.

Mammoth Yellow Soja Beans unquestionably make the richest and most nutritious feed crop grown on the farm. Equally valuable grown either as a hay crop or for the beans. Better than linseed or cotton seed meal for fattening stock.

Full information about these valuable crops in Wood's Seed Book for 1904.

Write for it and Special Price List of Seasonable Seeds.

T. W. Wood & Sons, Seedsmen,
RICHMOND - VIRGINIA.

DO YOU WANT TO GROW ALFALFA?

If you will use Bacteria from Ewell Farm enough soil to infect one acre for one dollar.

Write for circular.

Address GEO. CAMPBELL BROWN,
EWELL FARM. ... Spring Hill, Tenn.

SAN JOSE SCALE

and other INSECTS killed by

GOOD'S

Caustic Potash Whale-Oil Soap No. 3

Endorsed by U. S. Dept. of Agri. and State Experiment Stations. This soap is a Fertilizer as well as an Insecticide. 50-lb. kegs, \$2.50; 100-lb. kegs, \$4.50; half barrel, \$7.00; 3/4c per lb.; barrel, \$25.00. Send for circulars.

JAMES GOOD, Original Maker,
939-41 N. Front Street, Philadelphia, Pa.

WILL EXCHANGE

One handsome dark red GAME COCK, "war Horse" breed, for three pure-bred one year old barred Plymouth Rock hens. This strain of chickens has been bred and kept pure by Mr. James Norwood for fifty years. If not satisfactory will pay express charges both ways. W. B. MEARES, Hillsboro, N. C.

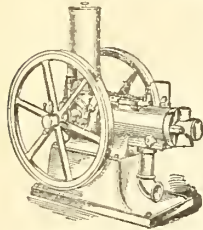
FRAZER

Axle Grease Best in the world.

Its wearing qualities are unsurpassed, actually outlasting 3 hrs. any other brand. Not affected by heat. Get the Genuine. FOR SALE BY ALL DEALERS.

THE MIETZ & WEISS Oil and Gas Engine

Stationary & Marine From 1-60 H. P.
(CONSTANT THRUST),
Adopted by the U. S. and Foreign Govern-
ments.



Runs with common Kerosene, Distillate or Fuel oil.
No dangerous Gasoline used.

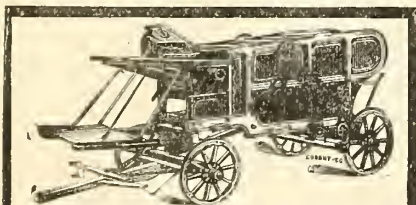
It will pay you to consult me before placing your order elsewhere.

For Pumping, Electric lighting, Charging Storage Batteries, and all other Power Purposes.

DIRECT COUPLED OR BELTED DYNAMO;
Highest Award for Direct Coupled Engine and Dynamo, Paris Exposition, 1900; Gold Medal, Pan-American Exposition, 1901; Gold Medal, Charleston, S. C., Exposition, 1902.

Hoists, Marine Engines, Pumps, Air Compressors, Portable Outfits, Dynamos.

A. MIETZ, 128-138 Mott St., New York, U.S.A.
Send for Catalogue, Department 37.



The FARQUHAR Rake Separator

Threshes and cleans all kinds of grain, wheat, oats, etc., perfectly. Built for steam or horse power. Light running and simple. Made in three sizes.

Write for new 1904 catalog of engines, boilers, saw-mills and threshing machinery. See our exhibit at St. Louis in the Palace of Agriculture.

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



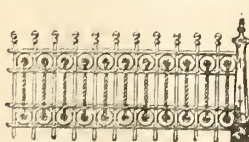
WAGON TANKS.



STEEL TANKS,
Plain and Corrugated.



STEEL ROOFING, ETC.



STEEL FENCING.

O. K. HARRY STEEL WORKS, 2333-5 Papla St. ST. LOUIS, MO.



Heebner's Ensilage Cutter

saves all the corn. Cuts both ensilage and dry fodder. Cuts and crushes, one operation, making whole stock palatable. With its attachment, becomes an excellent shredder, three machines in one. Does all kinds of feed cutting. Our Low Priced Feed and Lever Powers are suitable for all farm purposes. Catalogue mailed free.
Heebner & Sons, 25 Broad St., Lansdale, Pa.

WITH THE ADVERTISERS.

Mr. W. B. Meares has a couple of ads in this number to which we invite attention.

Mr. B. B. Buchanan, owner of the Oaks Stock Farm, is offering his place for sale in this issue.

Farms of all sizes in Southside Virginia are advertised by Mr. L. H. Yancey.

The Peterson Mfg. Co. offers its well known Imperial Clod Crusher and Pulverizer in this number.

St. Albans School has a very attractive card on another page. We suggest that parents send for prospectus of this splendid academy before sending their boys elsewhere.

Some very fine Poland China hogs are offered by Mr. E. T. Robinson, Lexington, Va.

Shropshire sheep can be had of Mr. A. S. Craven. Refer to his ad in another column.

Some good stock at low prices can be bought of Rev. S. S. Hepburn. Look up his announcement elsewhere.

A new advertiser in this issue is the Beechenbrook Stock Farm, of which Mr. Williamson Talley is proprietor. Choice Berkshires are the offering this month.

Some finely bred Aberdeen Angus cattle are offered by Rear Admiral B. F. Day. Look up his ad on another page.

Our readers have an opportunity of purchasing some fine Berkshires of Glenburn Farm. Note the ad. on another page.

O. I. C. hogs are offered elsewhere in this issue by F. S. Michie. His prices and breeding are right.

Among the new advertisers in this issue are J. J. Koger & Sons. Their well drilling outfits can be had at reasonable prices.

Mr. J. S. Funk, of Glen Farm, is offering Polled Durham cattle, Shropshire sheep, and Poland China hogs in this issue.

The Hurst Mfg. Co. is offering a sprayer, which is well worth investigating.

Some nice Hereford youngsters can be had of W. J. McCandless.

Parties having a desirable stock farm for sale will do well to refer to the ad of F. W. Meyer.

Poland Chinas and Shropshires are the offering of J. F. Durette this month.

P. M. Funkhouser is offering some of his finely bred Chester Whites.

Shorthorn cattle, White Yorkshire hogs are advertised by Mr. J. M. Hoge.

Some very fine Collie pups are the offering of Mr. A. P. White, Jr. He has the blood of J. Pierpont Morgan's \$3,000 dog in his kennels.

The Maplewood herd of Berkshires is making a bid for the patronage of our readers. Messrs. J. F. Tucker & Sons, the owners, would like to talk Berkshires to interested parties.

Note the change in the Bowmont Farm ad this month. Bowmont is of



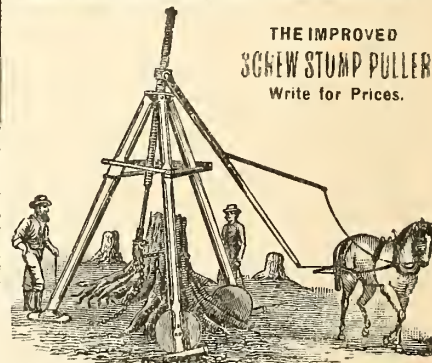
20th CENTURY Wagon Box and Rack

One of the most convenient, useful, and labor-saving articles ever offered to the farmer. Substantially made and finished from best materials. Malleable castings and very strong. When closed it is available for hauling corn, potatoes, wood, live stock, etc. By suspending canvas or muslin from top, inside, will hold 100 bushels of bulk grain.

SIDES CAN BE LOWERED INSTANTLY

And it becomes a solid rack for hauling hay, straw, fodder, sheaf wheat etc., with ample strength and capacity for three tons. Very convenient for luskung corn with side lowered as shown in cut. Made 14 feet long and regular widths. Sold direct to farmers at manufacturers' prices, freight prepaid. Write for Catalogue and prices.

MODEL MFG. CO. Box 28 Muncie, Ind.



THE IMPROVED SCREW STUMP PULLER

Write for Prices.

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

HERCULES STUMP PULLER



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

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



Running Streams

will force their own waters or water from springs to your buildings, fields or storage tanks, any height or distance with the

Rife Hydraulic Engine.

The power that's always going with' out attention or expense. Sold on 30 days trial. Book free. Ask for it!

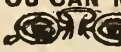
RIFF ENGINE CO., 126 Liberty Street, New York.

If You Have Not Been Able to Get a Hydraulic Pump or Ram

and are in need of one, we are just introducing our new standard HYDRAULIC PUMPS, the simplest, best, cheapest and most convenient in every way, and you can secure one at cost by writing the

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course headquarters for Jerseys and in addition it has a splendid offering of the spring litters of Yorkshire pigs. Dorset sheep and Hereford cattle of good breeding can be had at reasonable prices of H. Armstrong. Warner's Correspondence School has a card in another column to which we invite attention. Annefield Farms are always ready to talk Herefords and Berkshires. The Gibson & Lamb Co. say they are interesting numbers of our readers in their disinfectants and Lice Killer. We invite attention to their ad.

BEST PART OF A HOG.
George S. Ham, of Cartersville, Ga., tells a good story on himself. "I was at a little old-fashioned town in the southern part of my State some time ago," he said, "where they didn't know that Lee had surrendered. I was shown to my room in the little inn they called 'the hotel,' by an old uncle who shuffled as he walked and whose scant locks were as white as the cotton he was evidently used to picking. In a place like this town every one you meet wants to know your name and takes great interest in your personal history and business. The old uncle deposited my suit case, and before he turned to go I asked him to fetch a pitcher of water. 'All right, boss,' he said, 'whut mought yo' name be?' "I laughingly told him it was Ham—'just remember the best part of the hog,' I said, 'and you'll have it. He shuffled off down the hall and I had just about dozed into the land of nod when I was brought back to consciousness by a sharp rap at the door and heard the old man say: "Heah's yo' water, Marse Chitlin's."—Louisville Herald.

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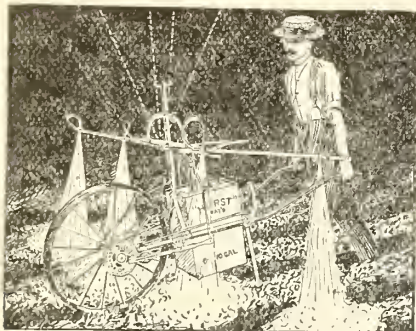
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MAGAZINES.

Although The Century for June is a Western number, five Presidents of the United States figure in it: Washington, in Dr. Mitchell's "autobiographical" narrative; Jefferson, in a portrait by Kosciuszko, and an autograph letter, now first published, giving a forecast of the value of the Louisiana Purchase; Lincoln, in an article on his first lawsuit, with autograph documents; Mr. Cleveland, in a short contribution by himself, "A Word for Forestry"; and Mr. Roosevelt, in an article by Gifford Pinchot, "The New Hope for the West," in which incidentally the President's record on forestry and irrigation is set forth. For the rest, with two or three exceptions, the contributions are all from beyond the Alleghanies, and every State and Territory is represented, either by the writer or by material of special local interest.

Other features of general interest are: "Attractive Features of the St. Louis Exposition," by its President, David R. Francis; "The Conclusion of the Louisiana Purchase Treaty," two pictures by Andre Castaigne; "The Vitality of Mormonism," by Ray Stannard Baker; "The Asiatic Trade of Our Pacific States," by Harvey W. Scott; "The Master Plowman of the West," i. e., the gopher, text and pictures by Ernest Thompson Seton; "A Curious Minnesota Romance," by Archer Butler Hulbert, of Ohio, giving fully and authoritatively the facts relating to a supposed heir to the Serbian throne now living in Minnesota.

The fiction in the June Century is particularly representative of the western half of the country. It includes: "The Missing Chord," a story of Texas by O. Henry, formerly a resident of Texas; "Grandmama," a tale of Louisiana in the old days, by Grace King of New Orleans; "By the Terrors of the Law," a story of Arkansas by Octave Thanet, a winter resident of that State; "The Desperation of Mr. Boone Spivey," a story of the Tennessee mountains by Alice MacGowan of Chattanooga; "The Sectional House," a Stocktonesque tale of Iowa by Ellis Parker Butler of that State; "The Quality of Mercy," a story of the Indian Territory by John M. Oskison, long a resident of Vinita; two short stories of Oklahoma by Hamlin Garland of Wisconsin; "A Pilgrim in the Wilderness," a tale of the new West, with typical scenes in Kansas, Colorado, Wyoming and Idaho, by William Allen White of Emporia; "The Last Protest," a story of Montana by Henry Oyen, now of Chicago; "The Problem of Lisbeth," a story of the Washington hop-fields by Ada Woodruff Anderson of Seattle; "Cecilia the Pharisee," the first of a group of "Stories of the Nevada Madigans," by Miriam Michelson of San Francisco; the continuation of "The Sea-Wolf," by Jack London of California; and last, a story of trans-Western travel entitled "Passing the

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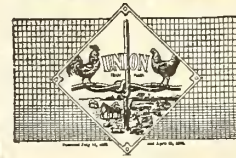
Torch." by Katharine Holland Brown of Quincy, Illinois.

The June St. Nicholas is a "vacation number," and well worthy the title. Every lad will turn first to and linger longest over Alan P. Ames's account of "How to Keep a Baseball Score." Mr. Ames is a practical scorer, and has illustrated his sketch with real scores. His directions for score-keeping are clear and simple enough for any boy to follow. A charming end-of-the-year story of life in a girls' school is Albert Bigelow Paine's "The Shuttlecock of Fate," holding a sugar-coated lesson that in no wise detracts from the tale. It is illustrated by Orson Lowell. "Dmitry" is a timely Russian story, and "Miss Flyn and the Pot of Gold" is one of those fairy stories that is ever new. "How Teddy Helped" tells of a small Western lad's fortunate mishap; and there are new chapters in the serials, "A Comedy in Wax" and "What Another Summer Brought to Denise and Ned Toodles."

REPORTS.

- U. S. Department of Agriculture, Washington, D. C. Bureau of Animal Industry. Bulletin 58. The fat testing of cream by the Babcock method.
- Bureau of Chemistry. Bulletin 82. Paris green spraying experiments.
- Division of Entomology. Bulletin 44. Some miscellaneous results of the work of the Division of Entomology.
- Division of Entomology. Bulletin 46. Proceedings of the 16th annual meeting of the Association of Economic Entomology.
- Bureau of Plant Industry. Bulletin 53. The Date Palm.
- Bureau of Plant Industry. Bulletin 59. Pasture, meadow and forage crops in Nebraska.
- Bureau of Plant Industry. Bulletin 64. A method of destroying or preventing the growth of Algae and certain pathogenic bacteria in water supplies.
- Progress of the Beet Sugar Industry in the U. S. in 1903.
- Farmers' Bulletin 193. Experiment Station work.
- Cornell Experiment Station, Ithaca, N. Y. Bulletin 217. Spray calendar.
- Hampton Agricultural Institute, Hampton, Va. Thirty-sixth annual report.
- Louisiana Experiment Station, Baton Rouge, La. Sixteenth annual report.
- Bulletin 76. Analyses of Commercial Fertilizer and Paris Green
- Maryland Experiment Station, College Park, Md. Circular Bulletin 57. Some insects that attack fruit trees in the spring.
- Circular Bulletin 58. Cabbage diseases and insects.
- Michigan Experiment Station, Agricultural College, Mich. Bulletin

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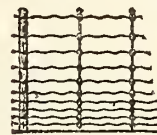
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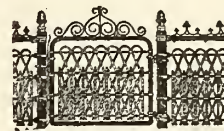
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B. B. Buchanan,
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24. Insects injurious to fruits in Michigan.
Bulletin 25. Fungus diseases of fruits in Michigan.
Minnesota Experiment Station, St. Anthony Park, Minn. Bulletin 84. Injurious insects of 1903.
Bulletin 85. Wheat and flour investigations.
Bulletin 86. The food value of sugar. The digestive action of milk.
Class Bulletin 15. Breeding corn.
Missouri Experiment Station, Columbia, Mo. Bulletin 63. Commercial fertilizers.
Nebraska Experiment Station, Lincoln, Neb. Bulletin 83. Comparative variety tests of corn in 1902 and 1903.
New Hampshire Experiment Station, Durham, N. H. Bulletin 103. Standard milk.
Bulletin 104. Fifteenth annual report.
Bulletin 107. The Brown tail moth in New Hampshire.
Bulletin 108. Inspection of fertilizers.
Bulletin 109. The pernicious or San Jose scale insect.
Bulletin 110. Experiments in orchard management.
Bulletin 111. Ten experiments with potatoes and potato culture.
New York Experiment Station, Geneva, N. Y. Bulletin 246. Shading strawberries.
North Carolina Department of Agriculture, Raleigh, N. C. The potato beetle.
Ohio Experiment Station, Wooster, O. Bulletin 143. Twenty-second annual report.
Bulletin 147. Seed and soil treatment and spray calendar.
Bulletin 149. The hardy Catalpa as a farm crop.
Pennsylvania Experiment Station, State College, Pa. Bulletin 65. Forage and soiling experiment, 1902.
South Dakota Experiment Station, Brookings, S. D. Bulletin 82. Maccaroni wheat. Its milling and chemical characteristics.
Texas Experiment Station, College Station, Tex. Bulletin 70. The composition of Texas cotton seed meal.
Virginia State Horticultural Society. Eighth annual report.
Virginia Weather Service, Richmond, Va. Report for April, 1904.
Virginia Department of Agriculture, Richmond, Va. Quarterly report for April, 1904, Analysis of fertilizers.
Wisconsin Experiment Station, Madison, Wis. Bulletin 104. The food requirements of pigs from birth to maturity.
Bulletin 105. The improvement of home grounds.
Bulletin 106. Commercial feeding stuffs.

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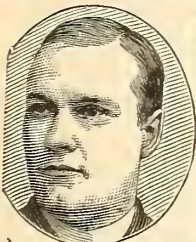
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Bulletin 107. Official tests of dairy cows.

Bulletin 108. Trees and shrubs for shade and ornament.

Bulletin 110. Spraying fruit trees.

Bulletin 111. Oat smut and its prevention.

Bulletin 112. Alfalfa in Wisconsin.

Bulletin 113. Commercial fertilizers and feeding stuffs.

The Philippine Islands Bureau of Agriculture, Manila, P. I. Bulletin 5. List of Philippine agricultural products and fibre plants.

Imperial Agricultural Experiment Station, Nishigahara, Tokio, Japan. The San Jose scale in Japan. PAMPHLETS, ETC.

The Relation of Research to Scientific Agriculture, by Dr. J. B. Weems. Ames, Iowa, read at the 25th annual meeting of the Society for Promotion of Agricultural Science.

American Breeder's Association. Minutes of first annual meeting at St. Louis, Mo., December, 1903.

The Cotton Situation. Address delivered by T. H. Price before the New England Cotton Manufacturers' Association, Boston.

Primary Education and the Race Problem. An address to the people of Virginia by A. F. Thomas, member of the State Senate.

CATALOGUES.

The Ellerslie Yearlings, property of Messrs. R. J. Hancock & Son, of Charlottesville, Va., together with those from Maplehurst and Keelona Studs to be sold at the Brooklyn Race Course, Gravesend, N. Y., June 14th, 1904.

De Laval Cream Separator.

Joint Breeders Sale of Trotting and Pacing Horses and Jersey Cattle at Ewell Farm, Ewell Station, Spring Hill, Tenn., June 3, 1904.

Standard Hydraulic Pump Co., Roanoke, Va.

WHY MR. DICKSON QUIT.

Senator Aldrich used to be shaved by a colored barber of the name of Dickson whenever he went to Boston. One morning he opened a conversation by saying: "I believe you are a member of the African Church in — street?" "No, sah; not at all, sah," was the reply, made with much dignity.

"Ah, I thought you were when I was here last."

"But not dis yeah, sah."

"Ah, have you resigned?"

"Well, sah, it was dis way: I jined dat church en good faith and de fust yeah I give ten dollahs to'ds the stated gospel, en all de church people calls me 'Brudder Dickson.' De second yeah ma bizness fell off, en I give five dollahs; en all de church people dey call me 'Mister Dickson.' Do dis razzar huht yo', sah?"

"Not at all; it is very easy."

"Thank yo', sah; well, de third yeah I feel so pohly dat I don' give nuthin' 't all fur preachin', en all de church people dey pass me by en say 'dat old niggah Dickson.' After dat I quit 'em." —New York Press.

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.
C & O Main St. Depot, Richmond, 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.

I Can Sell Your Farm....

If located in one of these Virginia counties: Prince George, Chesterfield, King William, Gloucester, New Kent, King and Queen, Hanover. Send description, stating price.

JOHN JELINEK, 1116 Pine Alley,
Braddeck, Pa.

VIRGINIA FARMS

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

GEO. E. CRAWFORD & CO., Richmond, Va.
Established 1876.

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.,
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All prices and sizes. Free list on application.

WM. B. PIZZINI CO., RICHMOND, VA.

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Nice little poultry farm, 100 acres, good house and orchard, \$500.00. Blue Grass, Stock and Fruit Farms. Address PORTER & GATES, Louisa, Va.

Go South.

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

WARNER'S

Correspondence School

At Bradford, Pa., teaches SHORTHAND, BOOKKEEPING and PENMANSHIP by mail. Write now.

Mention the SOUTHERN PLANTER in writing.

Make Your Idle Money Earn You Interest.

Write the **FIRST NATIONAL BANK** of **RICHMOND, VIRGINIA** for information concerning its certificate of deposit, so arranged that one per cent. may be collected every **FOUR MONTHS** through your nearest bank or store.

Our experience proves this form for savings to be the most satisfactory plan yet devised for deposits of \$100.00 or more.

Our Capital and Surplus is

ONE MILLION DOLLARS.

VIRGINIUS NEWTON, President.
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J. C. JOPLIN, Assistant Cashier

Oh, when you want the business done
By play that's strong and steady,
Just take a look at old SLUG SHOT,
For that's the stuff that's ready.



SOLD BY THE SEED DEALERS.

For pamphlet on Bugs and Blights,
address, Benj. Hammond, Fishkill-on
Hudson, N. Y.



The Only Cow Food

Which removes Garlic,
Onion and Weed Taint
from Milk. Send for cir-
cular to

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DANVILLE, VIRGINIA.

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E. B. McGeorge, Richmond, Va.
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T. J. Willis & Co., Charlottesville, Va.
Dr. L. S. Ricketts, Orange, Va.

FOR SALE.

800 acres timber, half of which original growth. Having rented my river farm, will sell privately 1 new McCORMICK BINDER, 200 good grade BREEDING EWES, 35 COTSWOLD EWES, 7 fine SHROPSHIRE BUCKS, 1 JERSEY COW fresh to pall. Call on or address JNO. MATHEWS, East Richmond, Va.

WASHINGTON NOTES.

Mr. George K. Holmes, of the Bureau of Statistics, Department of Agriculture, contributes an article to the forthcoming Yearbook on "The Nation's Farm Surplus."

"As well try," he says in a stately introductory, "to comprehend the distances of the stars or the duration of eternity as to attempt to make intelligible the vast quantities and value of the farm products of this country, or even of the exported surplus, which is so large as to be without parallel among the countries of the earth.

"The value of the exported farm products in the fiscal year 1903 was \$878,000,000. During the last five years these exports have aggregated \$4,302,000,000.

"The United Kingdom takes about one-half of the exported products of this country; on the other hand farm products go from the United States to many strange and remote nooks and corners of the world.

The United States has a long lead over its competitors as a purveyor of meat to the United Kingdom. The cattle imports in 1900 were 43,000,000 of which the United States supplied seventy-two per cent., and Canada only twenty per cent."

Mr. Holmes shows that in supplying dairy products and eggs to England, however, the United States is far behind other countries. He states broadly that the United Kingdom takes one-half of all this country's exports of farm products, and Germany one-sixth and that our principal competitors are Australia, Argentina and Canada; in live animals, Argentina and Canada; in grain and its products, Argentina, Russia, Canada and Roumania; while in cotton the other countries of the earth have not yet produced a direct competitor for our upland varieties.

The Good roads question now being considerably agitated, and which holds out possibilities of being some political interest is by no means a new issue. Early in the last century road reform assumed such proportions that it was advocated by many of the great patriots of the day, and became, next to the tariff, one of the most important subjects discussed by Congress. Good roads were actively supported by such statesmen as Jefferson, Calhoun and Clay. During Jefferson's second term the bill admitting Ohio as a State passed Congress, and contained a proviso that five per cent. of the proceeds from the sales of public lands in the State should be set aside for road making, three per cent. for roads within the State and two per cent. for highways outside the State. In 1806, the sales of public lands in Ohio having amounted to \$600,000, the construction of the Cumberland Road was begun. It was built after the Macadam plan and was so well built that it is still a good road. This road is

Kills 'em Quick



Magic Death Powder

NOT A POISON, but a remarkable discovery which is very effective in causing stupefaction and death to all kinds of Insects infecting Poultry, Animals, Plants and Houses. Put up in a box ingeniously arranged for conveniently dusting or blowing the powder where wanted.

Send 25c. to **MAGIC FOOD CO.**, Chattanooga, Tenn., and get a book by mail. A beautiful picture in colors suitable for framing given **FREE** with each order during the next 30 days. Rid your Chickens of Lice, Pet Animals of Fleas, etc. Your House of Bed Bugs, Flies and Mosquitoes, by the use of **MAGIC DEATH POWDER.**

LICE.

KILL THE LICE AND MITES on your fowls and chicks with **GIBSON'S LIQUID LICE KILLER**, and **GIBSON'S INSECT POWDER**. Paint the Liquid on the roosts and bottom of Coops, and dust the Powder in the nest boxes. Both guaranteed or money refunded.

Liquid Lice Killer, \$1.00 per gallon; one-half gallon, 60c. Insect Powder, 5 oz. box, 15c.; and 16 oz. box, 40c. postpaid.

Agents wanted. Liberal terms.

GIBSON & LAMB, West Alexander, Pa.



Standard of the World

for 60 years. Used on 250 millions annually. One dipping kills Ticks, Lice and Nits. No smell. Keeps flock clean a long time. Increases growth of wool.

Dipping Tanks at cost.

Send for Pamphlet to Chicago.

If local druggists cannot supply, send \$1.75 for \$2.00 (100 gal.) pkt. to **JOHNSON & STOKES**, Philadelphia, Pa. **G. A. KELLY & CO.**, Pittsburg, Pa. **WM. COOPER & NEPHEWS**, Chicago, Ill.

For Sale or Trade.

The beautiful gray **PERCHEON STALLION DOM PEDRO**, recently brought in from the West, guaranteed sure foal getter, round and gentle. Reg. No. 15558. Weight, about 1,800 pounds. Reason for selling, mares in this section are too light. Price, \$800. Will trade for land, cows, sheep, goats or driving horses. **CHR. J. JEHNE**, Farmville, Va.

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..... IS A
HOUSEHOLD
Remedy



Cures —
**La Grippe,
Pneumonia,
Croup,
Influenza.**



**GIVES
PERMANENT
RELIEF.**



The Radia Company
Manufacturing Chemists,
Dept. K. DURHAM, N. C.

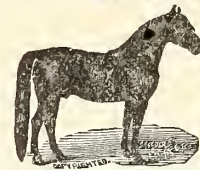
well described in a Maryland government publication, as follows:

"The road was excellently macadamized and the rivers and creeks were spanned by stone bridges. Its projector and chief supporter was Henry Clay, whose service in its behalf is commemorated by a monument near Wheeling. Scarce a day that did not see twenty gaily painted four-horse coaches pass each way on this road. Drove of cattle and sheep were never out of sight. Great canvass covered wagons with heavy loads moved easily along drawn by six, eight, ten and sometimes twelve horses. Within a mile of the road the country was a wilderness, unsettled, unbroken, but on the highway itself, the traffic was as dense as in the main street of a large town. Ten miles an hour is said to have been the usual speed of coaches but between Hagerstown and Frederick, it is claimed that the 26 miles was often made in two hours. These coaches ran regularly until 1853. A regular line of through freight wagons ran between Baltimore and Wheeling. They were drawn by six span of horses and carried 10 tons. Their rear wheels were 10 feet high. The tolls from this road at one time yielded dividends of 20 per cent. The part built by the Federal Government was some time ago transferred to Maryland. From 1810 to 1816 Congress appropriated \$680,000 for continuing the work on this road.

In 1817 both John C. Calhoun and Henry Clay advocated a measure for national road making, the money therefor to come from the revenues to the government from the National banks. The bill passed Congress but President Monroe vetoed it on the ground that he believed it unconstitutional. An attempt to pass it over the veto failed. Nevertheless Congress appropriated liberally for good roads out of the sales of public lands in the different States, as she had done in Ohio. In Louisiana, Indiana, Mississippi, Illinois, Alabama, Missouri, Iowa, Georgia, Tennessee and Arkansas turnpikes were built under this plan. From 1806 to 1838, \$1,600,000 was appropriated by Congress for roads in various places and in addition grants of land have been made from time to time to aid in the work and the labor of United States troops has occasionally been employed. Following the industrial and financial depression of 1837 but little government work was done in road making but in 1854 another period of activity began and lasted until the civil war, during which time over \$1,500,000 was expended on public roads. Since the civil war there has been practically no government road building, save in some instances in the District of Columbia, national cemeteries, etc.

Mr. C. P. Hartley, of the Department of Agriculture, contributes some popcorn lore to the Scientific American. He says that the popping of the corn

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.

IT'S GOOD

For every horse, cow, hog or sheep, and it is the only remedy which they take voluntarily and relish,

Blackman's Medicated Salt Brick

is the best stock remedy made (being the formula of a celebrated veterinarian) and being so pleasant to take, on account of the salt taste, does away with all trouble of dosing, drenching and mixing with feed. It is unequaled as a blood purifier, aider of digestion and general system regulator. Thousands endorse it.

Special Offer.—We will send four brick, pre-paid to any address upon receipt of \$1.00, which will be cheerfully refunded if you are not in every way pleased.

Sold by dealers. **BLACKMAN STOCK-REMEDY CO.,** 927 Highland Park, Chattanooga, Tenn.

Lump Jaw

Save the animal—save your herd—cure every case of Lump Jaw. The disease is fatal in time, and it spreads. Only one way to cure it—use

Fleming's Lump Jaw Cure

No trouble—rub it on. No risk—your money back if it ever fails. Used for seven years by nearly all the big stockmen. Free book tells you more.

Spavin and Ring-bone

Once hard to cure—easy now. A 45-minute treatment does it. No other method so easy—no other method sure.

Fleming's Spavin and Ringbone Paste

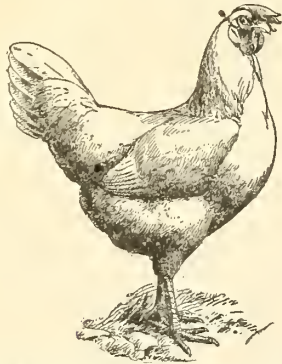
cures even the worst cases—none too old or bad. Money back if it ever fails. Free Illustrated book about Lump Jaw, Spavin, Ringbone, Splint, Peg Spavin and other stock ailments. Write for it.

FLEMING BROS., Chemists,
280 Union Stock Yards, Chicago, Ill.

DEATH TO HEAVES
Guaranteed

NEWTON'S Heave, Cough, Distemper and Indigestion Cure.
A veterinary specific for wind, throat and stomach troubles. Strong recommends. \$1.00 per can. Dealers, Mail or Ex. paid.
The Newton Remedy Co.,
Toledo, Ohio.

White Leghorns.



Eggs \$2.00 per 15; \$5.00 per 60; \$7.50 per 100. Circular shows winnings.
C. G. M. Fink, R. F. D. 2,
Richmond, Va.

EGGS for HATCHING.

75c. Per Sitting of 15.

Light Brahmas, Black Minorcas, S. L. Wyandottes, Barred and W. Rocks, Brown Leghorns S. and R. C; White Leghorns S. C.

A few more Leghorn and Minorca Cockerels left. J. B. JOHNSON, Manassas, Va. CLOVER HILL FARM.

Farm-Raised Poultry.

Two distinct flocks of Mammoth Bronze Turkeys from which we make matings for breeding purposes at reasonable prices. Eggs in season.

BARRED PLYMOUTH ROCKS,
WHITE PLYMOUTH ROCKS.

BIRDS AND EGGS.

PROGRESS FARM, Boz 52, Normandy, Tenn

SILVER-LACED WYANDOTTES.

Eggs For Hatching.

\$1.00 per 15 from strong and healthy birds of leading strains. A few choice pullets at \$1 each. Pure-bred Poland China Pigs at \$5.00 each.

Dr. H. H. LEE,
R. F. D. 2, Lexington, Va.



WALSH'S

Barred Plymouth Rocks

High class combination utility and exhibition stock. Best blood. Bred from prolific layers of large brown eggs. Eggs, \$1.50 per 15.

L. W. WALSH,
Lynchburg, Va.

Box 194.

CHOICE



FOR
HATCHING.

Of 40 Varieties Best Poultry. Fine, large illustrated descriptive Poultry Book postpaid, only 5c. Price list FREE. Write now.
JOHN E. HEATWOLE, Prop. Valley Poultry Farms, Harrisonburg, Va.

is due to the generation of gas from the oil contained in the kernel. Field corn does not pop as readily as pop corn because the shell is more porous, permitting the escape of the oil as it volatilizes, while in the case of pop corn a great pressure is developed in the kernel by the confined oil, and the kernel is suddenly exploded and turned wrong side out. Pop corn pops more readily when dry because when moist the kernels are swollen, the shell more porous and tougher and the kernels do not explode so suddenly and completely as when dry and hard.

Pate de foie gras is a dish for the epicure and while it is made simply from diseased goose liver, if the epicure will pay sufficient for it, the farmer may be excused for furnishing it. At least the goose has a good time while he is being stuffed to repletion with choice viands. The fattening period lasts from four to six weeks. The birds are closely confined and are fed two or three times a day, by cramming, an approved daily ration consisting of about a pound and a half of maize meal and beans cooked in water, the amount being increased as the appetite grows, the bird being supplied with fresh water, to which a little wood charcoal is sometimes added. The livers, by this process, are enormously enlarged, and furnish the basis of the dish.

The readiness with which anthrax may be communicated from one animal to another is noted in the experiment station record of the Department of Agriculture. A harness which had been upon a horse that had recently died with anthrax was placed upon a healthy horse with the result that the latter animal subsequently contracted the disease.

In experiments with rabbits the disease was contracted by lightly rubbing the anthrax germs upon the skin. There were no cuts or abrasions of the skin but the bacilli penetrated through the hair follicles.

GUY E. MITCHELL.

"THE VETERINARY ADVISER."

Doubtless many readers of the SOUTHERN PLANTER have procured the little book, the Veterinary Adviser, of which much is said from time to time in stock papers. Those who have not, will profit by sending for it. It is an admirable little veterinary guide, sent free to those who specially request it, by the Zenner Disinfectant Company, 93 Bates street, Detroit, Michigan, proprietors of the celebrated Zenoleum Disinfectant, Sheep-Dip and Lice-Killer, advertised in this issue. The work is a practical treatment of common every day ailments of all branches of the live stock family. Look up the Zenoleum advertisement elsewhere, and then do not fail to send for the Zenoleum "Veterinary Adviser."

... FEEDING OUR ...

BABY CHICK FOOD

PRODUCES

HEALTHY CHICKS.

SAMPLE FOR THE ASKING.

INCUBATORS, :-: :-:

BROODERS AND

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ALWAYS IN STOCK.

BIRDS, PET STOCK, GOLD FISH

EVERYTHING FOR THE FANCIER.

CATALOGUE FREE.

Having made a change in management we are better than ever, prepared to make prompt shipment.

FANCIERS' SUPPLY CO.,
517-519 West Broad St.,
Richmond, Va.

ORPINGTON SPECIAL

The popular fowl of the day is the Orpington. Eggs from best matings of our S. C. Buifs, \$1.50 per 15, or \$4 for 50, June delivery. July and August delivery at \$1 per 15, or \$3 per 50. Prompt attention and safe delivery. Poland China Pigs, 8 to 10 weeks old, at \$3.50 to \$5 each. OCCONECHEE FARM, Jeffers, Mecklenburg Co., Va.

PIT GAMES

Black Devils and Red Cubans.

Where they won, Sharon, N. Y., 4 out of 5. Blue Rock, Pa., 2 out of 3. Clarion, Pa., 5 straight. Roanoke, Va., 8 out of 9. Akron, Ia., 2 straights. Eggs, \$2 per sitting. Young trios, quail size, \$3.

THOS. W. JARMAN, Yancey Mills, Va.

EGGS

From my S. C. Black Minorcas and S. C. White Leghorns of the very best strains.

These breeds are raised on separate farms, and have free range. Eggs, 75c. per 15; \$1.50 per 50; \$4.00 per 100. I guarantee two-thirds hatch, or replace at half price.

J. MILTON GARNETT, Prop.,
Mitchell's, Va.

BROWN LEGHORNS.

Eggs for hatching from splendid layers, \$1.00 per sitting. Pens mated for best results.

R. W. HAW, Jr., Centralia, Va.

Piedmont Poultry Place,

"Handles nothing but the best."

We now offer Pure-bred POLAND-CHINA Pigs for sale. We will not sell under 8 weeks old. Single pig \$6; per pair \$10; per trio, \$14. Some ready for shipment May 15th. First orders get best pigs.

Miss E. Callie Giles, Prop.,
Whittles Depot, Va.

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

BARGAINS

for months June and July, **WHITE WYANDOTTE** eggs \$3.00 per 100.

EDGEMONT POULTRY YARDS.

JOHN A. REEDY, Prop. Liberty Mills, Va.

Fresh Laid Eggs

of Mammoth Bronze Turkeys, Bared Plymouth Rock, White Wyandotte and S. C. B. Leghorn Chickens. Safe delivery insured. Prices reasonable. MISS CLARA L. SMITH, Croxton, Caroline Co., Va.

White Minorcas,

Large well shaped birds. Prize winners and the best of Layers. Eggs supplied from the best of matings. Shipped safely anywhere. Catalog free. F. S. BULLINGTON, Box P, Richmond, Va.

Barred Plymouth Rocks.

Eggs for hatching 15 for 85c. 30 for \$1.50, 100 for \$4.50
F. W. MEYER, Farmville, Va.

COLLIE PUPS

By Imported Sires. Sable and white and tricolors. Prices \$8 to \$15. Older ones correspondingly low- Book on Training, 50 cents: FREE if you buy a Collie.
MAPLEMONT STOCK FARM, South Afhol, Mass.

Choice.....

COLLIE PUPS

of the best families.

Fine BERKSHIRES.

3 choice Sows, also some nice pigs, both sexes. Write me your wants. A. P. WHITE, JR., Prop., Accomac Herd, Parksley, Va.

2 good looking young

ENGLISH SETTERS

Partially broken on quail; dogs; 14 months old, black and white. Strong and healthy. One retrieves. \$25 each. If not satisfactory or not as represented will refund purchase money at any time within five months if returned to me in good condition. These dogs are level-headed and companionable. New York and Richmond references. Address, W. B. MEARES, Belvidere Field Dog Kennels, Hillsboro, Orange Co., N. C.

Edgewood Stock Farm.

SCOTCH COLLIES!

A beautiful litter of sables and blacks, full white marks. Bred strong in blood of Christopher, Barwell Mystery, and Doon Marvel. Sire and dam grand drivers, great workers. Pups now ready at \$10 and \$8. Eligible to registry. Get photos. H. B. ARBUCKLE, Maxwellton, W. Va.

Reg Scotch Collies.

Collie Pups from registered parents now ready. All Sables with full white points. SIMPLY BEAUTIFUL! and no better bred pups in the U. S. to-day. Sire the imported champion Wellesbourne Hope, 1st. winner at Pan-American, Chicago, Philadelphia and many other leading shows. He by Champion Balgreggie Hope, out of Champion Ormskirrk Ideal. Dam, Pee Dee Princess, by Imported Cheviot Production, winner of many firsts in England, out of Imported Brookside Minnie, also winner in Scotland and America. Bright, active, and alert pups, all with an eye single already for business. Order quick. \$3 to \$15. E. C. NEWTON, McColl, S. C., R. F. D. No. 2.

MOST POWERFUL BALING PRESS IN THE WORLD.

Now Being Exhibited at the St. Louis Exposition by P. K. Dederick's Sons.

Among the large agricultural machinery exhibits at the St. Louis World's Fair, that of the Dederick Agricultural Machine Works deserves notice, being the largest exhibit in its line ever made in the world.

Presses of all kinds are included in the exhibit, as follows: Steel case belt press, steel case reversible, wood frame belt, steel case full circle, new two wheel belt, new vertical full circle, double bale Columbian box press, Standard Columbian box press, steel case horizontal shaving press and hand operated box press. Power frame and gear wheels of XXX continuous extra heavy are also shown, giving, however, only a faint idea of the power of this press, which is the most powerful made. Sample bales of different kinds are also included in the exhibit. Special cotton bales with patented sample ridge, and hay bales pressed without bands—also hay baled to the density of oak wood.

The Dederick Works at Albany, N. Y., now conducted by P. K. Dederick's Sons, are known the world over as the oldest and largest in existence, and confining their output to the Dederick patents, of which there are about three hundred, have always been bailing press headquarters of the world.

HER FIRST.

A small boy, aged five, had a step-mother who was young and nervous. She had never had experience with children, and the small boy's slightest ailment tortured her into a panic.

Croup threatened one day, and the doctor was sent for in wild haste. As the doctor entered the room the child raised his head from his pillow and croaked hoarsely, in apology for the hasty summons.—

"You must excuse her, doctor, this is the first time she's ever been a mother."—May Lippincott's Magazine.

HURST SPRAYER.

The attention of our readers is directed to the advertisement of the H. L. Hurst Manufacturing Co., which appears elsewhere in this issue. The illustration shows the Hurst Field and Orchard Spraying Machine at work spraying potatoes. The machine sprays four rows at a time and is perfectly adapted to both high and low spraying. It also sprays small fruits, currants and gooseberry bushes and grape vines as well as tobacco, cabbage, strawberries, etc. It can be pushed along as easily as an empty wheel-barrow and it does the rest; although it is provided with a horse-hitch. Agencies may be obtained and the machine will be sent on ten days free trial.

RELIABLE SEED

FOR THE FARM AND GARDEN.

Millet, Amber and Orange Sorghum, Kaffir Corn, Teosinte, Buckwheat, Potatoes for late planting, Turnip Seed, and all varieties of Field and Garden Seeds of the highest quality and germination. Write us for quotations. Mail orders given prompt attention.

DIGGS & BEADLES,

1709 East Franklin Street,
RICHMOND, VA.

CATALOG MAILED FREE.

KENTUCKY JACK FARM

A fine lot of KENTUCKY bred and big BLACK SPANISH Jacks and Jennets; also 1 and 2 year old Jacks; young stock for sale at all times. Write or see me before you buy. Come to Kentucky if you want a good Jack. JOE E. WRIGHT, Junction City, Ky.



SPECIAL BARGAIN SALE OF JACKS.

For the next 60 days, I will sell some fine Jacks at ONE-HALF their value, in order to make room for the coming importation. I will also pay the R. R. fare of buyers during this time. Come at once for a bargain. BAKER'S JACK FARM, Lawrence, Ind.



WHAT DO YOU WANT?

There is no ROYAL ROAD to success, but the best travelled path in Virginia for those who want FANCY STOCK AND POULTRY, is the route to THE CEDARS P. & S. FARM, home of the aristocracy in poultry and stock. JERSEY CATTLE, DUROC JERSEY and POLAND CHINA SWINE, M. B. TURKEYS and B. P. R. FOWLS; ENGLISH SETTERS and BEAGLE HOUNDS. WM. G. OWENS, Midlothian, Va.

Meadow Brook SHROPSHIRE.

For sale; very fine one and two year old pure bred SHROPSHIRE BUCKS; some very nice ewe lambs. C. A. SAUNDERS, Meadow Brook Stock Farm, Culpeper, Va.

Shropshire Sheep.

One pure bred SHROPSHIRE BUCK. Also a few pure bred ewes and lambs for sale at moderate prices. A. S. CRAVEN, Greenwood, Va.

Woodland Farm

offers the best lot of October dropped Dorset Ram lambs which it has ever raised.

J. E. WING & BROS., Mechanicsburg, O.

BERKSHIRES

ANNEFIELD HERD

Contains the
Finest Blood Lines
fin England and America.

Young Stock for Sale.
Inquiries cheerfully answered.

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

Berkshires

Pigs farrowed February and March, 1904, from Registered Sows, by MASON OF BILTMORE II (68548), a son of LOYAL MASON, and a grandson of the famous LOYAL BERKS. Nothing but Biltmore blood in my herd and sure to give satisfaction to purchasers.

ROBERT HIBBERT, Charlottesville, Va.

BEECHENBROOK STOCK FARM.

High class registered
BERKSHIRE PIGS, ready
for immediate delivery.

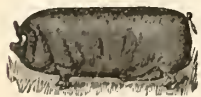
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WILLIAMSON TALLEY,
Richmond, Va.



Berkshire Boar 1 year old, by my imported son of the great **FIRST CATCH F**, and out of a **HIGHCLERE** sow for sale. Also a young boar (just weaned) by an imported son of **MANOR FAVORITE**, out of an imported grand-daughter of **LOYAL BERKS**. Best of breeding, best individuals, best dispositions, are to be found in my herd.

F. M. HODGSON,
West End, Va.



LARGE BERKSHIRES

Am offering a nice lot of pigs, April farrow, both sexes, at very reasonable prices. Try me with an order and be convinced. Correspondence solicited. J. W. McFADDIN, R. F. D. 1, Raphine, Rockbridge Co., Va.

BERKSHIRES.

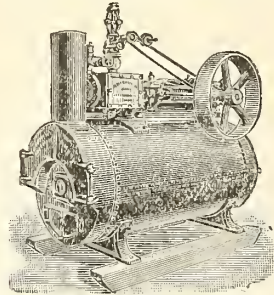
4 Boar Pigs farrowed March 11th at \$5 each if taken soon. Will furnish pedigree and deliver to express office here. **THESE ARE BARGAINS AT PRICE**; first orders will get them. T. M. KING, R. F. D. 2, Hagan, Lee Co., Va.

Maplewood Herd of Berkshires.

Choice individuals. Selectly bred. Write for prices, stating your wants. JOHN F. TUCKER, Smyrna, Tenn.

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For many years James Leffel & Co. have been manufacturing boilers and steam engines for every purpose requiring from three to sixty horse power. The illustration herewith shows



one style made by this firm which is particularly suited for farmers, dairymen and others who want power that is easily moved from place to place or an engine that develops any power from three to seven horse and at the same time occupies very small space. For those who need more power this company makes a vertical boiler with horizontal engine on the same base, which needs very little space and develops from six to thirty-five horse power. All the engines made by this firm are built so as to make the best use of fuel, and are economically operated. The firm publishes a catalogue containing numerous illustrations of their various boilers and engines, and giving details of construction and material that cannot fail to interest all those who contemplate using steam power on the farm. This catalogue is sent free to any one who asks for it. Address James Leffel & Co., Springfield, Ohio.

A PERSONAL REQUEST.

We want every reader of this paper who does hauling of any kind to send to the Electric Wheel Co., at Quincy, Ill., for their new booklet, "Wheel Sense."

We know that a good many farmers think they have not many spare moments at this time of the year, to indulge in reading, but this is a booklet which will not take many minutes to run through and its so full of good, sound sense, on the hauling question, that you ought not overlook it.

Of course, it tells about the Electric Metal Wheels and the Electric Handy Wagons—wide-tired, convenient and labor-saving. It is at this time of the year when users of wagons equipped with Electric Wheels, find them of greatest service in hauling manure, hay, in harvesting and for the thousand and one jobs about the farm for which a wagon is required. We cannot understand why so many men continue to load high wagons, cut up their fields, overwork their horses, when an investment of a few dollars for a set of Electric Wheels, would avoid so much hard work. Send for the booklet and see what hundreds of wide-awake farmers have discovered.

Berkshire Hogs!



Sires in service, **Rockland Majestic of New Era**; his sire **Rockland Gentry**, champion of America in 1903; grand sire, **Baron Lee IV**, **Model Lee IX**, sire **Gov. Lee**, champion of America in 1589, Sows of **EQUALLY NOTED** Strains. A few nice pigs for sale. Write for prices.

JNO. CALHOUN, Clco, S. C.

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Berkshire Boars,
Dorset Buck Lambs,
Jersey Bull Calves.

All stock in best of condition and guaranteed as represented.

F. T. ENGLISH, Centreville, Md.

Hawksley Stock Farm
has a lot of

BERKSHIRE PIGS
ready for shipment. They are good as the best. Also young Boars ready for service. B. P. ROCKS and S. C. B. LEGHORN EGGS, \$1 for 13. J. T. OLIVER, Allens Level, Va.

PIGS=PIGS=PIGS

I have some nice **ESSEX PIGS** from 4 to 8 months old, prices from \$6.00 to \$10.40 each I also have a few nice **SHEPHERD PUPS**, 4 months old at \$5 each.

Your orders solicited.
L. G. JONES, Tobaccoville, N. C.

ORCHARD HILL PURE-BRED

POLAND CHINA

Pigs and brood sows for sale. Also a fine Guernsey Bull Calf and S. C. B. Leghorn Eggs. F. M. SMITH, JR., R. F. D., 4, Charlottesville, Va.

REG. POLAND=CHINAS

With **SIZE** and **FINISH**; the **LONG, BROAD, LOW DOWN** kind that **GET BIG** quickly. I offer some very pretty pigs farrowed March and April, 1904, at prices any breeder or farmer can afford to pay. I am going to sell them cheap. Nothing but the very best shipped. W. B. PAYNE, Edgewood Farm, Crofton, Va.

Poland-Chinas and Chester Whites

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S. M. WISECARVER, - - Rustburg, Va.

Choice Poland-Chinas.

Sunshine and Free Coinage Blood.

Choice 2 1-2 months pigs. Either sex—ready for shipment. \$7 each. Eligible to registry and guaranteed O. K. Buy the best, it pays to do so. E. T. ROBINSON, Lexington, Va.

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WM. E. HAMMOND, Mansfield Farm, Goochland C. H., Va.

O. I. C. PIGS

from Registered stock, for sale at right prices. Address F. S. MICHIE, Charlottesville, Va.

Registered P. Chinas Berkshire, C. Whites. Fine large strains. All ages, mated not a in, 8 week, pigs. Bred sows. Service boars and Poultry. Write for prices and free circular. P. F. HAMILTON, Cochranville, Chester Co., Pa.



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Bred from Registered Stock, Imported from Canada. I. H. LAREW, Newbern, Va.

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— ONE REGISTERED — HEREFORD BULL

calf, 10 months old for sale, or will exchange for a heifer. W. J. McCANDLESS Brandy Station, Va.

WANTED 20 VIRGINIA or NORTH CAROLINA GRADE SHORTHORN

helpers, 2 to 3 years old, bred to Registered Bull, and to calve from August to January. Address, stating price, breeding on both sides, weight and age. JANNEY BROS., Gloucester, Va.

— I OFFER — 2 Reg. Ayrshire Bulls,

One 10 mos. old. PRICE, \$40.00.
One coming 3 yrs. old. PRICE, \$65.00.
Low considering Quality.

Registered and high grade HAMPSHIRE DOWN SHEEP of best breeding. Rams. Ewes and Lambs for sale. Stock and Prices will suit.

J. D. THOMAS, Round Hill Va. Meadow Brook Stock Farm.

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GOOD HOUSEKEEPING. POTATO YEAST.

Peel and grate eight good sized potatoes, pour a gallon of boiling water over them and let them boil for ten or fifteen minutes. When cool add one cup of salt, one cup of sugar and one yeast cake which has been dissolved in cold water, or a cup and a half of liquid yeast. (It is safer to use the yeast cake.) Put the yeast in glass jars but do not screw the tops on for twenty-four hours. After it has worked well keep it in a cool place, and you will have sweet bread as long as it lasts.

HARD SOAP.

Melt off the top of a tomato can as a measure. Take three cans of clean grease, one box of concentrated lye, and a bucket of cold water. Put the water on in two pots, in one put the lye to melt, then add the grease and let it boil steadily for an hour, then add the other half of the water a little at a time. Keep it all boiling slowly for another hour, add a handful of salt and pour it out into a box lined with an old bag. When it is cold cut in blocks and expose to the sun for a few days before packing.

STRAWBERRY WINE.

Buy the wild berries for this if you can get them, they have so much more flavor of the strawberry. Take six quarts of berries, pour over them three quarts of boiling water and let them stand till the next day, then crush and strain the juice twice through a cloth, to one gallon put two pounds of sugar, put it into a jug and set in a cool dry place to ferment, take care not to shake. After six weeks cork and seal. This is especially good for seasoning sauces and jelly.

CANNED STRAWBERRIES.

Pick over the berries carefully, but avoid washing if possible. Put them into a granite kettle with about a quart of water to six of berries. Let them boil for fifteen minutes, heat your jars, fill very full with the fruit and screw as tight as you can at once. Set them in a cool dark place and after they are thoroughly cold tighten the top. It is very much better not to put any sugar in them and is very important that they be kept in the dark. These make delightful ice cream, and are good served with sugar and cream, as any other canned fruit is done.

STRAWBERRY JELLY.

This is delicious. Take perfectly fresh berries and pick but do not wash. If positively necessary to wash them, put them in a sifter and pour the water over them shaking to get off the grit and let the water all drain away. Then put them in a kettle and bring to a hard boil, pour into a bag and let the juice drain off, taking care not to press the bag. To each pint of the juice weigh one pound of sugar. Put the juice on the fire in a granite kettle and put the sugar in a biscuit pan and set it in the stove to heat. When the juice has boiled fif-

JERSEY BARGAINS.

10 HEIFERS out of cows from the best in my herd, which I have been 30 years in building. They are the prettiest I ever saw. Price, \$30 each.

2 Reg. Bull Calves

6 wks. and 6 mos. old. Each out of a cow giving 2 pounds of butter per day, and by

Coquette's John Bull,

he out of a cow with a record of 18 pounds butter per week. Price, \$50 each. Also a U. S. SEPARATOR for sale at \$40; in good repair and cost \$125 new.

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Jersey Heifers

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Polled Durhams are Shorthorns with the horns bred off. They are all either red or roan. Buy a Polled Durham and lay aside the bloody dehornor.

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calves from fine milking stock.

Yorkshire Pigs

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Thoroughbred Horses
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Pure Southdown Sheep
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SCOTCH-TOPPED
SHORTHORNS...

Herd Headed by Governor Tyler, 158548, 1st prize aged bull at Radford Fair, Young Bulls and heifers for sale. Inspection and correspondence invited.

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SHORT HORN BULLS for sale, from 3 to 20 mos. old; sired by VERBENA'S CHAMPION, No. 129881, and ROYAL CHIEF, No. 185432. Some good POLAND CHINA spring pigs and 2 nice fall boars. All stock eligible to record. Rare bargains for quick buyers.

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MONTEBELLO HERD

ABERDEEN-ANGUS CATTLE

FOR SALE—2 Registered Bulls, calved Dec. 17th, 1902, and Aug. 28th, 1903.

Berkshire Pigs

(Biltmore Strain.)

farrowed May 1903. For terms, apply to

L. H. GRAY, Orange, Va.

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teen minutes add the hot sugar and let it boil ten minutes more. Some times it will take less time and sometimes a little longer. Fill the glasses and set them in the sun. If your glasses have tin tops, be careful to put several layers of paper over the jelly. This will keep it from molding.

CHICKEN CROQUETTES.

Scraps of a roasted fowl will do as well for these as one especially prepared. To one pint of finely chopped meat seasoned with one tablespoon of salt and one-half teaspoon of pepper, one teaspoon of onion juice, one of lemon juice, half a teaspoon of celery seed. Cream one tablespoon of flour with three tablespoons of butter and over it pour a cup of scalding cream, into this stir the seasoned chicken and one pint of fine crumbs, stir well and add two beaten eggs, boil about two minutes, take from the fire and let it get cold, then shape into balls or cones and roll in beaten egg and then in crumbs and fry in hot fat.

ORANGE ICE.

Grate carefully nine oranges and two lemons. Put the grated rind into a bucket with a cup of sugar and a quart of water, let it stand. Dissolve four full tablespoons of corn starch in a little cold water and pour boiling water over it to cook clear, about two quarts of the boiling water, then add six cups of sugar, pour it all over the grated rind, and add the juice of the fruit, add water enough to make nearly two gallons of ice and freeze hard. I use the corn starch because it is so much cheaper than the gelatine, but if you can afford it the gelatine is better, makes a smoother ice.

STRAWBERRY CREAM.

Crush and strain three quarts of berries. Make a custard of one quart of milk, four eggs and three tablespoons of corn starch, pour this into three quarts of milk and add the berries, freeze at once. This will make two gallons when frozen. You can put the two quarts of sugar in the milk or in the fruit. I usually put it in the fruit.

TAPIOCA MOULDED.

Soak two cups of tapioca in three pints of cold water all night. In the morning drain off the water which has not been taken up and put the tapioca into a double boiler with two quarts of milk, a cup and a half of sugar and a few blades of mace, let it cook for an hour. Wet a round bowl or a number of cups and turn the mixture into them. Set in the ice box and let it stand until thoroughly cold, turn out and serve with cream seasoned with vanilla. Rice is very good prepared the same way and I always mould it in cups and put a preserved cherry on top of each cup after it is turned out.

STRAWBERRY SHORT CAKE.

Make a dough with one quart of flour, one teaspoon of baking powder, one large spoon of lard and a teaspoon of salt. Make it up with sweet milk roll about half inch thick and cut

into square pieces about the size of an envelope, lay one piece on top of another and bake. When done take off the top pieces and butter, spread between them strawberries either cut into halves, or whole, and sprinkle generously with powdered sugar, put the top back and serve with cream.

CARAVEN.

— ROSEDALE HERD —

Aberdeen-Angus Cattle.

Choice bulls, 4 mos. to 4 yrs. old. Prices as low as good breeding will permit. Inspection of herd and correspondence invited.

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3 Registered
ANGUS-BULLS

9 months, 1 and 2 years old, for sale. Also half dozen Shropshire Buck lambs, September delivery. This is all fine stock and north of quarantine line. S. S. HEPBURN, Ashland, Va.

ABERDEEN-ANGUS Bull Calves.

I offer for sale two pure bred bulls of the above breed, born Dec. 15, and Jan. 30 respectively, sired by my registered bull, ROCKBRIDGE ABACTOR, No. 40364, and out of pure bred but unregistered cows. The Dec. 15 calf is full brother to one sold last season to Mr. Beard, of Moffatts Creek, Augusta county. The other is out of my largest cow and very promising. These calves will be kept with their dams until nine months old. \$50 each.

I have also a fine registered bull calf that will be ready for delivery in February. \$100. No females sold.

B. F. DAY, Glasgow, Va.

GREENFIELD HERD OF

Aberdeen Angus Cattle.

Baron Ida, 20184 (Champion yearling, 19 firsts, 17 times in 1st prize herd, 4 firsts on produce of sire and 3 times at head of grand sweepstakes herd) at head of herd.

The females in this herd are prize winners or the immediate descendants of prize winners sired by such noted bulls as Champion Lord Hillhurst, Beau Forbes H., by Beau Bill (champion of the West for two years); Cham. Baron Ida, Ludolph 4th, Rustler 2d.

Choice calves from the above cows sired by Baron Ida, Encouragement 46382, and Erard 55390.

WARREN RICE, Winchester, Va.

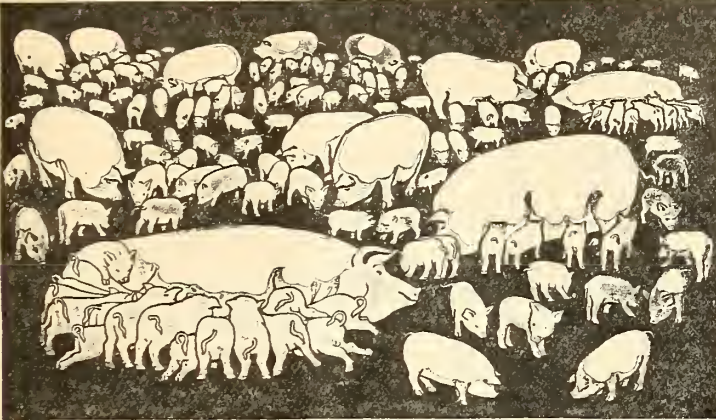
V. P. I.
Farm Bulletin

We are now offering some choice young Bulls of the following breeds:

Shorthorn, Hereford, Aberdeen-Angus.

Write at once for pedigrees and prices.

D. O. NOURSE, Prof. of Agr.
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 International Stock Food Co., Minneapolis, Minn.
 GENTLEMEN:—Word comes to us that one of Fithian's prosperous farmers, John Rueb, is the champion hog raiser of central Illinois. In the last two weeks he has had thirteen sows that farrowed 129 pigs, all living, healthy and strong. Mr. Rueb claims that his success is greatly due to his using "International Stock Food," which he has used for several years. John is one of the up-to-date farmers and he will continue to use "International Stock Food," and says he can always raise more pigs than any of his neighbors unless they use "International Stock Food." *From--ST. JOSEPH RECORD.*

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"INTERNATIONAL STOCK FOOD" FEEDS for ONE CENT. It won the Highest Medal at Paris Exposition in 1900 as a High-Class Medicinal Preparation, made from powdered Roots, Bark, Seeds and Herbs, to give to Horses, Cattle, Sheep, Goats, Colts, Calves, Lambs and Pigs, in small amounts as an addition to their regular grain feed to secure better digestion and assimilation so that each animal will obtain more nutrition from all grain eaten. Scientific authorities prove that the average animal digests 55 per cent. of the average kind of feeds. "International Stock Food" will cause them to digest 70 to 75 per cent. We paid the government \$40,000.00 war tax because "International Stock Food" was a high-class medicinal preparation. Many other kinds did not pay any war tax because they claimed to the government that they did not use medicinal ingredients and did not claim medicinal results. You can afford to use preparations of this kind only on a medicinal basis. "International Stock Food" purifies the blood, "tones up" and permanently strengthens the entire system. It cures or prevents many forms of disease. It will save you \$10.00 per year in the Feed of Every Horse You Work and its use will only cost you \$2.50 per year. It saves grain and 30 to 60 days' time in growing and fattening all kinds of stock and is endorsed by over one million farmers who have used it for fifteen years. It is absolutely harmless even if taken into the human system. Beware of the many cheap and inferior imitations and substitutes. No chemist can separate and name all of the ingredients we use. Any company or chemist claiming to do so is a Self-Confessed Ignoramus or a Paid Falsifier. Insist on having the genuine "International Stock Food." It is sold by 100,000 Dealers on a "Spot Cash Guarantee" to Refund Your Money if it ever fails to give you satisfactory, paying results and its use only costs you FEEDS for ONE CENT. We Have Factories at Minneapolis and Toronto, Canada.

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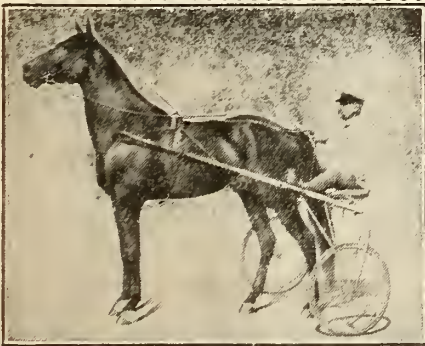
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Dan Eats "International Stock Food" Every Day and HOLDS FOLLOWING WORLD RECORDS:
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We own the World-Famous, Champion Pacing Stallion, Dan Patch, and have Fine Lithographs of him. They give complete record of all his Races and Fast Miles and are Free of Advertising. The large Lithograph will show Dan hitched as you see him in this engraving.

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IF YOU ANSWER THE "TWO QUESTIONS" AND SEND FOR BOOK DESCRIBED ABOVE.

Polly found her spelling-lesson very difficult, so her governess bought a pictorial book, in which every word possible was illustrated. Then Polly got on rapidly—so rapidly that Miss Miller began to be suspicious. So she put her hand over the picture, and then asked Polly:

"What does o-x spell?"

"Ox," answered Polly.

"How do you know?"

"Saw his tail!" exclaimed Polly gleefully.

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Insures Against Fire and Lightning.

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MUSIC AS APPLIED TO THE NEGRO PROBLEM.

MARY WASHINGTON EARLY.

In slavery times, music formed a large and important element in the lives of the negroes. It was the spontaneous expression of their naturally cheerful, mirthful temperament. They had harvest songs, corn shucking songs and above all, they had hymns in great abundance, with monotonous, childish words, but often with beautiful airs, some of them plaintive, and others exultant. Strangers visiting Richmond before the war were always carried to the tobacco factories to hear the negroes sing at their work, and the visitors were astonished and delighted at the rich, mellow voices of the sable singers, the accuracy with which they carried the different parts of the song, and the perfect time they kept. "Toll the bell for lovely Nell, my dark Virginia bride," "Camptown Races," "Uncle Ned," "Stop that knocking at my door," and many other native songs were sung on these occasions. Then there was wonderful singing at the old African church in Richmond, for the negro (who really is of a religious nature when not corrupted or inflated by evil counsel) is in his element when singing hymns, doing so with an unction and "abandon" which no white man but Moody or Sanky could emulate.

But after the negroes were liberated, and especially after a new generation had grown up, singing at their work was gradually dropped, as care and responsibility increased upon them, and their old light hearted mirthfulness died out. In the last year or two, however, I have noticed with pleasure that an effort is being made in some localities to revive the old time singing of negroes at their work, and I trust that the system may become generally inaugurated, as I believe it will have a beneficial moral effect on them, appealing to and softening their emotional nature.

About a year ago, I read a statement in a Louisville paper that "a piano is now a part of the complement of machinery in use in the factory of the American Tobacco Company, of Louisville, and the department of music has received official recognition in every tobacco manufacturing establishment operated by the Continental or American Companies." It was suggested to Mr. Smith, the general manager, that the stemmers in the leaf department of the Continental factory be allowed to sing while working, and as Mr. Smith remembered that the singing darkey in slavery times was the best worker, he agreed to this suggestion after consulting with the superintendent. The experiment met with such success that it was soon adopted by other factories under the same control. It was found to have a favorable effect both on the spirits and work of the employees. They were always in a good humor, and far

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ABERDEEN-ANGUS CATTLE.

BARON ROSEBOY 57666 by the world famous

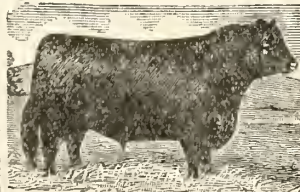
GAY BLACKBIRD heads the herd.

Females by such noted sires as Gay Blackbird, 14443, (sire of the highest priced American bred Angus bull), Ermon 18171, (by the champion sire of females Royal Eric), Eulalles Eric 15568, (2nd prize yearling bull at World's Columbian), Beau Bill 13637 (champion of the West for two years), Baron Ida 20184 (champion at N. Y. State Fair 1898), Baronet of Advia 1226 (by the "Judge" champion of the world).

Families represented in the herd are Coquette, Queen Mother, Nosegay, Westertown Rose, Old Rose of Advia, Violet, etc. We claim for our herd as good breeding as any herd in America. The individual animals in the herd have been selected with the one aim "quality" in view. Come and see, or write your order and let us guarantee a first-class animal.

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A. L. FRENCH, R. F. D. 2, Byrdville, Va.



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ABERDEEN ANGUS BULLS

of servicable age at a bargain.

Shepherd Pups the best of the breed at \$2.50 each. Come and see or write. W. P. ALLEN, Prop. of Glen

Allen Stock Farm, WALNUT HILL, VA.

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We have now coming ready for shipment seven litters of

LARGE YORKSHIRE PIGS

All recent experiments place this breed in front, as the best and most profitable bacon hog. They will raise 40 per cent more pigs and they will grow faster and make more pork in a given time than any other breed.

Also BULLS, YOUNG COWS and HEIFERS from our great JERSEY COWS.

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R. B. CHAFFIN & CO., (INC.) Richmond, Virginia.

less tired at the end of the day. The superintendent at the American Cigar factory was so pleased with the experiment that he asked for permission to purchase a piano. This was granted, and he next employed a young woman to play on it at intervals during the day—either as a solo or as an accompaniment to the singing. The workers were delighted with this innovation, and all of them agreed that the day seemed much shorter than it used to do.

Nor is singing at their work confined exclusively to negroes in tobacco factories. Some months ago, I read a very interesting description of the singing of the negroes as they worked in the lime quarries near Nashville, Tennessee. "This city," says the writer, "is situated in the centre of a great limestone section, and is surrounded by a cordon of quarries and lime kilns, many of which employ from 100 to 150 negroes. There is no more entertaining sight than to watch the negroes drilling blast holes in the rock with their long steel instruments. They begin work early in the morning, silently at first, but it is not many minutes before one of their number starts a song, and little by little, the others join in till the entire 125 are singing as they work. At the same time that the singing commences, the quarrymen catch the cadence and make their drills beat time to the words and music of the song, so the visitor beholds 125 half naked, perspiring negroes, all singing one song, not a man out of time, not a discordant note, not one of them singing too fast or too slow, but all keeping perfect time as though led by a trained orchestra leader. Their arms, heads and bodies are likewise all keeping time. At a certain note and word of the song every one of the 125 drills is raised simultaneously, and as the song rises and swells to the climax, all these drills fall on the hard stone with a resounding clang."

This description reminds me strongly of the account Lafcadio Hearn gives of the negroes singing at their work in the West Indies, of the wonderfully accurate time they keep, not only with their voices, but with their gestures, in singing. This exquisite perception of time which even the roughest and most ignorant negroes appear to possess as a natural gift seems to afford a fine basis for a musical education. It surprises me that more negroes do not betake themselves to a musical vocation. With proper advantages, they would, I believe, be better able to vie with the white race in this pursuit than in any other art or profession. With the strong race prejudice so generally existing against negroes in this country, it would be difficult or impossible for any negro musician (however gifted) to get admission into any troupe or caste of white performers, but if a concert or opera troupe could be organ-

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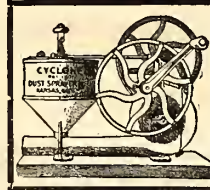
ized entirely out of well trained and highly educated negro musicians, I believe the results would be fine, but probably such an experiment, if made at all, would have to be carried out in one of the old countries.

But I have, however, a far more feasible suggestion to make in regard to music amongst negroes: I would strongly advocate its introduction into the negro schools. While we are paying millions to have them taught Latin, grammar and algebra (which make them neither more useful nor moral citizens) let some of that money and a very considerable part of it, be applied to introducing music into negro schools, and thence indirectly into their homes. Have an organ or a piano (or both) with some competent person to play on them and to instruct the negro pupils in music. I venture to say they will prove apt ones, as a love and quick ear for music are gifts that nature has bestowed on the sable race. I was especially struck with this fact in the case of a raw, uncouth little negro girl of the "Topsy" type, in the service of a family who bought a very fine large concert graphophone which played "Rusticana Cavalleria," the "Toreador" song from Carmen and other classical music. A few days after its arrival, the little negro girl might be heard, repeating these intricate airs with wonderful accuracy, as she picked up her chips or performed her other simple tasks. Their quick ear for sound enables them to learn to spell and read more rapidly than white children, though they do not keep up with the latter after the first stages of learning are passed.

The benefit that negroes have derived from the school routine is a questionable point. I see negro boys staggering under the weight of their school books (including Latin and algebra) and yet doubtless there are some among them who would, if opportunity were given, commit the most monstrous crime known to humanity. What they need far more than book learning is moral training and restraint, and music would conduce to this by softening and refining their natures, and supplying them with an innocent source of enjoyment at home, or in their own social circle, for music draws young people together innocently and pleasantly, leads to choir practising and other forms of concerted music, and even when practised in its most primitive forms, exerts a beneficial influence. By all means, then, let the authorities who have such things in charge, see to it that a liberal part of the funds set apart for negro education be applied to introducing music into the negro schools.

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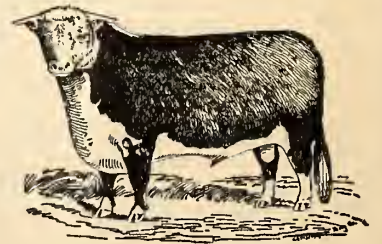
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NAMES OF FERTILIZING ELEMENTS.

In older States nitrogen is commonly sold under the name of "ammonia," phosphorus under the name of "phosphoric acid" and potassium under the name of "potash." To the farmer who really wishes and tries to understand the subject of plant food these names are very confusing; indeed, it is almost impossible for any one but a chemist to understand how these elements of plant food can be bought and sold under such absurd names. Let us consider for example the material sodium nitrate. This contains the three elements sodium, nitrogen and oxygen, as the name indicates (-ate means oxygen), and it is valued only for the nitrogen it contains, which amounts to nearly 16 per cent. in a good commercial grade of sodium nitrate. This is all simple enough. If sodium nitrate contains 16 per cent. of nitrogen this would be 320 pounds of nitrogen in a ton of the material, and, at 15 cents a pound for nitrogen, a ton of sodium nitrate would be worth about \$48. It is both absurd and unnecessarily complicated to sell sodium nitrate on the basis of "ammonia." First, because it contains no "ammonia"; second, because "ammonia" is not what the plant needs; and, third, because it is not "ammonia" that we would wish to buy even if we needed to purchase nitrogen. Ammonia is a compound of nitrogen and hydrogen, but no hydrogen is contained in sodium nitrate, and we have no need to purchase hydrogen, as water contains an abundance of that element.

Let us consider steamed bonemeal. This is valued for its phosphorus content, but in the older States it is sold on the basis of "phosphoric acid." This is perhaps more confusing and more absurd than "ammonia." Phosphoric acid is not contained in bonemeal, and phosphoric acid is not suitable for plant food, and people do not mean phosphoric acid when they say phosphoric acid. What they do mean is phosphoric oxid, a compound of phosphorus and oxygen, containing less than 44 per cent. of the element phosphorus, the real thing which we wish to purchase. Phosphoric acid is a compound

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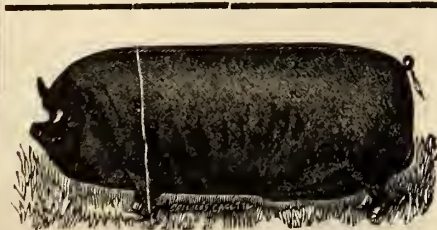
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of phosphorus, oxygen and hydrogen, the last two elements being contained in water. Even phosphoric oxid is not contained in bonemeal, and that compound would not be a suitable form of phosphorus for plant food. Why all this unnecessary complication? Good steamed bonemeal contains about 12½ per cent. of phosphorus, or 250 pounds of phosphorus in a ton. This is a valuable element of plant food. At 12 cents a pound for phosphorus the steamed bonemeal would be worth about \$30 a ton. This is all simple and plain enough so that any one can easily and fully understand it, the farmer as well as the fertilizer dealer or manufacturer.

Again, let us consider such a material as potassium chlorid, a compound of the two elements potassium and chlorin, containing in the common market grade about 42 per cent. of the element potassium. This compound is commonly sold in the older States under the incorrect and confusing name of "muriate of potash," and it is sold on the basis of "potash." The term muriate, ending in -ate, would indicate that this material contains oxygen, but this is not true, as it contains only potassium and chlorin, although there is no indication of chlorin in the name of muriate of potash. Potash is a compound of potassium and oxygen, containing 83 per cent. of the element potassium; but there is no oxygen in potassium chlorid, and consequently there is no potash in potassium chlorid. Furthermore, potash, which is potassium acid, is a lye ("this is no joke") and not suitable for plant food, and it contains the element oxygen which nobody cares to purchase, as the air is one-fifth oxygen and water is eight-ninths oxygen.

Potassium is a valuable element of plant food. Ordinary potassium chlorid contains about 42 per cent. of that element, or about 840 pounds in a ton of material, which at 6 cents a pound for potassium would be worth \$50.40 a ton. This again is direct and simple and all that is necessary fully to understand the purchase of this element.

Of course we can say "potash" and explain what we mean by it. For example, if potassium chlorid contains 42 per cent. of potassium it contains sufficient potassium to make about 50 per cent. of potash if the potassium were made to unite with oxygen to form potash, but as the potash which might thus be formed would contain oxygen its value per pound would be

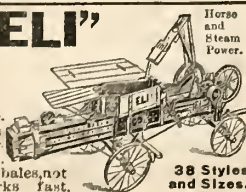
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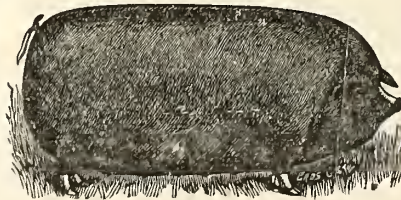
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less than that of potassium, the value of potash depending entirely on the amount of potassium it would contain. By remembering that potash would contain only about 83 per cent. of potassium it will be seen that with potassium at 6 cents a pound would be worth only about 5 cents a pound, and consequently that a ton of potassium chlorid (or shall we say "muriate of potash"?) containing sufficient potassium to make 50 per cent. of potash would contain in one ton enough potassium to make 1,000 pounds of potash, which at 5 cents a pound for potash would make \$50 a ton for potassium chlorid; or if we were to make all the computations with absolute accuracy it would come out \$50.40, as given for potassium.

I once spent nearly two hours' time with a very progressive and intelligent Illinois farmer who desired me to explain exactly what muriate of potash is and what the analysis showing 50 per cent. of potash means. After nearly two hours' work he actually gave the problem up, saying that he could not understand it. As a chemist I can understand it, but I cannot understand why scientific men working in the interest of agriculture should encourage the continuation of such an outrageous system for reporting the analysis of fertilizers or plant food materials. About the only reason which is ever given for using the terms ammonia, phosphoric acid and potash is that they do so in the older States, although there are some people who say that the farmers do not need to understand the matter.

It may be that there would be some difficulty in the older States in changing from these long-used though misused names to the names of the elements, but it would be no more difficult than to change from the older money systems to the decimal systems, as has been done by almost every civilized nation excepting England, or to change from the old cumbersome systems of weights and measures to the simpler metric system, as has been done by nearly all countries excepting the United States and Great Britain. Certainly we have no right to force these old incorrect and meaningless names on the progressive farmers of the great Central West. They desire to understand both the practice and science of agriculture. It is only in agriculture that these absurd names are used. In the steel and iron industry, when they have anything to say about phosphorus, they say phosphorus; in pharmacy and medicine when they say phosphoric acid they mean phosphoric acid.

In a late publication from the United States Department of Agriculture,

Bear in Mind

everything.

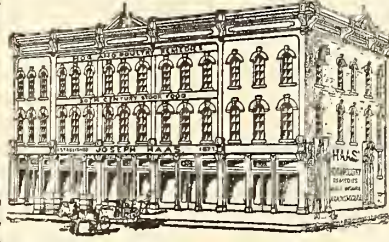
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Bureau of Soils (Bulletin No. 22, "The Chemistry of the Soil as Related to Crop Production"), all analyses reported show the amount of the element potassium and not potash.

Already several of the States have passed laws compelling the use of nitrogen in place of ammonia in fertilizer analysis and the Illinois Legislature upon request of the Illinois State Farmers' Institute has passed a law requiring that all fertilizers sold in this State shall bear a statement of the analyses which shall show the exact percentages of the three elements nitrogen, phosphorus and potassium contained in the fertilizer sold. The Illinois fertilizer manufacturers supported the bill for this law making the purchase and use of plant food more readily intelligible to the farmer, and it is not too much to hope that other States will join in reducing the purchase and sale of fertilizers and the use of plant food to the simplest possible basis.

CYRIL G. HOPKINS.
University of Illinois.
(To be Continued.)

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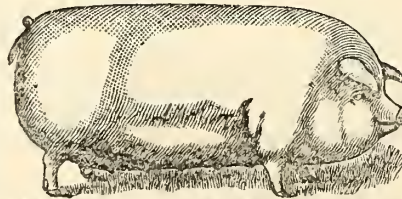
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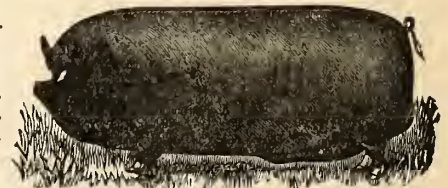
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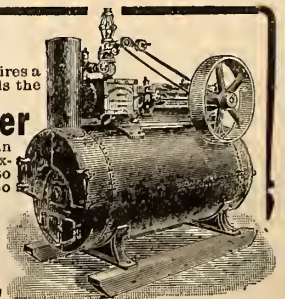
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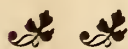
SPECIALTY. Write for descriptive circular of eggs from our prize-winning pens. Over 50 yards to select from, made up of the winners at the leading shows for the last two seasons. If you want winners you must breed from winners.

Headquarters for the best IMPORTED ENGLISH BERKSHIRES.

APPLY TO BILTMORE FARMS, BILTMORE, N. C.

EGGS FOR HATCHING

The Imperial Fruit and Poultry Farm



Is now booking orders for eggs for hatching from strictly pure, high-class poultry, at \$1.00 for 15 eggs, except duck eggs, which are \$1.00 for 13.



BARRED PLYMOUTH ROCKS, WHITE PLYMOUTH ROCKS,
SINGLE COMB WHITE AND S. C. BROWN LEGHORNS,
SILVER LACED AND WHITE WYANDOTTE,
MAMMOTH PEKIN DUCKS.

Satisfaction Guaranteed. Write your name and address plainly.

P. H. HEYDENREICH, Prop., : : : Staunton, Va.

A HAT-PIN.

ALL ABOUT IT.

Oh, Reginald Van Buren lived
A very happy life,
Until one day a gift he bought
And gave it to his wife.

The gift was just a hat-pin, but
The head was an odd tint,
A sort of brown enamel with
A lovely reddish glint.

Was Reggie's wife delighted? Well,
Delighted!—she was that!
She cried, "To match this hat-pin, why,
I'll have to have a hat!"

She got a hat to match the pin;
To match the hat, a veil;
And now we are but started on
This very thrilling tale.

To match the veil she got some gloves;
To match the gloves, a purse;
And from that moment, really,
Things went from bad to worse.

To match the purse she got a skirt;
To match the skirt, a waist;
To match the waist she got a cloak:
All chosen with good taste

To match the hat-pin. Then she
bought
Innumerable things,
From lingerie to things you see,
From shoestrings up to rings.

To match this toilette all complete
The parlor was arranged;
To match the parlor, next the house
From basement up was changed.

But when this transformation scene
Was finished and complete,
The dear dame thought the dwelling-
place
Was better than the street.

And so she found a street to match
Her dwelling and her gown;
And then, "Alas, alack!" she cried,
"The street don't match the town!"

Poor Reginald Van Buren stormed,
While Mrs. Reggie cried;
She had hysterics, got quite ill,
And pined away and died.

L'ENVOI.

So, husbands, now take warning all,
Unless you'd live in strife;
Give any mortal present but
A hat-pin to your wife.
—Harold Melbourne, in May Lippon-
cott's.

Mr. W. A. Sargent, the owner of the famous Maplemont Stock Farm Collie Kennels, has sold his farms and lands in Vermont and bought a place in South Athol, Mass. This move on the part of Mr. Sargent, is made that he may devote his whole attention to Collies, of which he makes a specialty. The new address is Maplemont Kennels, South Athol, Mass.

St Albans School



Prepares Boys FOR UNIVERSITY OR FOR BUSINESS

SEND FOR ANNUAL CATALOGUE, IN WHICH IS
PUBLISHED "PLAN OF ST. ALBANS SCHOOL."

Address, W. H. RANDOLPH,
Head Master,
RADFORD, - - - VIRGINIA.

SITUATED ON A
SUNNY HEADLAND
ABOVE THE
BANKS OF NEW RIVER,
IN THE
BLUE GRASS REGION
OF VIRGINIA

CHARTERED 1870.

MERCHANTS NATIONAL BANK

OF RICHMOND, VIRGINIA.

Capital Stock,	-	-	-	\$200,000.00
Surplus and Profits,	-	-	-	\$672,445.75

Designated Depository of the United States, City of Richmond and Commonwealth of Virginia.

Being the Largest Depository for Banks between Baltimore and New Orleans, this Bank offers superior facilities for direct and quick collections.

JNO. P. BRANCH,
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JOHN F. GLENN
Cashier

DO YOUR TRADING

Where an established reputation warrants continued confidence. The name of LUMSDEN on anything in the JEWELRY or SILVERWARE line is a STANDARD of QUALITY.

FINE GOLD AND DIAMOND JEWELRY,
STERLING SILVERWARE AND CUT GLASS.

SIX SOLID STERLING SILVER TEA SPOONS, \$3.30. Write for our catalogue; it contains many articles on which we can save you money.

C. LUMSDEN & SON, Established 1835, 731 East Main Street, Richmond, Va.

Where to Sell Your WOOL

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

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

THE WALLERSTEIN PRODUCE CO., 19 & 21 So. 13th St., Richmond, Va.

References: American National Bank and Richmond merchants generally.

HEALTHY BEDROOMS.

Each person requires 1,000 cubic feet of air in the sleeping room. Measure the room you sleep in and see if you have 1,000 cubic feet. Multiply the length by the breadth, and then multiply this product by the height of the room, and if this equals 1,000 you have 1,000 cubic feet. For instance, your room is 10 feet square and 10 feet high, then you have exactly 1,000 cubic feet in your sleeping-room. A room of this size, if it is well ventilated, is, says Science Siftings, sufficient for healthy respiration. If it is smaller than this, it is insufficient. If your sleeping-room is only eight feet high, it should be a little over eleven feet square. From these examples anyone can figure up for himself the size of his sleeping-room. Generally speaking, however, if more attention were paid in the direction of keeping bedroom windows open all night, summer and winter, less attention would be required as to the size of the room.

"NO MORE DOCTORS FOR ME."

East Troy, Wis., April 16, 1904.
Dr. Jos. Haas, Indianapolis, Ind.:

Dear Sir,—I would not be without your Remedy. A party at Beloit has just lost \$10,000 through the loss of his herd of fine hogs. He had Doctors there night and day but they were of no use as the hogs died just the same. I do not think he was wise or he would have used Dr. Haas' Hog Remedy. I employed the best doctor in Waukesha county when my hogs were sick yet they died. No more doctors for me as long as I can get Dr. Haas' Remedy. Truly yours,

F. A. RHODES.

At a concert held at a certain town a soldier of the Black Watch occupied a seat in front of a private of an Irish regiment and his sweetheart. The latter was very much interested in the Highlander's uniform, and scanned the regimental badge on his cap and collar particularly. This badge is the figure and cross of St. Andrew, with the motto, "Nemo me impune lacessit." (No one annoys me with impunity.)

"Phwat does that writin' mane, Patsy?" asked the girl.

"Phwy," replied Pat, "it's Latin, but I've forgotten the English av it. But in good ould Oirish it manes, "Thread on the tail av me coat if ye dare!"

IMPORTANT TO FARMERS.

Carthage, N. C., April 9, 1904.—I have carefully examined the plan of Bryan Tyson for balancing the manure of various domestic animals and I find it to be correct and easily proven.

I believe that if it is generally used by the farmers it will result in much benefit to them.

J. J. PAYSEUR,

Prin. of Carthage Academy.

Carthage Blade, April 28, 1904.

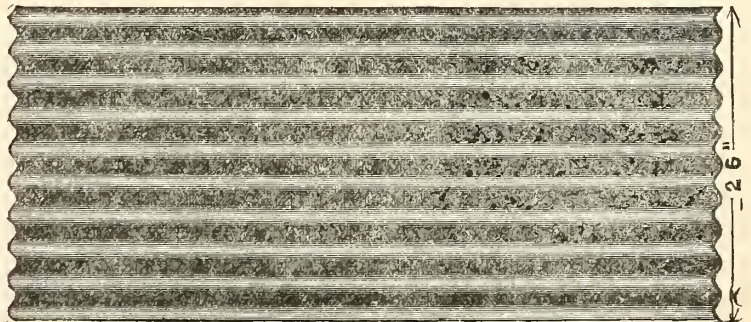
Local agencies and complete repair stocks everywhere

MILWAUKEE HARVESTERS

International Harvester Co. of America, Chicago, U. S. A.

ROOFING OF ALL KINDS.

Painted Corrugated Roofing, Painted V. Crimp Roofing, Roofing Tin in boxes or rolls, Tarred Roofing Felt, Perfected Granite Roofing.



Send us the DIMENSIONS OF YOUR ROOF, stating KIND OF ROOFING wanted, and we will quote you on sufficient quantity to cover it.

You can ADD YEARS to the life of your roof by painting it with our

Magnet Red Roofing Paint.

1 gallon will cover 2½ squares. Can furnish in any size package, 1 gallon up. Only the very HIGHEST GRADE material enter into the manufacture of this paint. Write for prices.

We also carry a complete stock of Conductor Pipe and Gutter, Solders and Metals; Galvanized and Black Sheet Iron, etc.

Southern Railway Supply Company,

1323 East Main Street,

RICHMOND, VIRGINIA

IGNORANT OF ITS USE.

Old Doctor Miskelli, of the Red Bank neighborhood, was very fond of chewing tobacco, and he was, moreover, a bit careless as to where he expected.

On one occasion he had called at the home of Mrs. Simmons, an old lady who believed that cleanliness comes next to Godliness. This lady, knowing the spitting proclivities of the Doctor, had provided for his use a fancy china cuspidor. The Doctor, however, ignored its presence and continued spitting upon the floor of the veranda where they were seated. At the same time Mrs. Simmons kept moving the cuspidor gently into a more and more favorable position for the old gentleman's use.

Finally, becoming exasperated at the queer doings of his hostess, the Doctor with some warmth exclaimed,—

"Mrs. Simmons, if you don't move that thing I'm going to spit in it!"—
Hugh A. C. Walker, in May Lippincott's.

Nothing but the best and purest shaving soap should ever be used on the face. The tendency to use "any old soap" is dangerous and untidy and often causes soreness and irritation that may result seriously. Poor soaps bite and sting and take the edge off your razor; in fact, they are unsatisfactory in every way. We advise the use of Williams' Shaving Soap as a means of overcoming all these difficulties. Send a 2 cent stamp to the J. B. Williams Co., Glastonbury, Conn., for a trial sample.

A student in one of the theological seminaries recently went up for examination, and it was seen that he was sadly deficient in his knowledge of the Bible. It was also seen that he could not pass, but the examiner, who wanted to show that he knew something, asked him if there was any verse in the Bible that he knew. Yes, the young man knew one.

"What is it?"

"Judas went out and hanged himself."

"Don't you know any other?"

"Yes, just one."

"You may repeat that one also."

"Go thou and do likewise."

Have you read the story of "Samuel Slow and Solomon Spry"? It tells about saving work and making money on the farm. Send for a free copy. Electric Wheel Co., Quincy, Ill.

A sheep dip that kills insects without injury to the animal or its skin and fleece, prevents fresh attacks, kills nits and eggs, also in one dipping, has no objectionable smell and acts also as a tonic and stimulant to the fleece certainly has claim to patronage. The Cooper Dip claims all these conditions.



**GENUINE OLIVER CHILLED
STEEL BEAM
AND REPAIRS.**

PLOW

This far-famed and world-renowned Plow we guarantee you is worthy of all that is said in praise of it. Wood Beam also furnished. Write for large Illustrated Catalogue.

We are general distributors of the GENUINE ONLY.

Farm Tools and Supplies

Large Illustrated Catalogue for 1904 just issued, embracing Hand, Horse and Power Labor-Saving Implements.

You must save as well as make money.

Write for this FREE catalogue at once.

NORFOLK FARM SUPPLY CO.

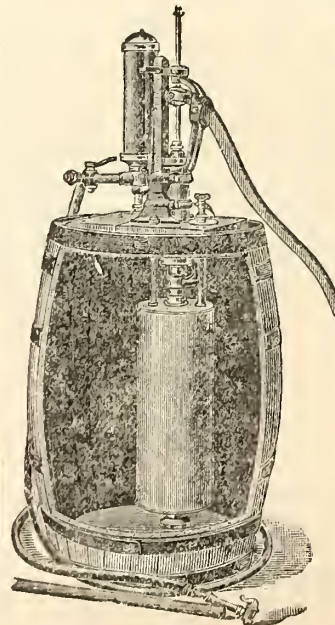
Implements Fertilizers
Poultry Supplies Wheel Material

41 to 51 Union Street, NORFOLK, VA.

INCUBATORS AND BROODERS.



Season is at hand. HEN PRODUCTS higher than ever. Our prices low. Write for Free Catalogue.

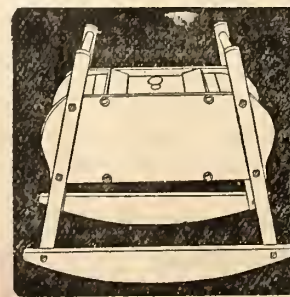


SPRAY NOW

and save your fruit and vegetables. CATALOGUE and SPRAYING CALENDAR giving FORMULAS, free for the asking.

Our Pumps used by Virginia and North Carolina Agricultural Departments
Pumps, Wind Mills, Rams, Fencing, Gasoline Engines, etc.

Sydnor Pump and Well Co., Inc.,
BOX 949,
RICHMOND, VA.



The **ROCKER CHURN**

Gets the butter from the cream down to the one thousandth part. Made of tasteless wood and the churning process is entirely the result of its own motion—no machinery inside or out to get out of order or require oiling.

Its Special Advantages

are: 1—Simplicity. 2—Least friction. 3—Gravity does the churning, a child can operate it. 4—Absolutely no adjustments, always ready. 5—Nothing but the churn box to clean, easily accessible. 6—Violent agitation of cream without paddles or dashers. 7—Gives the finest grade of butter of any churn on the market. **WE PAY THE FREIGHT.** Your money back if not satisfied. In eight convenient sizes, 8 to 60 gallons. Price as right as the quality. Illustrated circulars free.
Rocker Churn Mfg. Company, Forsyth, Georgia.

A. C. SINTON, President.

R. R. GWATHMEY, Vice-President.

J. J. SUTTON, Secretary.

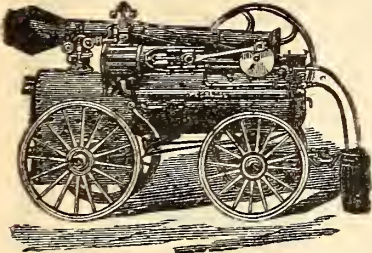
ESTABLISHED 1840.

THE WATT PLOW CO.,

INCORPORATED 1893.

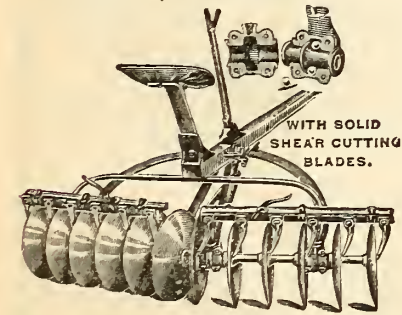
15th & Franklin and 14th & Main Sts., Richmond, Va.

Agricultural Implements, Machinery, Vehicles and Harness.

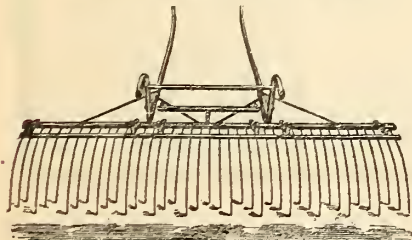


PEERLESS ENGINE.

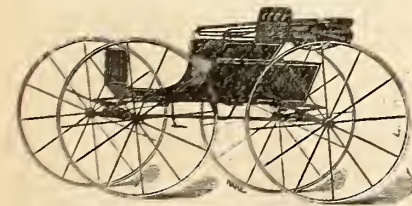
THE BUFFALO PITTS ALL-STEEL, SPRING-FLEXIBLE, DISC HARROW.



WITH SOLID SHEAR CUTTING BLADES.



CEMENT IMPROVED WEEDER.



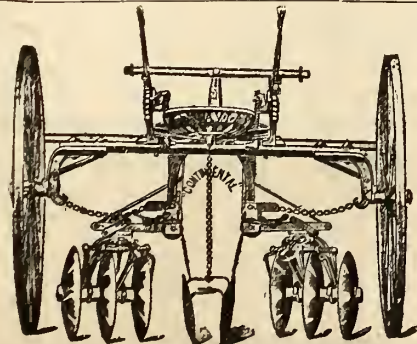
ALL STYLES OF BUGGIES.



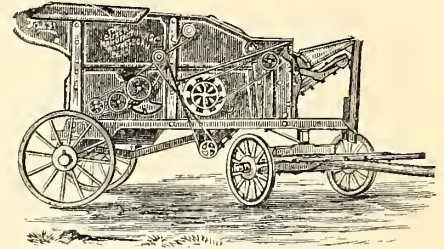
SPIKE TOOTH HARROW.



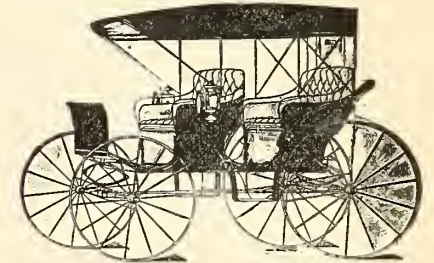
SOUTH BEND PLOW.



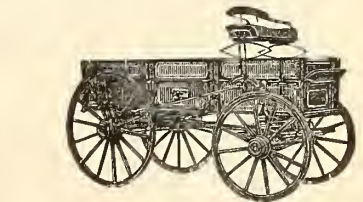
CONTINENTAL DISC CULTIVATOR.



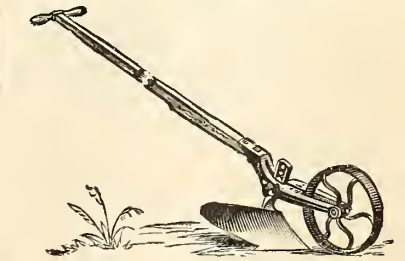
GEISER SEPARATOR.



EXTENSION TOP SURREY.



FISH and WEBER WAGONS.



FIREFLY GARDEN PLOW.

A full stock always on hand, and prompt shipments guaranteed. South Bend, Dixie and Farmer's Friend Plows and repairs. The Hancock Rotary Disc Plow, warranted to go in the ground where all others fall.

A large and complete stock of open and top buggies, surreys and spring wagons. Fish, Weber and Columbus two-horse Farm Wagons. Champion and Hickory one-horse Wagons. John Deere and Continental Disc Cultivator. Roderick Lean Land Rollers.

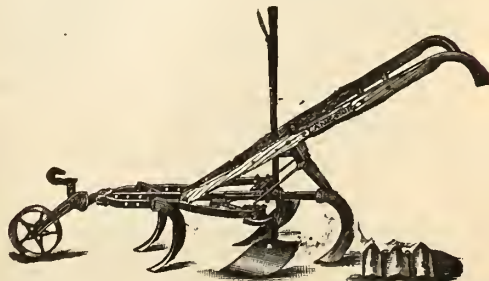
Hocking Valley Feed Cutters, Cyclone Shredders, Smalley Feed Cutters, Dain Corn Cutters. Equal to any made. Staver Buck-eye Feed Mill and Horse Power Combined.

Whitman All-Steel, full circle Hay Presses. George Ertel Company's full circle Hay Presses. Rapid Fire Horse Power Hay Press, for one horse, a good, cheap press. Will put up from 150 to 200 bales a day. The well known Minnch Hand Balling Presses.

Hocking Valley Wine and Cider Mills. Hard wood rollers. The best mill made.

Hocking Valley Corn Shellers, for hand or power. Smalley Electric Pole and Wood Saws, for steam or horse power. Peerless Engines and Saw Mills always in stock. Several good second-hand Engines and other second-hand machinery for sale. "Pittsburgh Perfect" fencing, electrically welded. Barb Wire, Plain Galvanized Wire, Balling Wire, and Bale Ties. Continental Disc Harrows, Buffalo Pitts and Lean Spike Harrows. A full line of Planet Jr., Garden Tools.

We will be glad to mail you a copy of our new catalogue.



COMBINED CULTIVATOR, AND HORSE HOE.

THE WATT PLOW CO.,

15th and Franklin and 14th and Main Streets, - - RICHMOND, VA.

THERE'LL BE NO IRISH THERE.

A woman sat in a street-car in a Canadian town one day when the car stopped at a crossing and another woman got in and sat beside the first woman, saying, "Well, well, Mrs. Fiew-close, wherever have you been all summer?"

"Oh, we were at the Lake."

"So were we—at Grand Bend."

"We were at Port Stanley," said the woman who had opened the oratorical contest.

"Have a nice time?"

"Well, not exactly. There's so many Irish there," she added with a weary look, but without so much as a glance about the car.

"Same way at the Bend—Irish, Irish everywhere."

A stout lady under a green hat that turned up behind sat in the seat immediately in front of the elocutionists. The stout lady turned and sized them up, but by this time they were dead to the world.

As the car rattled on they talked of everything and most everybody, and finally fetched up at the summer resorts with Irish for dessert.

By this time there was Irish stew in the front seat.

The stout person under the pea-green hat turned and shone on them. "Ladies," she began, "I've me give yez a bit uv advice—the next time ye get a holiday, yez better spend it in hell—there'll be no Irish there."—Cy War man, in May Lippincott's.

EQUAL OF CAUSTIC BALSAM CAN NOT BE FOUND.

Portsmouth, Va., Jan. 23, 1904.

The Lawrence-Williams Co., Cleveland, Ohio:

I use your GOMBAULT'S CAUSTIC BALSAM for blistering and its equal cannot be found. I never use any other. P. C. CODD, V. S.

A FEW FUGITIVE QUERIES.

Is a plain face an open countenance? (Not so bad.)

Are all blondes light-headed? (Clever!)

Can a big bluff be termed a Hill? (Tut! tut!)

If you strike a bell buoy can you ring the bell for a boy? (Gee, but that's fierce!)

What's the use of living in sky attics when you only get sciatica? (That's worse.)

If you ask a man to have a drink and he replies, "I'd like to," and you say, "Me, too," do two and two make four? (Sure, Mike!)

Lawyer—What was the thing that led to your financial downfall? You seemed to be doing a good business.

Bankrupt—I was, but one day I started out to see if I could borrow some money. I found it so easy that I kept on borrowing.

\$5

SPLIT HICKORY SPECIAL

30 DAYS FREE TRIAL

SPLIT HICKORY SPECIAL TOP BUGGY

This is a strictly high quality buggy at a very low price. There is nothing cheap about the buggy. \$75 is the very least its equal would be sold for by any dealer, and you will see that it is well worth that price when yours arrives. We propose this year to **Make to Your Order** one of our Split Hickory Special Top Buggies, send it to you promptly, accompanied by our Iron Clad Two-Year GUARANTEE, **Try It Thirty Days Free** and allow you to



is Made to Order, as You Want it, FOR ONLY \$50

The price to you is but \$50, the cheapest price at which a buggy of this quality was ever sold. It loads them all in finish, style, quality and durability. If you do not agree with us that it is the biggest buggy bargain you ever saw and well worth \$75, you are not obliged to keep it. Our free trial plan protects you. We do not ask you to take our word for anything, but you get the buggy on trial, hitch up to it, use it as you would your own, and decide for yourself. We carry on hand a large quantity of these buggies in rubbing varnish ready for finish, which permits our making any reasonable changes in the finish or construction and shipping without unnecessary delay.

Here are a few of the 100 POINTS OF MERIT. Longitudinal Center Spring, which prevents backward and forward motion, strengthens the gear and braces the body. Screwed rim wheels, hot set, 1/4 inch round edge steel tires, oil tempered springs, long distance axles, cemented axle beds, two extra clips on axles more than are furnished on other buggies, choice of wooden spring bar or Bailey hody loop, 16oz. imported all wool broad-cloth upholstery, open bottom spring cushion, solid panel spring hack, water-proof top with genuine No. 1 enameled leather quarters and hack stays, 28 oz rubber roof and hack curtain, back curtain lined and reinforced, oil and lead system of painting, 16 coats all wood work carried 100 days in pure oil and lead, padded patent leather dash 18 inches high (2 inches higher than ordinary) full length velvet carpet, toe carpet, panel carpets, board hoot on back of body, lined seat ends, rubber side curtains, quick shifting shaft couplings, double braced shafts with heel and corner braces, 36 inch point leathers, round leathers on single tree, line holder on dash, patent trace holder on single tree.

There are many other special points of merit too numerous to mention here. Our 186-Page Catalogue which is FREE tells you all about this buggy and all of our other Split Hickory Styles. Remember you can not get Split Hickory Vehicles from anyone else as we do not sell to dealers or agents, but our entire output is sold direct to consumer at wholesale rock bottom prices. The readers of this paper are customers of ours and they know and the Editor knows that we are in every way perfectly responsible and will do just as we say we will. Write for our Catalog today. It will save you money. Note—We manufacture a full line of high grade Harness, sold direct to the user, at wholesale prices. The Ohio Carriage Mfg. Co., (H. C. Phelps, President,) 4710 Sixth St., Cincinnati, Ohio.



A Washing Machine is as great a necessity in the house as a wringer

The Majestic Rotary Washer

has too many good points for explanation in an advertisement. Your name on a postal card will bring our booklet, with full particulars of our six different machines and how to get them. One of them will certainly please you. All are made with electrically welded wire hoops sunk in grooves—our patent. Being the largest manufacturers of woodenware in the world, we can make better machines for the money than any one else. If you want a machine that washes, buy one of ours.

THE RICHMOND CEDAR WORKS, Richmond, Va.

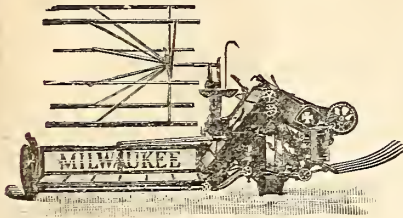
THE SOUTH SIDE CARRIERS.

For Strawberries, Peaches, Beans, Lettuce, Cukes, Grapes, Apples, etc., send for Catalogue and prices.

SOUTH SIDE M'F'G CO., Petersburg, Va.

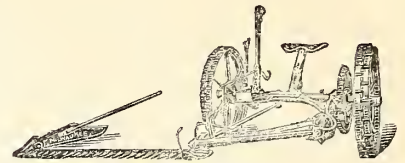
A neat Binder for your back numbers can be had for 25 cents. Address our Business Office.

Farm Implements and Machinery.

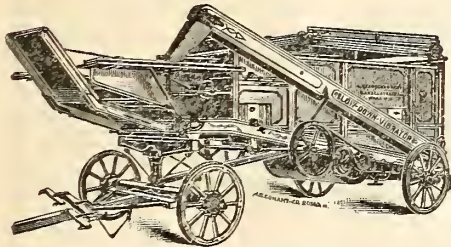


THE MOWER.

THE MILWAUKEE LINE OF HARVESTING MACHINERY, MOWERS, BINDERS, CORN HARVESTERS and RAKES have features not found in others, and are the kind that NEVER DISAPPOINT. *Light of Draft, Easy to Handle, Perfect in Operation.* Some machines are made to sell repairs. "MILWAUKEE" is not in that class. Points of superiority fully set forth in illustrated catalogue. WRITE FOR IT.

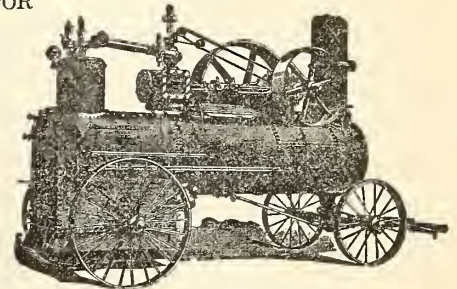


THE BINDER.

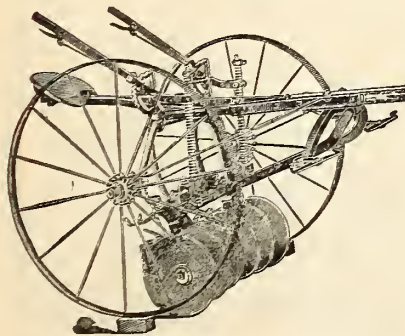


VIBBATOR SEPARATOR.

THE BEST THRESHING OUT-FIT for a thresherman to buy is the Ajax Threshing Engine and Farquhar Separator Engines from 4 h. p. up. Easy steamers develop more than rated horse power. Have driver's seat, foot brake and two injectors. Separators of all sizes with latest improvements, thresh and clean all kinds of grain perfectly.

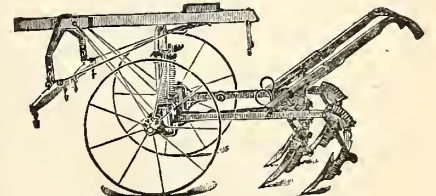


PORTABLE ENGINE.



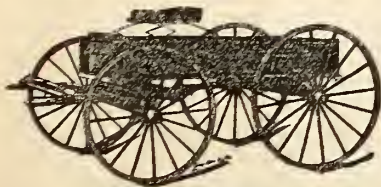
DISC CULTIVATOR.

DISC CULTIVATOR and HARROW combined. Made of steel and malleable iron. Light Draft, Great Strength, High Steel Arch, Steel Axle, Steel Wheels, adjustable in width. Discs adjustable in depth and at any angle.



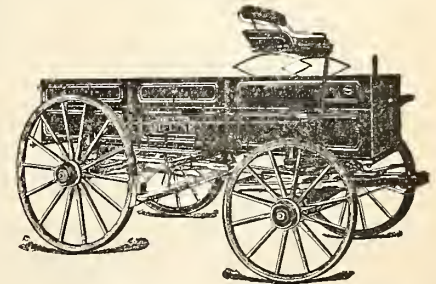
WALKING CULTIVATOR.

WALKING AND RIDING CULTIVATORS with four, six or eight shovels and spring teeth.



IMPERIAL ONE HORSE WAGON.

THE MOLINE AND IMPERIAL WAGONS, *Built of air dried timber,* and all material the best that can be procured. Finished with three coats of paint put on with brush (not dipped in it). Durable, neat and attractive style. BALING PRESSES for Horse, Steam and Hand Power.



THE NEW MOLINE.



"BOY" HAY PRESS.

PLOWS AND PLOW CASTINGS of all kinds. OUR ROAD PLOWS are especially recommended for Country Road Building.



FULL CIRCLE HORSE POWER PRESSES.

IRON AGE PATTERN CULTIVATORS, DISC HARROWS, LEVER HARROWS, GRAIN DRILLS, EFED CUTTERS, FIELD ROLLERS, MANNURE SPREADERS, PEA HULLERS CANE MILLS, SAW MILLS, GRINDING MILLS, etc. Write for prices.

13 So. Fifteenth Street,
Between Main and Cary.

Established by
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A few drops on your dusting-cloth will brighten your furniture, as well as prevent dust from flying from the cloth.

One tablespoonful added to each boilerful of water will lessen labor, as well as whiten your clothes when washing.

A few drops added to your boiled starch will make ironing easier.

A few drops on a hinge or roller which has formed a bad habit of squeaking will insure a speedy cure.

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Dip the fingers in the oil, and rub the throat, to give relief from sore throat.

Saturate a cloth in the oil, and rub the rollers, to clean a clothes-wringer quickly.

Saturate a cloth with the oil to clean the sink, bath-tub or basin which has become greasy and discolored from use.—May Woman's Home Companion.

SAVED HIS FRIEND.

This little story is told of two Scotch laddies, who, while fishing in strictly preserved water, for which only one was provided with a permit, were suddenly confronted by the bailiff. One of them quickly collected his tackle and ran his might across the field, the bailiff in quick pursuit. After covering a large tract of country, the angler sat down completely exhausted, and awaited the panting and enraged pursuer.

"Do you know that you should not fish in that water without permission?" asked the irate man.

"Yes," said the lad, "but I have permission. I've got an order."

"What made you run then, you young scoundrel?"

"Oh, just to let the other lad away—he hadn't got one."

THE LAW OF WORK.

That there is much discontent with work among the so-called middle classes in America is due in large part to the pampering of children, to the supplying of their natural and artificial wants, and to the sentimental idea that "their day of toil will come soon enough." In general, work is not a curse, but a blessing—a positive means of grace. One can hardly begin too early to impress upon children lessons of self-help by tasks appropriate to their age and forces, and to beget in them scorn of idleness and of dependence on others. To do this is to make them happy through the self-respect that comes with the realization of power, and thus to approximate Tennyson's goal of man: "Self-reverence, self-knowledge, self-control."—Century.

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The only hand mechanical plant setter on the market. Avoids stooping and the drudgery of setting out Cabbage, Tobacco, Tomatoes, Sweet Potatoes, Sugar Beets, etc.

Sets Plants in Water

or liquid fertilizer at just right depth and so they stand erect. At its best when weather is driest and hand setting means failure to grow. Assures better stand of quicker starting, better growing plants. With a little practice one man will set 8,000 plants a day.

Ask your dealer for Masters Rapid Plant Setter. If he does not handle it send us his name and we will see that you are supplied. Write for particulars. Circulars free.

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We are the largest optical establishment South, and give proper adjustment of SPECTACLES and EYE GLASSES. Complete manufacturing plant on the premises. Mail us the pieces and we will, from them, duplicate your Glasses. Glasses by mail our specialty.

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Our line of OPERA GLASSES, FIELD GLASSES, Incubator and Dairy THERMOMETERS, etc., etc., is also complete. Lowest charges in all cases.

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AIR LINE RAILWAY

OFFERS
PROFITABLE
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THE MANUFACTURER,
THE STOCK RAISER,
THE DAIRYMAN,
THE FRUIT GROWER,
THE TRUCKER.

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The SEABOARD Air Line Railway traverses six Southern States and a region of this character. One two cent stamp will bring handsome illustrated literature descriptive of the section.

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**Concentrated Tobacco Powder,
 Sheep Dip and Cattle Wash.**

A SURE CURE FOR THE EXTERMINATION OF
 Scab and Tick in Sheep. Lice on Horses and Cattle.
 Lice on Hogs. Mange on Dogs.

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

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

One 50-lb. bag makes 500 gallons Dip for Scab, and 1000 gallons for Tick, etc.

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Granulated Sugar, per lb.....	4½c.	Good Oats, per bushel.....	50c.
Arbuckle's Coffee, per lb.....	11c.	Best Timothy Hay, per ton.....	\$19.00
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Best Salt Pork, per lb.....	10c.	Old Crown Rye, 5 years old, per gallon.....	3.00
Good Salt Pork, per lb.....	7c. & 9c.	Old Keystone Rye, 4 years old, per gallon.....	2.50
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Good Lard, 3 lbs. for.....	25c.	Old Capitol Rye, 2 years old, per gallon.....	1.50
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Best Cheese, per lb.....	12½c.	Pure N. C. Corn Whiskey, 5 years old, per gallon.....	2.50
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Best Roe Herrings, per dozen.....	18c.	O'Grady's Malt Whiskey, per bottle.....	75c.
Heavy Bright Syrup, per gallon.....	35c.	Apple Brandy, 3 years old, per gallon.....	2.50
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Good Dark Molasses, per gallon.....	25c. & 35c.	Geneva Gin, 3 years old, per gallon.....	2.00
Soaps, 8, 7, 6, 10 and 11 bars for.....	25c.	London Dock Gin, 5 years old, per gallon.....	2.50
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Good Corn, per bushel.....	68c.		

(Sacks for corn and oats, 5c. extra.)

Remittance must accompany all orders. Send P. O. or Exp. Order, Reg. Letter, for what you want.

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 'Phone 507.

HOW TO MAKE PIN-MONEY.

A profitable and interesting way to earn pin-money is by making raffia shopping-bags. They are made the same as the shoe-string bags, the knot being the same, and a fringe left at the bottom for a finish. These bags hold a surprising amount. Fifteen cents' worth of raffia will make a bag that will retail for one dollar, or one dollar and fifty cents if it is lined with bright silk.

Another way to earn spending-money is by making fish-net out of carpet-warp. Two spools, costing twenty-five cents, will make a net that one could retail for two dollars and fifty cents. In a college town the nets are always in demand for the students' rooms, being used for draperies or to hold pictures. A child as well as a grown person can make a net, as it is quickly and simply done.—May Woman's Home Companion.

A LITTLE GIRL'S LOVES.

Bessie (aged five) was accustomed to come to her mother's room before the family was up. One Sunday morning, while making the customary visit, the odors of breakfast in preparation managed to reach the sleeping-quarters. Bessie, with her arms round her mother's neck, gave one or two vigorous sniffs, then with an air of anticipation announced, "Mamma, there's two fings I dess love mos' of enyfin' in der world."

"What are they, Bessie?" asked her mamma.

"God and baked beans," Bessie replied, smacking her lips.—Lippincott's Magazine for May.

The bookkeeper of an hotel at a well-known golfing resort in Scotland is still pondering over the subtle sarcasm of an English golfer who was a week-end visitor to the golf-links. This gentleman unwisely failed to make a "contract" on arriving, with the result that he was presented with an outrageous bill on his departure. Paying it without a murmur, he asked, "Have you any penny stamps?" "Oh, yes," said the bookkeeper. "How many do you want, sir?" Very sweetly the visitor answered, "Well, how much are they each?"

WANTED—A PIN.

It was Mabel's first appearance at church and she was rather fidgety. First she wanted one thing, then another. Finally she decided that she must have a pin, so she asked for one from her father. He had none. Then she tried her mother; but her mother too had none. Mabel's longing had been increased with her ill success, so she climbed upon the pew and shouted at the top of her small voice,—

"Has anyone in dis trowd dot a pin?" —May Lippincott's.

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Your physician will tell you that you should always have some good whiskey in the house. For accidents, fainting spells, exhaustion, and other emergency cases, it relieves and revives. But you must have good whiskey, pure whiskey, for poor whiskey, adulterated whiskey, may do decided harm. HAYNER WHISKEY is just what you need for it goes direct from our own distillery to you, with all its original strength, richness and flavor, carrying a UNITED STATES REGISTERED DISTILLER'S GUARANTEE of PURITY and AGE and saving the dealers' enormous profits. We have over a quarter of a million satisfied customers, exclusively family trade, who know it is best for medicinal purposes and prefer it for other uses. That's why YOU should try it. Your money back if you are not satisfied.

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4 FULL QUARTS \$3.20 EXPRESS PREPAID

We will send you FOUR FULL QUART BOTTLES of HAYNER'S SEVEN-YEAR-OLD RYE for \$3.20, and we will pay the express charges. Try it and if you don't find it all right and as good as you ever used or can buy from anybody else at any price, send it back at our expense and your \$3.20 will be returned to you by next mail. Just think that offer over. How could it be fairer? If you are not perfectly satisfied you are not out a cent. Better let us send you a trial order. If you don't want four quarts yourself, get a friend to join you. Shipment made in a plain sealed case with no marks to show what's inside.

Orders for Ariz., Cal., Col., Idaho, Mont., Nev., N. Mex., Ore., Utah, Wash. or Wyo. must be on the basis of 4 Quarts for \$4.00 by Express Prepaid or 20 Quarts for \$16.00 by Freight Prepaid.

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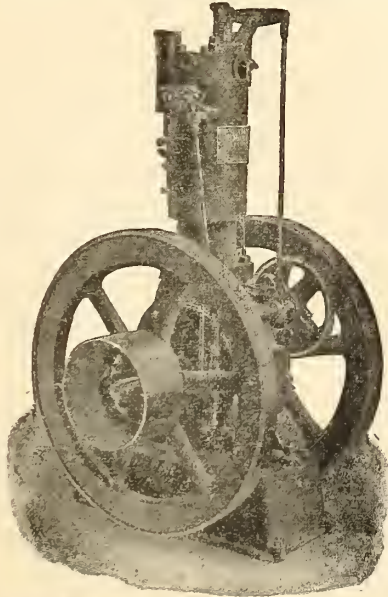
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All possible care taken to prevent accidents or escapes but no responsibility assumed for any that may occur.

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KELLY, 22283. Record, 2:27.

Sire of McChesney, 2:16¾, Etc.

Bay horse, by Electioneer 125, first dam Esther, dam of Expressive 3, 2:12½; Express, 2:21, etc.; by Express, etc.

Kelly represents the highest type of a trotter, having fine size and the form and finish of a thoroughbred.

For terms of service address

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Kelly will serve at my private stables, 1102 Hull St., Manchester, Va.

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The World (thrice-a-week), N. Y... 1 00	1 25	
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Harper's Weekly	4 00	4 00
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Religious Herald, Richmond, Va....	2 00	2 25
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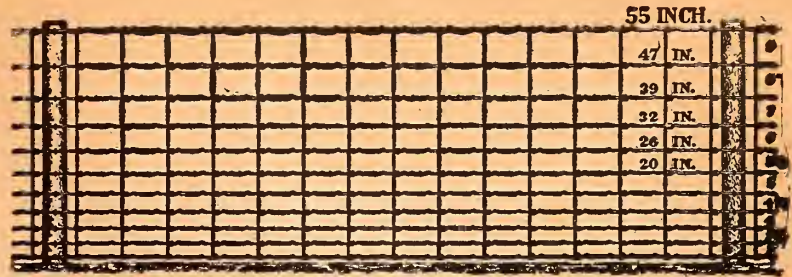
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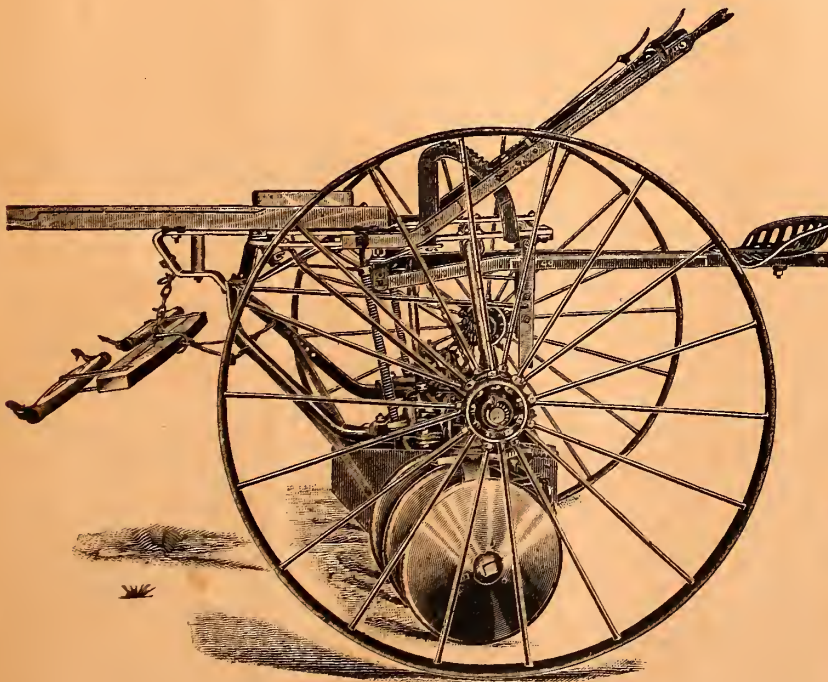
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