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BEAUTIFYING THE HOME GROUN

but in how little one could get on with, homes. The farm folks of Michigan and adjoining states share in this change.

While we must confess that there are but few persons who can develop the natural and artificial elements in and about a home into a harmonious picture, there are, however, a few fundamental principles universally accepted by landscape architects which lie within the scope of the average person's ability to follow and actually work out in beautifying his farm home.

The first step is to plan how the whole landscape surrounding the home and including it, may be wrought into a single picture, with the house as the central figure. The common method of planting trees and bushes all over the front yard, wherever whim or fancy may dictate, causes us to admire the individual plants. rather than the general effect of the whole scheme. In passing a home thus planted, we say, "What a beautiful maple, or lilac bush," when the impression upon us should be such as to call forth the exclamation, "What a beautiful Promiscuous planting over the yard is certain to secure an undesirable ture

home ground, the home itself should oc- your home. cupy this prominent position. The plants a frame about a picture.

should be the background, consisting of the lawn and trees which lend character and effectiveness to the whole scheme.

In painting his picture the artist is careful not to permit some insignificant feature overshadow the object which gives a purpose to his piece. The story is told that in painting that great masterpiece, "The Last Supper," Leonardo da Vinci invited friends to view his pro duction after he had practically completed it. Some were delighted at the group of disciples at the head of the table, others were in rapture over some particular face, etc., but they all admired a beautiful bowl upon the table. The artist thereupon removed the beautiful bowl and put in its stead an ordinary one. When asked why he destroyed ordinary When so becoming a part his picture he stated that it attracted atten-

HE rapidly increasing demand upon tion from the central figure, the Master, carefully, that a map of the house and its in such a general plan as indicated above,

The Summer "Rest Room."

his planting with some general scheme and plant at the sides and rear thereof, them. in mind, and should follow this scheme as the shrubs and trees thereby performing he makes additions to his landscape pic- the office of a border, with the plants at into the care of the farm home. Labor is

should serve to make a border about this looking beautiful or desirable scenery and effect and the planting can be maintained covered: central figure to limit or disguise the real making screens of plants in directions at a minimum of cost. There is usually boundary for the same reason that we put where objectionable things are located. a demand, however, for a flower garden, buildings. Then, there This will require, if it is to be done and the question arises as to the position

For this reason one should start lawn more or less open before the house by planting vines and shrubbery about form a background for the house.

The question of expense usually enters chard at the rear of the dwelling. rear of the house and establishing a good connect. A second step is to open vistas over- lawn in front, one secures a desirable

nurserymen from rural places for Himself. Thus it is in improving the ap- surroundings be drawn to scale. One for the flowers. There is no question in shrubbery and ornamental trees is pearance of our home surroundings, we should then go to the different windows assigning the place for this class of a sufficient proof of the growing interest do not want to attract from the home of the house and determine by observa- plants in a scheme like we have been disof farmers in improving the appearance itself, but rather we wish out plants of the grounds about their homes. As the to extenuate and magnify the home. where screens should be grown to obtain just in front of the single-state of the grounds about their homes. As the to extenuate and magnify the home. This is not accomplished by pt. ag the above results and mark the precise of the lawn where they do not interfere the precise of the lawn where of farmers in improving the appearance itself, but rather we wish our planting tion, where he should provide vistas and cussing. The flowers should be located of the grounds about their homes. As the to extenuate and magnify the home. taken not in the extent of one's domains, front, nor will large, symmetrical ower forgotten in making these observations itself provides a background for the flowgardens established in holes in the lawn that views which are often objectionable ers which adds to their beauty. In such there is certainly being fostered in the effect such an end. These rather detract may be made attractive by a little care. a position as this flowers can be planted hearts of American rural people a broader from the home. A general principle foi- For example, an old stump or a stone pile abundantly and the effect is not destroyed sentiment and deeper love for beautiful lowed by landscape artists is to leave the may be converted into a desirable picture should a few of them fail to grow, or if cuttings are made. But the contrary is true where one attempts to put a formal flower bed in the center of the lawn. A failure of the seed to mature, or the picking of a blossom by some of the children will mar the effect. Consequently the planting of flowers along the borders of the clumps of shrubebry will prove economical of labor and give general satisfaction in securing harmony to the whole planting, besides the child may pick an armful of "posies" and need not be scolded for ruining the appearance of the front yard.

Again, the planting of low shrubbery close to the wall of the house will overcome the abrupt lines of color and form between the lawn and the building and make one to feel that the house naturally belongs where it is. Flowers may be placed along the border of this shrubbery

Tall trees should occupy a position on the side or rear of the house where they will intimate, by peeking over the roof, that the owner is not displaying all his possessions on the front lawn, suggest reserve and arouse curiosity. They also result is often secured by planting an or-

Walks and drives are necessary evils the rear and the lawn in front serving as scarce and whatever economy can be had in the home landscape and should be re-As inferred above, there should be a a background. The first step, then, is to in this regard is desirable. By planting duced to a minimum. They should go as central figure, and in beautifying the see that your plan makes a picture of hardy perennials at the sides and in the direct as possible between the points they

Let us now review the ground we have

Make a plan of the grounds and

2. Study to make a single picture with

the house as the central

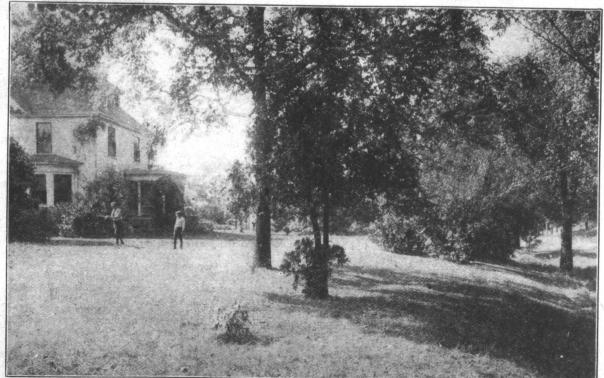
Keep the front lawn more or less open. Plant shrubbery and trees on the side and rear of house.

Locate the flower beds on the border of the lawn by the shrubbery.

Put tall trees at side or rear of dwelling. Make walks few and direct.

Planting Native Trees.

We advise the use of as many of the native perennials as possible in the home planting. These plants are acclimatized, and planter should be better acquainted with the conditions under which they grow than imported specimens. Then they usually fit into the general surroundings with more grace than do tropical, or European, or Asiatic specimens. A few suggestions on securing these native trees for (Continued on p. 454).



Home of Miss Jennie Buell, Washtenaw County, Showing Front and East Yard.

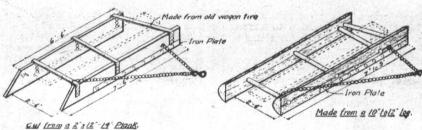
THE KING DRAG FOR COUNTY ROAD that some of them will be injured. They clover alone and to invest the price of BUILDING UP A DEPLETED FARM.

Not a little interest seems to have been has been suggested through these col- As an experiment I left some of the poumns. In response to that suggestion tatoes in the solution two hours and many requests have been received asking practically all of them failed to grow, the for details of the construction of the King drag, and for the information of those

taken in the suggestion lately made them of scab spores be careful not to cutting the following season and to take clares Henry F. Willits, a well-known through these columns regarding the overdo the matter. Last year, wishing to nothing off the field except the seed. timely use of the King drag upon coun- do a thorough job, I looked up the direc- When I sowed my wheat last for try roads. If used at just the right time tions in two different bulletins. Each gingered up the soil with a little comin the spring when the roads have settled, one said to soak the seed 90 minutes in this simple inplement will do more to- a solution containing 16 fluid ounces of ward making and maintaining good roads formalin to 30 gallons of water. I folthroughout the season many times over lowed the directions and injured quite a than would the same amount of time and lot of the seed, so the coming season I labor expended in any other manner, as shall soak the seed not over one hour.

cay if planted.

"eyes" being the part injured. Unless potatoes are planted quite late who would build an implement of this it is necessary to spray them with an kind we herewith give an illustration of arsenical to control the potato beetle. We the original King split log drag, and also use four pounds of arsenate of lead paste a similar implement constructed of planks to 50 gallons of water. It is important and working on the same principle. The that the vines never become "stripped." dimensions are given in the cuts and the Last year I sprayed, the first time, when construction is so simple as to be easily only occasionally a bug could be found understood by every reader. There are hatching. Two persons who saw the opalso manufactured at the present time eration said that it was a waste of mateall-steel drags of this principle which sell rial. Later a second application was



at a moderate cost, but are perhaps no made which was all that was necessary better for practical use than are the to keep the vines free from bugs. home-made types

of these implements at the proper time, owner let the bugs get a start before atand if dragging is repeated at just the tempting to poison them. Remember that right time after heavy spring rains, all any kind of a bug can be poisoned easier ruts will be smoothed over, the surface when taking its first meal than at any of the roadbed will become dried out and subsequent time. will harden down in a smooth and comof time to go over one-half mile or mile of road in this manner and it would be a profitable investment to any farmer to portion of it which is contiguous to his land, even though no credit were granted by the township highway authorities for

But the greatest benefit to be derived from the making and using of a King drag by a farmer in any neighborhood is the object lesson which will thus be afforded as to the efficiency of this implement in the betterment of the highway so that in succeeding years the township authorities will be glad to follow his lead in this timely dragging of the roads at a season when results from the time and labor expended will be most profitable.

LATE POTATOES PLANTED EARLY.

"When potatoes are cheap, plant them, when dear, sell them," is a good rule to go by when raising potatoes as a cash A better rule is to plant as nearly marketed. as possible, the same acreage each year. Planted in that way, potatoes are an investment, not a speculation.

Early potatoes usually bring good prices but they are not always a profitable crop to raise. Early varieties are lighter how a depleted farm was built up and foliage and consequently retarded all ef- an aisle along the side-walls and aisles yielders than the late sorts. Besides this the first step was to erect a fine barn forts of the plants to obtain nitrogen at places necessary/to separate shipnatural handicap the yield is often still and silos and to start in with 15 dairy from the air; so the soil is poorer by vir- ments. Get rid of all possibility of the further reduced through the injury done cows. Then the article winds up with tue of both the pasturing and the ma- cement piles toppling over by laying the by the potato beetle. Invariably early the statement that the farm was cheaply potatoes are affected worse than those reclaimed. planted later.

Detroit is to plant a late variety medium enormous expense. How, then, are we of cent of the nitrogen and phosphorus was to see that there are no leaks in the roof early, about the middle of May. Rural New Yorker, planted at that time, increase their producing power? will be ready to harvest the latter part of September.

ence I know that if potatoes are exposed "How can we get clover? I am planning easier way. to the direct rays of the sun on a hot day to fit a piece of ground this spring for

adjoining field was sprayed four times, If the earth road is dragged with one with poorer results, simply because the

We used to spray with Bordeaux for pact form which will improve the condi- the blight but have discontinued its use tion of the roads throughout the summer as we did not think that it paid. I have season. It does not require a great deal heard experts on potato spraying say that Bordeaux did not seem to control early blight. My opinion is that most of the early blight was burning caused by using thus care for the road between his farm Paris green. At any rate, since using and his market town, or at least that arsenate of lead as an insecticide we have had no early blight.

Late blight winters over in the seed potatoes and can be detected when the tubers are cut for planting. If all affected tubers are rejected at planting time there should be no late blight develop in the field to injure the crop. But if you are not positive that your seed is sound it will be advisable to spray your vines with Bordeaux.

We begin digging just as soon as the potatoes will stand handling without becoming skinned or bruised. picked up in bushel baskets, loaded onto a wagon and hauled to Detroit. Some of them are taken to the vegetable markets but a good many loads are sold on the street in a German and Polish neighborhood.

A machine digger is used and the potatoes are dug only as fast as they are

W. Postiff.

THE EASIER WAY.

In the issue of February 8, we read of

in this locality needs limestone. We ocbe destroyed by harrowing. The potato the acids below rise with the capillary discussed 100 acres of corn. beetle is less troublesome than earlier, water and prevent bacterial action; while The weather is generally fine when the if we have rains the acids are kept down potatoes are fit to dig and usually the below the surface soil sufficient to allow crop can be sold at good prices without the bacteria to thrive and the clover the trouble of storing it even temporarily. plant is thus enabled to make a more or are exact sciences. Some growers recommend exposing the less successful growth. I think Mr. Lillie seed to the light for a time before plant- is nearer right in this matter than Mr. ing in order that it may become green. Washburne. Nearly every farmer will

become black at the center and soon de- one dairy cow in limestone and to seed to mammoth clover with the intention of In treating seed with formalin to rid either clipping or rolling down before state of production in two years,"

mercial fertilizer in hopes it might inspring. I have no notion that I have en-

speakers almost without exception, bombard the farmers with the statement that they must make all the manure they can and strive to impress upon their minds their great loss if they allow any of it to go to waste. Then, too, a great many farmers think that by pasturing their land they are enriching their soil. Now, as to the facts in the matter. According to accepted chemical analysis, corn stover contains 60 per cent more nitrogen, as much phosphorus and twice as much potassium as its equal weight in fresh farm manure. Oat straw and wheat straw both analyze higher than the farm manures; and clover hay contains four times as much nitrogen, two and onehalf times as much phosphorus and nearly four times as much potassium as its equal weight in farm manure.

Yet, Mr. Robison infers that all this residue is of no particular value except the nitrogen the legumes gather from the

It has been demonstrated that in live stock farming from one-fourth to one-half of the nitrogen is destroyed or wasted, one-fourth of the phosphorus retained by the animals and the organic matter reduced to one-third or less.

Now, then, why should any rational farmer wishing to restore his farm, deem it dosolutely necessary to manufacture manure? Those farmers who attended the State Round-Up Institute, whose minds were in a receptive mood to accept the facts as stated by Dr. Hopkins and to grasp the situation as he presented it, are in a fair way to redeem their farms. solve the labor problem and keep their boys at home.

dairyman or any other live stock farmer but I do object to beng continually told that I must convert the farm residues into manure to make them valuable and available; and I doubt very much if the average dairy or live stock farmer was to count interest on his investment and wages for labor, that his profits would compensate for what he loses in trying to make value by converting hay, straw and grain into manure.

On the other hand if, while the grain farmer is making hay, a series of rains hay, he can say, "Oh, well, never mind; beams or logs and loose boards. See that it is worth nearly \$10 a ton at commer-driving rains or damp air cannot reach cial rates as fertilizer, besides all the organic matter which somehow seems to have no commercial value."

not to enrich the soil but as a tonic to wise, on account of its weight and possome of its locked-up fertility. There the cement against the side-walls of the were some cattle on the place last year building unless the house is full-lined or and they diligently prevented the clover skeleton-lined on the inside. Store the from forming any appreciable amount of cement so as to leave an open space or

Now, to the average Michigan farmer on the field two-thirds of the organic and crosswise, so as to tie the pile to-A practice that is quite common around, such a course would be considered an matter was destroyed and a large per gether. Examine the building frequently The limited means to build up our farms and retained by the animals, and for lack of or side-walls.

A course of straight grain farming and few

Cass Co. F. T. BRADY.

"Any farm can be built up to a good farmer in Hillsdale county. When I sowed my wheat last fall I easy matter to build up a farm if systematic methods are employed. Just go at it. I have found the easiest way is to crease the yield and at the same time en- start with corn. We will take for conable me to get a good clover catch this venience, forty acres to be invigorated. Twenty acres can be used for this crop. riched the soil and if the clover begins to Drill about fourteen quarts of corn to the die out when dry weather comes, I'll acre, all the hose of the drill distributmake some litmus tests and perhaps try ing. Add to this fertilizer containing potto dig up the price of another dairy cow, ash and phosphoric acid. Even if the The agricultural writers and institute land is so poor it will not grow beans, if the ground is carefully prepared, it will give this fodder a good start. There ought to be about three per cent nitrogen in the fertilizer. After this crop is nicely started turn in from six to thirty head of cattle or good western steers. This may mean that you will have to go to the bank and borrow a little money, but if your market is all right, you are safe. Pasture this fodder for about a month to six weeks. Turn under the soil. There will be a nice covering of manure and an excellent root growth which will be of great value in giving the following crop an excellent Put the ground to rye the last start. half of September. Sow about a bushel and a half to an acre, using about 200 pounds of commercial fertilizer to each acre. This fertilizer should have nitrogen in its formula.

"I have seen land given up as wornout, and this handling has redeemed it. In the spring the rye should be plowed under and the ground planted to corn in eason. I will guarantee that if this is done the soil will produce from thirty to fifty bushels of corn t othe acre. The farm is in good shape for the crop the second year, and when built up it can be kept up, and the same system may be repeated on the balance of the farm. the farmer follows the same routine with the other twenty acres at the end of two years, his farm is productive and in fine condition. I would advise rolling the ground after planting the corn as exhausted soils have but little humus, and rolling packs the soil so it moisture better and will withstand the drouth.

'The steers ought to make a gain on the pasture of three pounds daily, which Understand, I have no quarrel with the will help nicely in paying fertilizer bills and for seed. I have had cattle do that good and even better.'

Hillsdale Co.

STORAGE FOR USERS OF CEMENT.

Many users of Portland cement need to store it only for the short interval between the time of hauling it from the dealer and using it in the concrete work. Any building with a good roof, tight sidewalls, and a dry floor will do. Make a should set in and damage his clover as temporary double floor by means of small the cement.

Directions for Storing Cement.

Portland cement weighs nearly 100 lbs. I intend to use some commercial fer- per cubic foot, therefore judgment must tilizer on my corn this coming season; be exercised in loading the floor. Likecoax it to give up and render available sible damage from dampness, do not pile bags, as a mason would say, "headers and That is, if all the manure had dropped stretchers," that is, alternately lengthwise

ncrease their producing power? foliage the bacteria on the clover roots

I am satisfied that nearly every farm were drawn upon for but little nitrogen. the ground or on bricks. Throw down a blocks, boards upon them and There are several advantages in such a casionally get pretty fair clover crops actually plowing down all clover not nec- make a dry floor for the cement. Have practice. One has more time in which to but it is generally after an application essary for hay for the working stock is just enough cement on the work to keep thoroughly fit the ground than when early of manure or on account of a wet sea- an awful jolt and is highly disturbing; things going. A good tarpaulin is handy potatoes are grown. There is more time son. I am convinced that the reason clo- but the closer we come to it the less dif- to cover up the cement in case of a sudin which weed seed may germinate and ver does not stand dry seasons is because ficult seems the feat of raising the much den shower. Always buy cement from the dealer who has a dry store-house. If What the farmer wants is facts, and the cement in the bag has been wet, it when he can bring mathematcs and is hard as a rock; do not use it under any chemstry to his aid in his problems he is circumstances. However, do not mistake wise to accept their teachings for both lumps caused by pressure in the storehouse for "set-up" cement. Such lumps So will say to the farmer of limited crumble easily and the cement is perfectmeans who has been brought up with the ly good. Take care of the Portland ceidea that he must surround himself with ment just as carefully after receiving it The claim is made that such seed is less concede that if you can grow clover you live stock before he can hope to succeed as a good dealer does, and, properly mixapt to rot when planted. From experi- can grow anything. So the question is, that I firmly believe that there is an ed with sand and stone or gravel, it will yield a building material proof for all time against fire and repairs.

FARM NOTES.

Adding Vegetable Matter to the Soil for Alfalfa.

Alfalfa.

I have a piece of ground which I would like to get into alfalfa. Soil is a gravely loam, slightly rolling. This field was seeded to red clover in wheat last spring but clover shows up very spotted. I think the humus content of this soil is very low as I understand same has been cropped for three or four years to corn, oats and wheat, and has had no clover to speak of. The wheat went 20 bushels per acre last year with 250 lbs. of fertilizer used per acre. Drouth was very severe in this locality. Now would you kindly advise me if you would recommend: First, putting this into alfalfa this season with a good application of lime and thorough inoculation of seed? If so advise depth to be plowed and method and extent of tillage before sowing, and when to sow, or second, how would it do to plow early this spring, drill in with grain drill two bushels of shelled corn to the acre and plow under when about knee high, keep will dragged, disked and rolled down and early in August sow to alfalfa with a good heavy application of lime?

Hillsdale Co.

E. H. N.

While it is probable that a successful

While it is probable that a successful stand of alfalfa might be secured from spring seeding upon this land, provided it were thoroughly packed down and a good seed bed prepared after plowing and before the seed was sown, however, there is no doubt but that future results of the crop would be better if the supply of vegetable matter in the soil were supplemented before the crop was seeded. The writer has not had an experience in the use of corn sown broadcast for this purpose, but knows of a number of instances in which this plan has been used with apparently excellent results, not for alfalfa but other crops. The application of a liberal quantity of lime after the corn is plowed down would doubtless neutralize any tendency toward creating an acid condition of the soil. There would be an opportunity for an experiment which would be productive of excellent results if a portion of this field were seeded in accordance with each of these plans and future results noted. We should be very glad indeed to see an experiment of this kind tried out and results reported for the benefit of other Michigan Farmer readers

Seeding Alfalfa In, vs. After Oats.

Seeding Alfalfa In, vs. After Oats.

I have five or six-year-old timothy sod, quite run out by June grass. It lays rather high, dry and rolling; mostly a south and east slope; sub-soil light sand. I want to put alfalfa on it as it appears to be an ideal spot for that crop. I had thought of sowing the piece to oats, which would come off rather early and allow me to harrow and fit the land to sow the alfalfa early in August. (I got what appeared to be a good catch of alfalfa sowed last August 26 on just a little test strip of about 20 square rods). Some advise to cultivate the sod down this year in corn and sow alfalfa early in 1913. I don't care so much if oats this year don't amount to much for grain. The prime requisite is the alfalfa. Will probably inoculate with culture from Lansing.

Befrien Co. R. G. B.

Where securing a stand of alfalfa is a prime requisite, it would in the writer's opinion, be the best practice to seed it fall. comparatively early in the spring with a nurse crop of oats or beardless barley, cutting the same for hay before the dry season affects the alfalfa seriously. This is the practice advised by many of the light seeding of oats with a view of cutting same for grain, having had good sible for the alfalfa, when plowed after in the soil, which should be plowed as oats, in time for it to get a good growth early as is practicable for best results. year, however, it might be entirely prac- should be distributed as early as practical to follow it this year. Successful ex- ticable so that it may be thoroughly inperiences are the best guide in cases of corporated with the soil. In a field where this kind.

Soy Beans as a Hay Crop.

I would like to learn from someone who has grown them, or who knows, about soy beans; how deep to plant them, the best way to put them in to cut and cure for hay, what varieties are best for that purpose, and if it is necessary to inoculate the soil for the first crop? Would they make growth for hay without inoculation?

Kalamazoo Co.

Kalamazoo Co.

take the place of clover and timothy in the farm rotation permanently, yet such seasons as the present, when clover and grass failures are so general, the soy bean will make a valuable substitute." Soy bean hay is nearly as high as alfalfa in digestible protein and carries a larger percentage of digestible fat. It is not, however, consumed as closely as alfalfa on account of the coarse, woody nature of the stems.

Soy beans require much the same sort of soil and seed bed as corn. They should not be planted until one or two weeks after corn planting, when the ground has become well warmed up. The seed should be planted shallow, as poor stands result from deep planting. One inch is deep enough. Plant in rows 28 to 32 inches apart, according to the cultivator to be used. About three pecks of seed per acre should be used for hay where planted in drills in this manner. In addition to stirring with the weeder before the beans get up, they should be given two or three surface cultivations as required. The time to cut this crop for hay is when the pods are nicely set. They can be cut with a mower and raked with a hay rake when the leaves are well wilted. They should then be left in the windrow for a day, then put in moderate sized bunches where they will cure out in from three to seven days. They are much more difficult to cure out properly than ordinary hay crops, and care should be taken not to let the leaves get too dry before handling as they become brittle and break badly and must be saved if hay of a high quality is to be had.

In case soy beans have never been grown before upon the ground to be planted, it will pay to inoculate. If soil can be secured from a field which is already inoculated from 100 to 200 pounds per acre should be sown. If this soil is not available the seed should be inoculated with pure cultures, which may be secured from the state experiment station. As to variety, it would be better to secure seed grown in Michigan if possible, and if not, a rather early variety from a more southern location. The Ito San is perhaps one of the most generally distributed varieties, but for hay the variety is not so important as for seed, as some of the varieties which produce an abundance of grain further south will give fair results as a forage crop here.

Fertilizing the Soil for Potatoes.

Fertilizing the Soil for Potatoes.

I want to put in about two acres of potatoes. Scil is rather light sand knolls in places and varies to pretty heavy black loam. Was in corn the last two seasons and clover two seasons previous to corn. Has had no manure during either of those years. Am now putting on cow manure with plenty of straw and cut cornstalks in it. have ordered two tons of mixed fertilizer, 10 per cent potash and 10 per cent prosphoric acid, balance all filler. I am gathering hen droppings and mixing up with about equal quantity of sifted hard coal ashes and short straw from floor of henhouses, that I thought will do for nitrogen. I have to hire all my plowing done, the field is now full of corn stubble just as the harvester left it last fall. Land is naturally pretty well drained barring two or three low spots. Would you advise early or late potatoes and what kind? I can get some "Green Mountain" seed from a neighbor.

Macomb Co.

J. I. C.

This is certainly starting in right for

This is certainly starting in right for best authorities on alfalfa culture. The a good big crop of potatoes, so far as the writer will seed alfalfa this spring in a matter of fertilization is concerned. The putting on of a heavy application of stable manure in the spring is not considered success with this plan last year. If a the best practice by many growers, for good crop of oats is desired, the plan of the reason that it is thought to induce seeding after the oats are harvested would scab to some degree. However, this rebe a better one. There are, however, sult would not be as likely to follow an some serious objections to this plan, one application of cow manure as if horse being that there is considerable chance manure or sheep manure were used, and that the ground will be too dry to make the coarse material applied will furnish the preparation of a good seed bed pos- a desirable amount of vegetable matter before winter. If this plan succeeded last After plowing, the commercial fertilizer described in this inquiry, it would perhaps be better to use

G. P. depends somewhat upon local conditions Soy beans have not been grown to any and the manner in which they will be considerable extent in Michigan as a hay marketed. Undoubtedly a much larger crop. There is no doubt, however, of the yield can be secured if late potatoes are adaptability of this legume to Michigan planted, and probably a considerably conditions. Regarding soy beans as a hay larger yield will be secured if they are crop, Prof. C. G. Williams, of the Ohio planted rather late, say after the middle Experiment Station, says: "As a hay of June. However, on ground which has crop, the soy bean fills a valuable place. been liberally fertilized and contains While it is not probable that it will ever enough humus to hold moisture the grow-

The Culvert That Lasts

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FOR THE FARM

er's revenue from the crop, in a year like the success of alfalfa or not. Northern the present one, might be increased by grown seed should be secured if possible. planting a late variety of potatoes as early as practical in the spring. This would insure the ripening of the crop at a time between the flush of the early and late potatoes on the market, at which time the price is generally as good as at any time during the season. This, however, is a matter for local determination. and would probably serve your purpose as well as any, if late potatoes are used.

Popcorn as a Cash Crop.

can establish a special market for a first- from one year's end to another, class article. Proper culture of popcorn does not differ essentially from that of field corn, except it being a smaller variety of corn it can be planted a little more hickly The length of time required for the corn to cure after harvesting would Notwithstanding the fact that hides depend altogether upon the manner in were placed on the free list when the which it is handled. If it could be firepopping quality.

Treating Seed Potatoes for Scab.

rich. Mecosta Co. A. H. W.

The simplest method of treating seed one and one-half to two hours in a solusafest to handle.

for liberal fertilization. Use a liberal pertinent one. amount of fertilizer on part of the field and note comparative results.

Plowing Down Rye for Alfalfa.

I put in 25 acres of rye late last fall. Would it be advisable to sow alfalfa this spring with the rye or would you turn the rye under before sowing the alfalfa? I have heard of inoculating the ground and if you think this would be advisable kindly tell me just how to do it. When is the proper time to sow, and how much to sow to the acre?

sow to the acre? Wayne Co.

H. D. M. presence of available plant food. Inocu- tent. pure culture, which can be secured from nent shoe manufacturing concern in a re day as the sunlight destroys the virility nomic reason for an apparent increase in of the bacteria. The seed may be sown the cost of living so far as the items of at any time after the seed bed is prepared footwear and other leather products are if this plan of seeding is followed. In their animals sold, due to a larger intrincase clover has not thrived well upon sic worth of the hides, which is out of this land it might also be necessary to proportion to any increase in the cost of make an application of lime before the first-class makes of shoes, advertised unseed is sown, and in any event this shou'd der trade-marked brands, which it is albe tried on a small scale at least, to de- ways good economy to purchase for their termine whether the soil needs lime for wear.

PROVIDING LEAF MOLD.

There are two waste products in the garden which are eagerly sought after by those interested in growing plants or vegotables. The one is the wood ashes produced from the burning of the rubbish, The Green Mountain is a good variety, and the other is the leaf mold which ac cumulates from the decayed leaves which fall from trees and shrubs during late Where the ground is as liberally fer- autumn and in the early winter. Both of tilized as is contemplated in this case, these most useful garden requisites may the tubers should be planted rather easily be wasted or thoroughly spoiled in thickly in order to get a maximum yield the making. The heaps of leaves which of potatoes of a merchantable size. Sur- have been gathered up may be all put face cultivation should be given through- together in one large pile. Rain puts the out the season and, of course, the vines leaves into a thoroughly sodden condition. should be kept free from bugs, which is then when put into a good-sized heap, a considerable task where the crop is they soon ferment and decay. In piling planted early and the principal reason dry leaves it would be quite necessary to why more farmers do not follow this give them a good sprinkling of water. practice. Early planting, however, ob- The non-observance of this little precauviates very largely the danger of late tion is one of the mistakes made in the blight, which is an argument in its favor. production of leaf mold. Dry leaves cake Would you please tell me if pop corn is a profitable money crop? I would put it on new ground. Explain planting and decaying process it is necessary to turn cultivation. How long would it have to cure after husking, and would it have to be shelled to sell to a shipper?

Kalamazoo Co. Subscriber.

Experience the self of the heap, and in this way a good deal of time is lost. To assist the decaying process it is necessary to turn over the heap two or three times during the coming season. Leaf mold made in this way is of the best quality, and is but do not decay. They form a solid mass Popcorn has attractive possibilities as ready for use long before a heap of leaves a cash crop. It is a crop for which one would be if allowed to lie undisturbed

INTERESTING FACTS CONCERNING THE HIDE AND LEATHER TRADE.

Notwithstanding the fact that hides present tariff law was enacted, there has dried it would not be long, but several since occurred a rather remarkable admonths would be required under ordinary vance in the hide market, present prices conditions before it will be of first-class being from 50 to 80 per cent above the current prices prevailing four years ago, and over 30 per cent higher than the prices current one year ago. In the spring My seed potatoes are some scabby. Ought I to treat them, and if so, how? Please tell me what and sow much to buy, how to prepare it, how long to soak, etc. I want to use fertilizer. How much per acre, how apply it, and what kind ought I to use? Land is sandy loam, fair-nine to 10 cents per pound. Selected packer hides for sole leather that in 1908 were worth from nine to 10 cents per pound are today. nine to 10 cents per pound are today bringing 16% cents per pound.

Many of the hides used in the shoe inpotatoes for scab is to soak the tubers for dustry of this country come from South one and one-half to two hours in a solu-America, and it was with the view of tion made by adding one pound of com-cheapening the cost of the finished promercial formaldehyde (40 per cent) to 30 duct, made from the thinner hides derived gallons of water. There are a number of from this source, that this commodity other remedies, but this one is now more was placed on the free list in the present generally used and is both the easiest and tariff law. Yet dry South American hides have advanced from 15 cents per pound, Apply 500 to 1,000 lbs. of good potato which was the prevailing price four years fertilizer broadcast and harrow into soil ago, to 23 cents per pound at the present or use 200 to 300 lbs. in drills with the time. In view of this fact the question potatoes, or both. Potatoes will pay well as to the underlying causes becomes a

This advance is doubtless due to the shortness of the supply and the increasing demand. There has been a decided reduction in the number of cattle maintained in this country, due to the breaking up of the great ranges of the west. The census figures for 1910 showing a decrease of about 10 per cent in the number of cattle in the ten-year period since the last decennial census. The figures for population during this period show In the writer's opinion it would not be an increase of 20 per cent. There has advisable to undertake to seed alfalfa in also been a large increase in the demand rye on land that is badly run down. In for leather for new and varied uses, such fact, for best results with alfalfa, the as the development of the automobile and land should be placed in fairly good con- the increase in traveling causing an enordition before the seed is sown. The bet, mously increased demand for the manuter plan would be to plow this rye down facture of leather traveling bags, etc. after it has attaned considerable growth The world's demand for leather is also inin the spring, then work the ground by creasing on account of the decrease in the repeated rolling and harrowing to form a use of wooden shoes, which were formerly good seed bed, making a liberal applica- extensively worn in many parts of the ion of commercial fertilizer to insure the world and still are to a considerable ex-

late either by sowing a few hundred. It will thus be seen that raw material pounds of soil per acre from a successful for the manufacture of shoes has advancalfalfa field, or inoculating the seed with ed rapidly in recent years. One promithe State Experimental Station at nom- cent report states that the total number Either the earth or the inocu- of hides consumed last year in its operalated seed should be immediately harrow- tions aggregated 382,573. These facts and ed in after sowing, preferably on a cloudy figures show that there is a basic ecoand soil conditions are right for its early concerned, an increase, however, which germination and good growth, but the is of sufficient benefit to live stock proweeds should be well killed before sowing ducers through the additional value of



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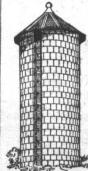
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ALFALFA EXPERIENCE.

I have read with much interest the article written by E. M. Moore, on alfalfa, which seems to cover nearly every question to be raised by Michigan farmers. Excepting one, and that is the stoppage of tile drains. As most of the land here is tiled many object to planting alfalfa, fearing it may close their drains. Although no one seems to know that it will, any information on this question would be of much interest to many of our farm-I know on the seep lands of the west where tile drains are laid six rods apart, alfalfa does fine and I was told that it was most profitable as it cost nothing for irrigation, although the question was not raised as to the roots stopping the tile.

I have seeded with alfalfa in many that of Mr. Moore in all that he says. While it is quite possible to get a stand pieces, one with and one without a nurse

rowed about once a week until about the middle of August and seeding to alfalfa think we have gotten just as good a stand with eight or ten pounds of seed to the had scattered some here and there all acre as where we used 20 pounds, but I would not plant in ground where alfalfa had not been grown, without inoculation, and think to sow dirt about 300 pounds to the acre taken from an established alfalfa field or sweet clover bed, as good as any way and as little trouble.

W. G. BOYD.

A WORD FOR SOY BEANS.

The soy bean, also called the "soja feeding value of the grain; of the plants from its crown and the alfalfa stood there being very valuable for forage; that the four inches from its crown. soy bean is a legume and a heavy gatherer of nitrogen, and of the fact that it is not exacting as to the kind of soil it is grown on and by no means difficult to grow, one can readily realize that the soy bean occupies a position unique among all our crops.

The soil requirements are much the same as those of corn, but will make a satisfactory growth on poorer soil than corn. They succeed well on sandy soil, as on rich soil they are apt to make a large plant growth and a small yield of Soy beans do not require a welldrained soil for their best development, although they will not do well in a soil where water stands for any considerable length of time. However, they are able to withstand a greater amount of moisture than corn. Soy beans are also decidedly drought resisters. The grain is as greedily eaten as corn and is very nourishing and is apparently as easily digested as any grain we have ever fed. It also has a tonic effect, and stock that are fed on this grain become full of life. and energy as with no other grain we have ever fed.

As a hay plant the soy bean certainly deserves notice, especially so when the new varieties are used. These are not only large enough to produce a great quantity of feed, but the stems are fine enough to be eaten up clean, causing no better than most of the old ones. The thoroughly, sow on the lime and harrow plants stand erect, making them easy to it in, you will get some benefit from it, cultivate and harvest. As a nitrogen-but the lime ought to be more thoroughly gatherer the soy bean has no superior, mixed with the soil than you can mix it and when a crop to plow under is desired nothing is better, in my opinion, to add humus to the soil. Its possibilities for silage have not been fully demonstrated, but in connection with corn it makes as highly satisfactory a product as any that I know of. The beans make a well balanced ration. When these facts are taken into consideration its high value will be realized, as it will grow on either fertile or impoverished soil.

sary, otherwise weeds are likely to choke good or even a better show of getting out the young plants. I plow deep and a good stand of clover, and then you work good with disk and harrow until a would get the lime well worked into the firm seed bed is made. The crop should ground when you are fitting it, be grown in rows and given sufficient cul-

tivation to keep down the weeds. It is very important to plant seed of good quality. Plant shallow, about one inch, not more than two. Poor crops result more frequently from too deep planting than from any other cause. One bushel of good seed is enough to plant two or three acres, if planted in cultivated rows. I plant them about the 15th or 20th of May, if the ground is warm, but if planted for hay can be planted much later. From my experience I cannot speak too highly of soy beans on the farm.

Wayne Co.

SOME ALFALFA OBSERVATIONS.

Some twenty years eago I sowed one bushel of alfalfa seed on wheat ground in the spring, the same as I would have done with June clover. I had a fairly ways and my experience is the same as good catch and the alfalfa lived and grew through the summer and fall, but the While it is quite possible to get a stand following spring there was prolonged alwith a nurse crop, yet by sowing alfalfa ternate freezing and thawing, so that it alone it does so much better that one broke and lifted about half the plants entering and alone it does are sufficiently if the base in the plants of the plants feels well paid, especially if he has two tirely out of the ground. The land was slightly rolling, the soil clay and gravel, the former predominating, and what was I have found that, by cutting the first left I did not consider a sufficient stand crop of June clover and when the hay is and plowed it up. Some of the seeds had taken off plow and keep disked or har- fallen close to and along a fence where 1 did not plow, and were left to grow. Weeds and June grass had fallen over it does fine, and in this way I get a these plants and the freezing and thaw-crop of clover hay for use of land. I ing did not injure them: ing did not injure them:

I also, from that same bushel of seed. over the farm to see what it would do in different locations and under different conditions. As a consequence I had a little alfalfa all over the place and some of it lived for the next fifteen years. I observed the plants at different times each year. I had planted a few kernels close to and around a tree stump in a stiff clay on a little rise of ground between two cat holes in which there was water during half the season. I remember distinctly one year the fore part of August, after a prolonged hot and dry is a native of southeastern Asia, spell, when June clover and all kinds of but of late years has been cultivated ex- grass was so dry that flame applied to it tensively in the United States. As a for- would have caused a running fire, and yet age crop soy beans have become of in- as I passed along it, the alfalfa stood creasing importance, in fact, we know of there full two feet high and as green as no plant having a wider or more useful in May. I observed it in early spring range of possibilities than the soy bean, alongside of June clover, when the June When one stops to think of the great clover just commenced to grow out leaves

> Here we have a plant, a nitrogen gatherer, a subsoil plow and underdrainer all combined in one; a plant that will send its roots down anywhere from ten to twenty feet, and more, a valuable food for nearly all kinds of animals. What more could we ask for? Why should we worry about the impoverishment of the upper ten inch of soil when we can draw on twenty feet and more! How I happen to know the length of the roots; I saw one year old alfalfa growing close to a gravel pit which had caved in and exposed the roots. The alfalfa close to the crown measured a little less than one quarter of an inch in diameter and the length of the entire root was nine feet exclusive of the fine fibers at the end. and I know that full-grown alfalfa sometimes reaches three-quarters of an inch and even more in diameter, so it would be reasonable to suppose that the roots go down in like proportion.

Ingham Co. C. F. GRIEB.

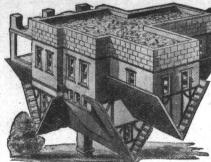
LIMING WHEAT AND RYE FOR CLOVER.

Will Mr. Lillie please tell me whether r not I can apply lime on wheat this pring for benefit of clover to be sowed his spring?

Hillsdale Co. Subscriber.

Of course, if you wait until the ground The habits of new varieties are is dry enough so that you can drag it by harrowing the wheat, unless you entirely destroy the wheat. My idea would be to not seed to clover this spring but wait until after you harvest your wheat, then fit your land up in fine condition, put on your lime, and then sow your clover seed alone. If you would fit the ground just as soon as you get the wheat eff, early in July, keep it well worked until about the first of August, perhaps the middle of August, then sow your clo-Good preparation of the soil is neces- ver seed, I think you would stand just as

COLON C. LILLIE.



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SIZE OF TILE FOR TEN-ACRE SWAMP.

I have a swamp of about ten acres which has no drain. The muck is about eight feet deep in center. Twenty rods away is a swamp with drainage, which is ten feet lower than my ten-acre swamp. All the water that runs in is from snow and rain. It dries up in summer but not It dries up in summer but not gh to grow crops. What size and rain. It dries up in summer but not early enough to grow crops. What size tile should I use for outlet and mains? How much slope should I give the outlet running across the field to lower swamp? How much below the surface should I lay my mains and laterals after tapping the Kalkaska Co. E. C.

and use three-inch tile for the laterals, one tree at a time if necessary. This will drain it perfectly.

the summer time of its own accord, but few at a time, if one has the inclination, that in the spring it holds the water so and the plans made for doing such work. What is wanted is to take off this suryou get it off the better, and later on in cents or dollars. the season there is natural drainage that takes care of the moisture. Of course, the deeper you put your tile the farther it will drain the land on either side, but it is considerably more expense to dig a ditch four feet deep than one three feet deep.

COLON C. LILLIE.

PLANNING TO SAVE TIME.

In almost any neighborhood can be are doing, they waste hours just because living. they have not planned ahead with the be so important in itself, but taken all together they go a long way towards pipe and smokes and "waits for the clouds to roll by," will probably never die of 'nervous prostration," but he is apt to be one of those who declare that "farming don't pay."

Every farmer ought to have a workroom, which can be heated in cold weather, where he can work in comfort on stormy days in winter. A great deal can be accomplished, if one has the work planned ahead, and so knows just what to do when the stormy day gives the leisure hour, or hours, needed. A cheap account book, which can be purchased for five or ten cents, can be used, and kept in some convenient place, with a pencil attached to it with a piece of string so that, when a small job comes to mind it can be put down. It would be well to have a heading for "Rainy Day Jobs." and "Pleasant Weather Jobs." Under the former could be put down tools to be repaired, harness to be mended. With a few tools and material in the work-room, and making use of odd hours and minutes, many dollars, and much time can be saved in the course of a year. are few men so clumsy they could not mend an ordinary break in a harness, if they had the proper tools, which can be had for a few cents; the harness maker in town might do a neater job, but he is not on the spot to make repairs, and he keep up with the advanced state of sowants good money for his work, as is ciety, and be in "the swim," must pay proper. farm tools, broken rounds in plow or cultivator can be replaced by new ones, a missing screw or bolt replaced, which may be the "stitch in time to save the nine." The work-room ought to have an assortment of nails, screws and carriage colts,

time for doing small jobs; it may be the

less tree in the orchard which ought to be made into fire-wood, perhaps there is one or more which the last hard windstorm blew over, that are unsightly, in the way, and ought to be cut up into wood. You have half an hour, much can be done in that time, where one has the will. The job may not be finisher, but a start will have been made, and some other half-hours will complete it, the orchard will look better, the tree will be out of the way, and there will be some excellent wood seasoning for the good wife to use. The next time you go to town just notice the orchards you pass Since all of the water that has to be and see how many of them have trees taken care of in this 10-acre swamp is which are down, dead or dying. There what falls on it naturally in rain or snow are other trees on most farms, which four-inch tile would drain it properly need to be cut down, dead limbs removed, if the outlet was close to the swamp, but or living limbs trimmed off to improve since the outlet is about 30 rods from the the shape or get them out of the way. swamp a great deal of the capacity of the Too often shade trees are allowed to form tile will be lost in friction after the water tops too low. It is not noticeable when from the swamp to be drained has soaked they are small, but by and by the lower into the drain, consequently I would use limbs get larger and hang lower, and get a larger tile for this. I would begin at in the way, and then have to be taken the lower swamp or the mouth of the off; better do it while the tree is small, drain and lay five-inch tile up to the then the scar will easily heal over. This swamp that I wanted to drain, and then is one of the sunny day jobs, and can be put in four-inch tile for the main ditch done in ten minutes if tools are handy, There are usually fruit trees, or grape vines E. C. says that this swamp dries up in near the house, which can be pruned a long that it is impossible to get in crops, There is an old proverb about "saving consequently it isn't necesary to lay the the pennies, and the dollars will take care tile drain very deep. I should say three of themselves," and on the farm we might feet deep for the main would be plenty, well change it into "save the minutes and the hours and days will take care of plus water in the spring and the quicker themselves." Time is money, whether

Eaton Co. APOLLOS LONG.

THE HIGH COST OF LIVING.

Much is being said and written on this subject at the present time, and a great many reasons are given for the cause. Some of the blame is laid to cold storage, some of it is laid to middlemen, also to combinations, or what are termed trusts. And for a while the farmers came in for found one or more farmers who have no their share of the blame. But investigawork planned ahead from day to day, and tion has proven that they are but little, when a storm or something else interrupts if any, to blame, as to the cause for the them, and puts a stop to the work they general complaint of the high cost of

If the farmer had it in his power to put thousand and one things which are always his own price on the products that he has waiting to be done. Each thing may not to sell, then there might be some reason for laying some of the blame on his shoulders. But as every farmer knows, spelling success or failure. The farmer he has but little to say what price he who, interrupted by a storm, lights his shall receive for his produce, no matter what the cost might have been to grow and get the same ready for market.

One of the principal reasons for the socalled high cost of living to the mind of the writer, is on account of our present mode of living, which is now demanded by the present advanced state of society. What was considered luxuries a quarter of a century ago are now deemed neces-There is an increased demand among all classes for everything that adds to the ease, comforts and enjoyments of life, and all these things must necassarily add to the cost of living. If not carried too far, is it not all right that there should be such a demand?

Who would care to stop the progress that is being made for the advancement of society, and live just as people did in what is termed the "good old times?" Of course, to do so would reduce the cost of living. It is true people could get along without using electricity, without automobiles, without good furniture and silverware in their homes, and they could live on the plainest kind of food. All fraternal societies outside of the church, could be dispensed with, and many other things that might be mentioned people could live without, which would reduce the cost of living. But all who expect to Repairs can also be made on the the price, even if it does add to the cost of living

Ottawa Co. JOHN JACKSON.

During February, 1911, we exported 10,-805,255 bushels of corn with a value of \$5,672,387, according to figures furnished which can be purchased cheaply, and will by the Bureau of Statistics, Department often save a trip to town at a busy time, of Commerce and Labor, while in Feb-Even in pleasant weather there is often ruary of this year we exported only 6,-980,004 bushels valued at \$5,004,161. In farmer, and perhaps the hired man, finish February, 1911, 1,333,038 bushels of wheat some work, and it is still half an hour, or were exported, valued at \$1,181,933, while an hour, till dinner or supper time. Per- in February, 1912, 1,156,943 bushels were haps the hired man would like to sit sent abroad, valued at \$1,966,446. Of catround and gossip or smoke till the meal tle 8,165 valued at \$764,010 were exportis ready, but consult that book! Isn't ed in February, 1911, and 5,797 valued at there a dead, dying, or simply a worth- \$557,383 were shipped last month.

TOO MUCH STARCH A Food Problem.

An Asheville man tells how right food did that which medicines had failed to accomplish:

"For more than 15 years," he says, "I was afflicted with stomach trouble and intestinal indigestion, gas forming in stomach and bowels and giving me great distress. These conditions were undoubtedly due to the starchy food I ate, white bread, potatoes, etc., and didn't digest. I grew worse with time, till, 2 years ago, I had an attack which the doctor diagnosed as appendicitis. When the surgeon operated on me, however, it was found that my trouble was ulcer of the pancreas, instead of appendicitis.

"Since that time I have had several such attacks, suffering greatly. The last attack was about 3 months ago, and I endured untold agonies.

"The doctor then said that I would have to eat less starchy stuff, so I began the use of Grape-Nuts food for I knew it to be pre-digested, and have continued same with most gratifying results. It has built me up wonderfully. I gained 10 pounds in the first 8 weeks that I used Grape-Nuts; my general health is better than ever before, my brain is clearer and my nerves stronger.

"For breakfast and dinner, each, I take 4 teaspoonfuls of Grape-Nuts with cream, a small slice of dry toast, an egg soft boiled and a cup of Postum; and I make the evening meal on Grape-Nuts and cream alone—this gives me a good night's rest. I am well again." Name given by Postum Co., Battle Creek, Mich. "There's a reason." Read t

"There's a reason." Read the little book, "The Road to Wellville," in pkgs.

Ever read the above letter? A new one appears from time to time. They are genuine, true, and full of human interest...



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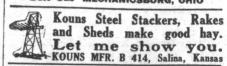
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that PAY, \$42,530 made by clients. 2 Books—"What & How to Invent—Proof of Fortunes in Patents" M H2-p. Guide Free! Free report as to patentability. E. E. VSOOMAN, Pat. Atty. 864 F St., Wash. D. C.

KEEPING LIVE STOCK WITHOUT PASTURE.

I have recently purchased an 80-acre farm. The soil, a clay loam, has been badly run. The farm is very level, enclosed with good fence, all under cultivation except five acres occupied by yards, garden and orchard. My desire is to improve the soil as rapidly as possible and while doing so to make the farm pay as large a dividend on the investment as possible. My idea would be to intensify my farm operations as much as possible, making the farm thoroughly a live stock farm and returning every particle of the manure, liquid as well as soild, to the land. I would divide the 75 acres in three-fields of 25 acres each, following a three-year rotation of clover, corn and wheat, seeding with the wheat crop. Would put 20 acres of the crop into two silos, husk the remaining five acres, sowing the corn ground to wheat and seeding to clover the following spring. Would let the clover aftermath grow as large as possible, cover with all available manure and plow down for corn. Our average yields are, corn, 80 baskets; wheat on corn ground, 18 to 20 bushels per acre. I would not turn a hoof upon the farm to pasture whatever, but would keep stock stabled during entire year with dally access to covered barnyard. I wish to keep five horses, 10 cows, 10 head of young cattle, 50 hens, and a flock of sheep large enough to consume all roughage above what the other stock would require, raising and fattening the lambs for market. Now what I would like to know is, would this stock do well under the above conditions of confinement or would it be better to subdivide the farm in smaller fields, using a four-year rotation of clover, pasture, corn, wheat, supplementing the pasture by feeding from silos? How large silos would I need? What variety of corn of confinement or would it be better to subdivide the farm in smaller fields, using a four-year rotation of clover, pasture, corn, wheat, supplementing the pasture, corn, wheat, supplementing the pasture by feeding from silos? How large silos would I need? What variety of corn would be best to plant? Would the 25 acres of hay, five acres of corn stover and 25 acres of straw, above what was needed for bedding, furnish dry feed enough to judiciously feed the amount of silage? Would my wheat crop purchase all necessary protein feed and other grains to balance the rations? Would ship cream to local creamery and feed skim-milk to calves. How large a flock of sheep could I keep? Would this system of farming pay out with the added expense of necessary help or would it be advisable to use a systematic rotation providing for a yearly acreage of pasture?

Barry Co. Subscriber.

This idea of keeping live stock confined in barns and covered barnyards, or mere exercise yards, the year around without pásture, is a comparatively new idea, and one that I do not think has been tried out thoroughly in Michigan, but it has been tried out other places. For instance, Rev. Deitrich, down near Philadelphia, tried it out, so far as dairy cows are concerned, in a thorough manner and proved it a success. I have stated many times in the Farmer that if my land was all level, tillable land I would not have any pasture at all, but part of my farm is broken land caused by a creek running through it and cannot be tilled, consequently I must utilize this and have a small area of permanent pasture. The pasture, however, does not afford near enough feed and we have to feed in the stable as well.

While I know well enough that you can keep dairy cows in this way and keep them healthy and everything all right, I am not so sure about sheep. Sheep have a little bit different nature, and it may only be a notion, but the most of us have a notion that sheep are grazers and they ought to have exercise. And yet I believe this is nothing more than a notion, and I believe the sheep can be kept in this way. It may be necessary to have a small exercise yard in connection with the covered barnyard for warm weather in the summer time. Otherwise, I am sure that the plan is practical. It will and keep it at a greater profit. Of this I am practically sure. I think the rotation of crops planned is a good one. order to get the best yields of crops one rubbing against fences and posts to make must balance the plant food in the soi! gains. as well as to balance the feed for the begins the barley grain makes good gains to get the hest m simply using clover and stable manure we that their grain feed requires no grindare liable to get an excess of nitrogen, ing. and should purchase the phosphoric acid probably on the corn crop in order to bal- corn belt it is the corn field. In portions ance up the food ingredients of the soil of Colorado it is the pea fields, in others to grow the most successful and eco- alfalfa, and in Nebraska, corn. In Mich-

farm, because no one can tell how much barley is a shorn Samson. can be grown, and in the same way. It

is impossible to state whether the wheat grown will purchase enough necessary food to balance the ration. It will all depend upon the wheat crop. But I am satisfied that, with a few years of careful work with this rotation of crops, the productive power of this land can be increased to such an extent that a greater number of animals can be kept on this 80 acres of land than E. C. T. is now planning. Probably twice as many, and even more.

COLON C. LILLIE.

BARLEY AND RAPE FOR FATTENING LAMBS.

Wisconsin, with about the same general soil conditions as Michigan, grows oneeighth of the barley grown in the United States. From the standpoint of pounds of feed: Forty bushels per acre of barley would be 1,920 lbs. of feed; 60 bushels per acre of oats would be 1,920 lbs. of feed; 40 bushels per acre of shelled corn would be 2,240 lbs. of feed.

The above yields of crops are above the average, yet not far from the average of good farming under good seasonable conditions. Corn involves much more labor in production than does oats or barley and is only in a remote sense to be considered a competitor of barley or oats.

For seeding with clover barley is preferable to oats and equal to wheat when comercial fertilizer is used with the bar-Perhaps no cereal crop responds to fertilizer to a greater extent than barley which is not only a rapid grower but a surface feeder, two conditions calling for available plant food. If the ideal soil, -moist, dark, loam-does not exist all over the field you can adjust conditions with fertilizer to great advantage. Oats will germinate at a lower temperature, so hazardous early seeding would put in barley later than oats, although it is very rare that barley is in too early.

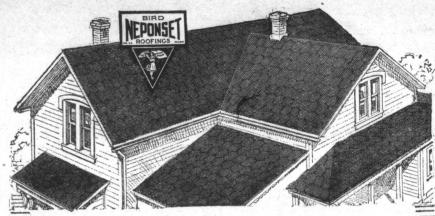
This crops fits into the sheep feeding proposition for the crop of grain is ready for both early and late feeding and is almost the equivalent of corn for fattening purposes. Three pounds of rape seed per acre put in at time of the barley seeding with a grass seeder oftentimes proves an additional crop of great feeding value for lambs. There is some risk in this part of the program, however, and while it succeeds there are dangers connected with the procedure. A very growing season will often give too much of the rape plant in the bnudles of grain and consequent difficulty in curing the barley. Barley needs to be harvested when moderately green for if allowed to get over-ripe it crinkles and many heads are lost. setting up in round shocks and well capped the beards give no difficulty in handling. The crop, when well shocked, will stand without danger of deterioration for a long time. Threshing out of the field is the ideal method for in this way the inconvenience of handling is reduced to the minimum.

When the rains come the rape makes a great showing, and delights a flock of native lambs when weaned. A good crop of rape which costs little for labor and seed under these conditions will make the equivalent of \$10 per acre in added lamb weights and finish. If the fall is very dry the rape crop will not amount to much and one would find little profit in the venture.

Loss of lambs from bloating is one of those things that is not only possible but does happen. An abundance of salt is a good preventative. The cull ewes which are turned off from flocks can be made take a little bit more labor, but you can into passable finish cheaply and quickly on feed more stock on the same farm by far rape. Fall shorn coarse and middle wool stock do better than wooled lambs, that is, they keep clean and the absence of I ticks make better gains. Lambs infested wouldn't know how to improve it. In with ticks have to spend too much time When winter feeding of lambs with

Each section of the country has some and potash to apply to the wheat crop and peculiar feature of lamb feeding. In the igan I am inclined to think that barley for I would biuld my silos 12 feet in diam- later feeding of western stock and barley eter for this small amount of stock and fields sown to rape are worthy of considthen would get my capacity by going up eration for early finish of natives. The into the air. Build them 40 or 50 feet seasonableness of this observation is in high. No one can tell whether the amount the prospective crop of barley and rape. of live stock mentioned will be sufficient Do not spend time in growing the deto eat up the roughage grown on the natured or beardless barley. Beardless

Shiawassee Co. JAS. N. MCBRIDE.



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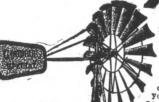
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FEEDING AND WEANING PIGS.

is indefinite. upon their thrift, the season of the year, can result. the accommodation and the feed one has for them. I do not consider it advisable to wean pigs before they are two months old. I prefer more to less age. I-generally wean my early pigs the first week in May, as I like to raise fall litters from a portion of the sows. Sows can ordi- the rate of four or five pounds per acre pigs are taken away. Sows that farrow and covered lightly, or a smaller amount in May and June will be too late to breed of seed, say two pounds per acre, may be for fall pigs. It has been my custom to sown in rows and cultivated. let these run with the sows until they wean themselves.

house and a small yard with plenty of result that 710 pounds of corn and 352 grass for each sow. If they are thus di- pounds of middlings were saved, as comvided, and any of the pigs get out of orand can feed the sow accordingly.

through the dam. Watch the little pigs closely and if they look thin and hungry not on pasture. The summary of these swilled.

litter of pigs without some of them getting the scours, at one time or another, I will depend not a little upon the season, will give my treatment for this ailment, the size of the hogs, etc. which has proven very successful. I

yard, where the dam cannot go, and give the pigs shelled corn. As soon as they are accustomed to coming for the corn I begin by feeding a little fresh milk diluted one-half with water. I begin with one cupful and increase the amount as they learn to drink. As the stomach of a little pig is as sensitive and delicate as that of a child, it is very important that no milk be left in the trough from the previous feed, as it tends to sour the trough and the new milk. After I have the pigs eating and drinking, so they will come when called, and their stomach thoroughly accustomed to the feed, they are ready to wean.

All the milk fed to pigs under three months of age should be sweet, and then not too much of that. I have at various times fed much soaked feed, but have discarded it for dry shelled corn and dry oats fed in self-feeders. I prefer dry feed for two reasons: In soaking corn, oats, ground or mill feed, it is almost impossible to keep the feed sweet in warm weather unless one has plenty of boiling water and rinses the barrel at each feed. If the feed is soaked, the pigs will swallow whole or half-kernels without chewing the feed; thus not being properly may sour the stomach, while the dry grain is thoroughly chewed or ground.

W. H. UNDERWOOD. Illinois.

FEEDERS' PROBLEMS.

Cottonseed Meal and Corn for Horses.

Will you please tell me what proportion to mix cottonseed meal and corn meal by the pound, to get the same proportion of protein and fat that oats contain, and how much it will take of this mixture to make the same amount of feed value that a pound of oats contains? I want it for horse feed. I don't think that corn contains enough protein for a horse to work on.

Osceola Co.

Subscriber.

One pound of cottonseed meal mixed. Cottonseed Meal and Corn for Horses.

One pound of cottonseed meal mixed with five and one-half pounds of corn will furnish as much protein as eight and ergy expended in the muscular work, and one pound of cottonseed meal, and fed with the understanding that this six and one-half pounds is equivalent to eight and one-half pounds of oats will make a splendid ration for work horses. A number of experiments have been made at our experiment stations with cottonseed meal for work horses, and in every trial cottonseed meal has proven to be a good food. Of course, it doesn't want to be fed in excess, and this is a very intelligent way that subscriber has in looking into the matter to find out the right pro-

the corn to give the same amount of pro-The age at which pigs can be weaned tein that he would give if he fed oats, The time depends largely and mixed in that proportion no harm

Rape Pasture for Hogs.

I am writing you in regard to rape pas-ture for hogs. I would like to ask how much to sow to the acre and how many hogs one acre will pasture?

R. C. Newaygo Co.

Dwarf Essex rape should be sown at narily be bred within a week after the broadcast upon a well prepared seed bed Wisconsin station 20 grade Poland China pigs were pastured on a one-third acre I prefer to have my sows with litters of rape for 76 days, receiving, of course, in as small bunches as possible; prefer a a grain ration at the same time, with the pared with a similar pen fed without der, you at once know what litter it is pasture. In another trial 38 grade Chester Whites were pastured 42 days on six-Most of the ailments of pigs before tenths of an acre of rape with a saving weaning will have to be reached by feed of 886 pounds of corn and 444 pounds of middlings, as compared with a similar let see that their mother is better fed and two trials shows that one acre of rape is equivalent to 2,600 pounds of grain for As it is next to impossible to raise a pig feeding. Of course, the number of hogs which can be pastured upon an acre

The Life of the Clover Plant.

watch them closely, and if any of them are too loose at the next feeding I dissolve a teaspoonful of copperas in a little and up and in the fall of 1911 for hay and in the fall of 1911 for seed. The clover plants are alive at this will. If the first dose does not prove effective, I give another the following day.

When the pigs get from two to four weeks old I fence off a corner in the clover. I never knew of June clover by and and looks very thrifty, yard, where the dam cannot go, and give

The Life of the Clover Plants.

I sowed some clover seed in the spring of 1910. I cut this field in the summer of 1911 for hay and in the fall of 1911 for hay and in the fal

Calhoun Co. G. A. B. Red clover rarely survives the second winter, and makes a good stand in the

lower counties of Michigan. It is not strictly speaking, however, a biennial, and under favorable conditions it will live not only two years but several years. The writer has seen fairly good stands of clover that have endured for a number of years in the northern sections of the state, and particularly in the upper penin-This may possibly be attributed to sula. the fact that there snow comes early and the ground freezes but little. There would appear to be no reason why, if these clover plants are alive at this time, they would not under favorable conditions give a fair crop of hay this year and perhaps another crop of seed. In a year like the present, it would undoubtedly be profitable to save such a field of clover for this purpose, although under normal conditions the best results are secured by plowing it down the second spring after sowing.

SEPARATING CALF FROM COW.

Under normal conditions the calf should be removed from its mother within three mixed with saliva it is hard to digest and days from birth where the cow is to produce milk for commercial purposes. Some of the advantages accruing from this practice are: That the calf can be more easily taught to drink from a bucket; that there is less excitement caused to the cow and calf by the early removal than when remaining together longer; that the secretion of milk will not be impaired by the irregularity of the calf's nursing and the incomplete milking.

INDIANA CATTLE FEEDERS' CON-VENTION.

The annual spring meeting of the Indiana Cattle Feeders' Association has been called to meet in Lafayette at 10:30 a. m., Saturday, April 27, 1912. At this time, the experimental cattle placed on feed Nov. 17, 1911, will be finished for market. All lots of steers have received one-half pounds of oats. The fat in the a grain ration of corn and cottonseed mixture will be in a little excess of the fat in the oats, but it will do no harm because horses doing heavy work require a lot of fat or carbohydrates, for the energy expended in the muscular work and cat straw in various combinations. Valuation of the cattle will be made by commission men from Chicago and Indianapolis. The cost of cattle, rate and ergy expended in the muscular work, and I think that cottonseed meal and corn meal mixed together in that proportion, experiment. The opportunity will thus five and one-half pounds of corn meal to be offered for the visiting cattle feeders one pound of cottonseed meal, and fed of the feet cottols and their restrictions. of the fat cattle and their value on the

> of the corn belt is preventing many rarmers from embarking in the cattle feeding business. A discussion of this question will be given by Mr. John Clay, of Chicago, who is especially well qualified by his experience in and knowledge of cattle raising to present the subject, "The by his experience in and knowledge of cattle raising to present the subject, "The passing of the range and our supply of young cattle." Everyone interested in cattle feeding problems is cordially in-vited to attend this meeting.

And Disinfectant

For the prevention and eradication of sheep scab Dr. Hess Dip and Disinfectant is recognized as the most effective. It meets the requirements of the U.S. Government as an official Dip for sheep scab and its strength is always uniform. One gallon Dip makes from 50 to 100 gallons effective solution. It destroys parasites of all kinds and keeps the skin clean and smooth.

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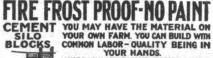
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IS THOROUGHLY MANUFACTURED and has features that are important and found on the Ross Silo only, Profit by our experience and build a ROSS SiLO. Catalog explains all.

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IS IT PROFITABLE TO BREED FILLIES?

I notice in your issue of March 3, Mr. J. D. Bent, of Cass county, would like a discussion on breeding fillies and will give my experience in that line. In the early 80's I bred an ordinary work mare to an imported Percheron stallion and got a mare colt. She was small but nicely built and at two years old I bred her to a Percheron stallion and got a small colt but nicely put up. The mare at that time weighed over 1,000 pounds and my neighbors said I had spoiled her by breeding her so young, and I thought per-haps I had. I broke the colt in the fall after he was two years old and from that time he paid his way. At four years old I sold the colt to one of my neighbors for \$145 after he looked the country over for He would weigh at that time a horse. about 1,150 pounds. He was kept in the family until he was 17 years old then sold

I raised another colt, full brother to the mare which I bred, which never was as nice a colt or horse and never weighed any more than the mare and was no bet-ter driver from the fact that the mare was used for years as the family favorite and the raising of that colt was no injury and I was something ahead. I afterwards raised several colts from the same mare and never got anything better although bred to larger Percherons than the first one. I have known of several cases of breeding two-year-olds and never heard any regrets from so doing. knew one party who trucked logs most of one summer with a two-year-old mare colt with foal and told me afterwards he knew of no bad effect from doing so.

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C. B. WHITCOMB. Van Buren Co.

LIVE STOCK NOTES.

Hogs have been selling recently at the highest prices of the year, and the un-dertone has shown unusual firmness, the general trend being towards higher values for the next few weeks. It is known by this time that the eastern portions of the country have extremely small supplies of hogs for marketing, and there are not many districts of the country west of Chicago that have many left, stock feeders having cleaned up the greater part of their holdings. The spring pig "crop" is now the main feature of interest, and retheir holdings. The spring pig "crop" is now the main feature of interest, and returns will be watched very closely. In so widely separated hog-raising sections as comprise the corn belt there must be quite a diversity of reports on this score, and while many farmers report their usual numbers of brood sows and good prospects, there are many sections devastated last year by hog cholera where sows are very few. Taking the country as a whole, it is generally thought that the pig "crop" will not be an over large one. At any rate, this seems to be the view taken by the large and small packing interests of the country, and the leading packers, with headquarters in Chicago, are the owners of the bulk of the heavy stocks of provisions, which they expect to dispose of later on at high prices. In fact, it is generally understood that they are willing to pay high prices for hogs in order to maintain prices for manufactured products. From time to time the warehouses have become filled to repletion, and on several occasions additional storage room had to be provided to take care of freshly made cured meats and lard.

The lamb trade of recent weeks has been highly sensational so far as advanc-

had to be provided to take care of freshly made cured meats and lard.

The lamb trade of recent weeks has been highly sensational so far as advancing prices are concerned, and it is safe to say that the average sheepman has been taken by surprise by the great booms in prices, although everyone expected to see much better values than those of the winter period, when lambs and sheep ruled abnormally low in price because of the giutted markets. Since the great bulk of the stock fed in the middle west and elsewhere has been marketed, conditions have been reversed, and now the seller, and not the buyer, controls prices. Colorado lambs are now the principal ones offered, and as their owners are financially strong enough to take an independent attitude and understand market conditions thoroughly, they are not going to spoil their own profits by overstocking the western markets. This state of things may be expected to last up to the time that grassers from the southwest and spring lambs are ready to be shipped freely to market.

The consumption of beef and other

be shipped freely to market.

The consumption of beef and other meats continues to be restricted a good deal through the substitution of eggs, which are now offered in liberal amounts in the markets of the country at the usual spring low prices. Choice beeves are so scarce, however, that there is mighty small prospect that they will fail to command unusually high prices for months to come. It is pretty certain that owners of thrifty, well-bred young cattle that are doing well on feed will come out well ahead financially by finishing them off in good shape. Some of the most successful stockmen of the country are buying weighty prime feeder steers and paying the high prices asked, being prepared to take their chances.

Word comes from Kentucky that about

Word comes from Kentucky that about the usual numbers of cattle are being fed on slop at the distilleries, and the great-er part of them will be marketed from May to July.

THE MICHIGAN FARMER.



Progress and

ARMERS, tradesmen, manufacturers, labor ers—all are producers for the common good. Without the farmers the rest of us would starve. Without tradesmen to distribute it, grain would spoil in barn and bin. Without the machines made by manufacturers and laborers, the great modern crops of grain and hay would never be planted, or, if planted, would rot in the fields for the lack of adequate means of

in the fields for the lack of adequate means of harvesting. On the other hand, by working together, we produce the bulk of the world's grain. The day of farming without machines is gone forever. The manure spreader, gang plow, disk, and harrow prepare the way for harvesting and haying machines. A thousand acres are cultivated today with greater ease and dispatch than a hundred were forty years ago. Credit for this greater efficiency and for the fact that thousandacre tracts are planted to grain and harvested acre tracts are planted to grain and harvested safely, belongs to the farmers who use harvesting and having machines and tools made and sold under the following names:

No matter what the condition of your grain at harvest time—standing, down, or tangled, short or tall, an I H C machine will cut it with the least loss or waste, and bind it into bundles of uniform size convenient for handling. The machines are so simple that they may be trusted safely to unskilled help. The quality of the steel and iron in them is proved. They will stand up under the roughest regular usage of the har-

When the harvesting is once begun you cannot afford delays. Should accident happen to an I H C binder and a repair be needed, you are no farther from the necessary part than your dealer's place of business. When you get that part, it will fit without filing, scraping or pounding—so accurate and so true to gauge is each part made. This feature does away entirely with expensive, aggravating delays, and makes your harvest sure—completely finished in good season. That alone is good enough reason for buying an I H C machine.

Champion Deering

McCormick Milwaukee

Osborne Plano

As the cradle succeeded the reaping hook, the reaper the cradle, and the self binder the reaper, more and more men were freed from the drudgery of the harvest field to take their rightful places in other gainful occupations. Now that binders are in universal use, one-third of the people of the United States raise wheat sufficient to feed the whole country and have millions of bushels

left for export.

Progress and plenty for all depends upon the right choice of harvesting machines by the farmers of this country. Your share of the harvest profit means much to you, but it means more to others. To be sure that your crops are harvested without waste and at the right time, buy machines suited to the conditions in your fields, tested by actual work in similar fields, machines which have behind them a history of more than fifty years of success, and which have been developed to practical perfection—IHC machines.

A good machine should have good twine to bind with. Our brands—Champion, McCormick, Osborne, Deering, Milwaukee, Plano, and International—made in four grades—Sisal, Standard, Manila, and Pure Manila—are made to work smoothly and without waste or trouble on I H C

machines.

The I H C local dealer will set up a binder for you to inspect and will help you to decide on the best machine for your crops and fields. See him and get the benefit of his knowledge and experience. He will answer your questions and probably refer you to neighbors who have used I H C machines and twine. Remember when choosing, that I H C machines have given satisfaction for many years. have given satisfaction for many years, and that needed repairs are easily and quickly obtained from the I H C local dealer. Get catalogues from your dealer,

INTERNATIONAL HARVESTER COMPANY OF AMERICA (Incorporated)

CHICAGO

IHC Service Bureau

The purpose of this Bureau is to furnish, free of charge to all, the best information obtainable on better farming. If you have any worthy questions concerning soils, crops, land drainage, irrigation, fertilizer, etc., make your inquiries specific and send them to I H C Service Bureau, Harvester Building, Chicago, USA





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(10)

VETERINARY

CONDUCTED BY W. C. FAIR, V. S.

Advice through this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also name and address of writer. Initials only will be published. Many queries are answered that apply to the same ailments. If this column is watched carefully you will probably find the desired information in a reply that has been made to some one else. When reply by mail is requested, it becomes private practice, and a fee of \$1.00 must accompany the letter.

Sweeney.—Is there any remedy that will help sweeney in mare 20 years old? M. N. E., Petoskey, Mich.—Clip off hair and apply cerate of cantharides once a week and she will get well, but remember, recovery will be slow.

Partial Loss of Power.—We have a 14-year-old gelding that is in apparently good condition, but quite often when moving around he seems to lose control of hind legs, acting as if he was paralyzed. 'These wabbling spells last only a few seconds. E. M. S., Inkster, Mich.—Give him 1 dr. ground nux vomica, a teaspoonful of powdered fenugreek and a tablespoonful of cooking soda at a dose in feed three times a day. Feed oats, wheat bran, oil meal, roots and timothy hay.

wheat bran, oil meal, roots and timothy hay.

Bursal Swelling.—Have a five-year-old driving horse that fell injuring ankle joint of right fore leg and the accident occurred sometime last August. There is no lameness, but only a soft bunch above joint. Shall I open this bunch? C. A. W., Adrian, Mich.—Apply equal parts of tincture iodine, spirits of camphor to puffy swellings once a day.

Alsike Poisoning.—I would like to know the meaning of alsike poison. Is it from feeding too much of it or the legs of stock getting sore by running in alsike pasture? R. P. H., Marshall, Mich.—Alsike frequently irritates the mouth of animals that eat it and sometimes irritates the legs of stock that run in alsike pasture.

Cow Eats Wood.—We have a cow that

the legs of stock that the legs of stock that ture.

Cow Eats Wood.—We have a cow that eats rotten wood and has had this habit for the past four years and we have been unable to learn the cause of it and a remedy that will correct it. W. E., Newaygo, Mich.—Feed her 1 oz. cooking soda, 1 oz. ground gentian and ½ oz. ground quassia at a dose in feed two or three times a day.

ground gentian and ½ oz. ground quassia at a dose in feed two or three times a day.

Paralysis.—I have a cow due to come fresh May 1, that seems to have lost the use of her hind quarters. G. F., Shabbona, Mich.—Give your cow 1 dr. ground nux vomica and a teaspoonful powdered nitrate potash at a dose in feed two or three times a day. Apply mustard and water to back three times a week.

Umbilical Hernia.—I have a filly nine months old that has been troubled with a navel rupture since birth, but it never enlarged much until lately. Some people tell me to have her operated on, others say leave her alone; now I would like to know what is best. W. N., Carson City, Mich.—I have operated on a great many such cases and nearly all of them made satisfactory recovery. When the enlargement is small, doing no harm, it is not very necessary to operate, but in this case she is growing worse, hence the necessity of treatment. An experienced surgon should do this operation.

Injured Shoulder.—About nine months ago my horse slipped and fell while running full speed and when he got up walked lame and has been lame in shoulder ever since. He seems to be getting a little worse and I would like to know what to do for him. B. S., Grant, Mich.—Perhaps he sprained and bruised his shoulder when he fell. It is not easy to tell whether a chronic case of this kind can be treated successfully or not; however, you will obtain as good results from applying one part turpentine, one part aqua ammonia and four parts olive oil every two or three days as from any other treatment.

Injured Leg.—Last fall my three-year-old colt was bitten on hind leg by our boar. This ugly wound has never healed and there is quite a large bunch on shin which I would like to take off. G. R. H., Newaygo, Mich.—Remove bunch with a knife and apply equal parts oxide of zinc and boracic acid to wound twice a day.

Barren Old Mare.—I have a mare that is not less than 18 or 19 years old which has been mated to several different

and boracic acid to wound twice a day.

Barren Old Mare.—I have a mare that is not less than 18 or 19 years old which has been mated to several different horses, but fails to get with foal. B. W., Port Hope, Mich.—If your mare has a vaginal discharge that is thick, then inject her with the following lotion once a day: Dissolve 1 dr. permanganate potash in six quarts tepid water. In some cases to wash them out with a soda solution made by dissolving 2 ozs. of cooking soda in a quart of tepid water occasionally.

to wash them out with a soda solution made by dissolving 2 ozs. of cooking soda in a quart of tepid water occasionally, and to be sure to wash them out when they come in heat and not mate them for three or four hours, often puts the mare in condition to get with foal.

Loss of Power.—Have a cow that we turned in pasture last Thursday morning; found her at three o'clock down and laying on her back; got her up into barn when she seemed to eat her feed and be as well as usual. I turned her out again yesterday noon and towards evening found her down; we hauled her to barn on stoneboat and she has been down ever since. We have tried to get her up, but failed. She is a young cow, had first calf last June. She does not appear to be sick, has a good appetite, but is unable to get on her feet. C. J. K., Fennville, Mich.—Give her 1 dr. ground nux vomica at a dose five or six times a day; also keep her bowels open. Apply mustard and water to back once a day, for a few days.

Ohio Breeders Co. Semi-Annual Sale of

REGISTERED HOLSTEIN FRIESIANS

TO BE SOLD AT AUCTION At Fair Grounds, Wellington, Ohio, PRIL 23d, 10 A. M., Sharp.

125. All Ohio strong, robust stock—cows, heifers and calves, also two herd headers—one a half brother to the great Friend Hengerveld DeKol Butter Boy at the head of the famous D. Dimmick & Broherd where the world's records are being broken every few days by daughters of the brother of our young bull to be sold. The blood of DeKol 2nd, Butter Boy 3rd, Pietertie Hengerveld DeKol, Korndyke, Hengerveld DeKol, Segis, Johannas, Coraucopia, and other great blood in this sale. A number of cows from the famous Horr herd of Wellington will be in this sale. This herd has sent out more Are material than any other herd of Ohio. Five 30-pound Are records have been made from cows from this herd, a few young things and a fine Are three-year-old heifer from the great John Dudley herd, the complete herd of W. C. Smith which not only contains some of the above blood mentioned, but the blood of Duchess Ormsby Butter King and individually as good as their breeding, and a number of cows bred to a grandson of King Segis which also is grandson of Pontiac Clothilde DeKol 2nd, the great 37,21 world's record cow, a few choice cows from the Kryder herd at Canton, also from the J. H. Sheets herd and other individuals selected by the managment from other choice Ohio herds. No pains have been spared to select good stock for this our second esemi-annual sale. Our last fall sale was a success, and we wish to make this even more so if possible. All stock will be tuberculine tested over 6 months of age by an authorized State Veterinarian, and every animal will be guaranteed strictly as represented.

Terms, cash, or nine months time, six per cent interest on approved notes. Bring your bank references with you. Sale positive regardless of weather.

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OF REGISTERED

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Improves appearance and condition of flock. If dealer can't supply you send \$1.75 for \$2.00 packet.
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BREEDERS' DIRECTORY.

CATTLE.

ABERDEEN-ANGUS Herd, consisting of Trojan Ericas, Blackbirds and Prides, only, is headed by Egerton W. a Trojan Erica, by Black Woodlawn, sire of the Grand Champion steep and bull at the International in Chicago, Dec., 1910. A few choicely bred young bulls for sale, WOODCOTE STOCK FARM, Ionia, Mich.

Money Makers -Guernsey bull calves. Aristocratic breeding. Cash or bankable note. G. A. WIGENT, Watervliet, Mich.

Guernsey Bull Calves sired by half-brother of Rose of Langwater, m. 12,966.5 lbs.: b. f. 669.89 lbs., 2 yrs. 7 mo. Allan Kelsey, Lakeview, Mich.

H OLSTEIN BULL—Fairboy Hengerveld De Kol, No. 64848, sire King of the Hengervelds No. 44465, dam Clothilde Apollo Boon Kate No. 77218, calved Octobes, 1909, Price \$150. Vaughan Farm, Homewood, Ill.

FOR SALE CHEAP—Account sale of farm, choice registered Holstein sires ready for service. HATCH HERD, Ypsilanti, Michigan.

FOR SALE--A. R.O. HERD BULL one of the best. kind and gentle: 2 bull calves, 4 cows. Prices right. T. H. Jackson, R. No. 3, South Bend, Ind.

BUL

KING SEGIS PONTIAC

Ready for service.

Write for what you want in Holsteins. REED & KNOWLES, Howell, Mich. Holsteins of Quality Yearling Bull and Bull and sires, whose dams have records of 27.38 lbs (at 3 years) and 30 lbs. Best of breeding. Write fol pedigree and prices. W. B. READER, Howell, Mich

"Top-Notch" Holsteins. Choice bull calves from 3 to 6 mos. old, of fashion-able breeding and from dams with A. R. O. records, at reasonable prices. Also one 2-year-old bull, fit to

McPHERSON FARMS CO., Howell, Michigan. AYRSHIRES—One of foremost dairy breeds: young bulls and bull calves for sale. Berkshire swine. All pure bred. Michigan School for Deaf. Flint, Mich.

HEREFORDS-7 bulls from 2 mos. to 2 years old, all reg. and of the very best breeding. Also big boned Poland China hogs. ALLEN BROS, Paw Paw, Mich.

HOLSTEINS

I can please any body with a service bull, bulls from one to ten months old, sired by Johanna Concordia Champion. Also cows and heifers bred to him. Write me for anything you want in Holsteins

L. E. CONNELL, - Fayette, Ohio

24-lb. Bull

Have Bull Calves out of— 13, 20, 23, 24-lb. Cows A. R. O. By a 24-lb. Bull. My herd averages 19 lbs. If you want this kind write BIGELOW'S HOLSTEIN FARMS, Breedsville, Michigan.

We have fine grandsons of Pontiac Korndyke in our lot of Holstein bulls ready for service now. Prices right. Gregory & Borden, Howell, Mich.



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YPSILAND FARMS BULL CALVES. ing. \$50.00 to \$100.00 Official Pedigrees on requestions.

REGISTERED HOLSTEIN CATTLE—Five month old bull calf, also 3-year-old herd bull for sale. Grandson of Canary Mercedes. FLOYD F. JONES, R. F. D. 3, Oak Grove, Mich.

JERSEYS AND DUROC JERSEYS FOR SALE.

A few high class boars from such champion boars as
Orlon Chief, Instructor, and King of Illinois. Also
a few bred sows, Jersey bulls, cows and heifers.
BROOKWATER FARM, ANN ARBOR, MICH., R. F. D. 7.

Lillie Farmstead JERSEYS

Bulls ready for service, also bull calves and helfer calves. Cows all in yearly test. Satisfaction guaran-teed. COLON C. LILLIE, Coopersville, Mich.

MARSTON FARM—JERSEY CATTLE. T. P. MARSTON, Bay City, Michigan.

Bargain Prices on 3 Jersey Bulls and few heifer calves. F. W. NOTTEN, Grass Lake, Michigan.

JERSEY CATTLE and Duroc Swine. Stock for sale. write. C. A. TAGGETT, R. No. 1, Caro, Mich.

FOR SALE-Reg. Jersey Bull, 18 mo. old, solid color, from high testing dam. Price \$75. C. A. BRISTOL, Fenton, Mich.

Will Sacrifice My Young Herd Bull, 20 mo. old son of one of King Segis great daughters for \$200. F. S. KENFIELD, Augusta, Michigan.

BUTTER BRED JERSEY BULLS CRYSTAL SPRING STOCK FARM, Silver Creek, Allegan County, Michigan.

JERSEY BULLS, Out of Register of Merit cows, for sale. Also a few cows and heifers. S. B. EASON, STURGIS, MICHIGAN POR SALE—3 yearling Holstein-Friesian bulls, also bried heifers \$150 to \$200 each. Bull calves \$40 to \$50. 33 years a breeder. Photos and pedigrees on application. W. C. Jackson, South Bend, Ind., 719 Rex St.

RED POLLED—Choice lot of females any J. M. CHASE & SONS, Ionia, Michigan.

Red Polled Bulls & Heifers for sale, all register-WELLS PARISH & SONS, B. No. 1, Allendale, Mich.

RED POLLED BULLS FOR SALE—from good milking strains. JOHN BERNER & SON, Grand Ledge, Mich.

Milking Strain of Shortherns Three young bulls for sale. WARNER BROS., Almont, Michigan.

FOR SALE-10 Reg. Shorthorn Bulls, months old, Scotch and Scotch-topped, \$75 to \$100 each. BIDWELL STOCK FARM, Tecumseh, Mich.

DAIRY BRED SHORTHORN cows and heifers bulls and spring calves. Also Big type Poland China pigs. ROBERT NEVE, Pierson, Mich.

Dairy Bred Shorthorns⁻² bulls, 8 mos. old, for sale. Price \$75 each, cash or good note. J. B. HUMMEL, Mason, Mich.

SHEEP.

Leicesters Yearling and ram lambs from Champion flock of Thumb of Mich. Also select Berk shire swine. Elmhurst Stock Farm, Almont, Mich

Foundation Flock—Cheap.

15 registered HAMPSHIRE DOWN yearling ewer and one ram. A bargain for cash or approved note of the control of the co

Reg. Rambouillets Wish to close out both sexes. All ages, low price. Farm—2% miles E. Morrice, on G.T. R. R. and M. U. R. J. Q. A. COOK.

Oxford Down Sheep Good Yearling Field for sale. I. B. WATERBURY. Highland, Michigan.

Durocs and Victorias Pround sows due Mar. & Aprilboar. Priced to move them. M. T. Story, Lowell, Mich.

RIVER VIEW HAMPSHIRES—Herd headed by Lord BOARS—BOARS—BOARS prize in his class at Ohio State Fair 1910 is for sale. Correspondence and inspection solicited. Prices right, The Valley of the white shoulders. A. L. ALLIS, R. 1, Adrian, Mich.

BERKSHIRES—Two Sept. Boars and 2 Sept. gilts, will do to breed for fall farrowing, at Farmer Prices A. A. PATTULLO, Deckerville, Mich.

Berkshires—Weaned pigs \$15, two for \$25. Boars to HandsomeLee Jr., a Mich. State Fair Prize Winner \$35. Registered and transferred. Express prepaid in lower Michigan. C. C. CORY, New Haven, Mich.

0, I.C. Service Boars, Gilts bred for April farrow Glenwood Stock Farm, Zeeland, Mich. Phone 94

O, I. C. SWINE—Males weighing from 175 to 250 GEO. P. ANDREWS, Dansville, Ingham Co., Mich.

Improved Chester Whites—A few choice young sows, farrow. Also three young boars, cheap, to close them out. W. O. WILSON, Okemos, Mich. Both phones.

O. I. C's—Service males, 25 bred gilts weighing 175 to 250 lbs. each. 4 bred yearlings. Choice fall pigs. Shipped c. o. d. Rolling View Stock Farm, Cass City, Mich.

O. I. C.—Spring boars all sold. A few lengthy gilts to be bred for April farrow. Choice Aug. & Sept. pigs, cheap. A. NEWMAN, R. No. 1, Marlette, Mich.

0. I. C'S—All ages, growthy and large, sows bred.

Males ready, 100 to select from. Attractive prices on young stock.

H. H. Jump, Munith, Mich. O. I. C. swine and Buff Rock cockerels of right type, best of breeding, price way down for quick sale. G. D. SCOTT, Quimby, Mich.

O. I. C's—I have some very fine and growthy last fall pigs, either sex, males ready for service now, pairs not akin. OTTO B. SCHULZE, Nashville. Mich., half mile west of depot.

OUR Imp. Chester Whites and Tamworth swine won 225 lat at Fairs in 1911. Service boars, also sows bred for spring farrow of either breed that will please you in quality and price, Adams Bros., Litchfield, Mich.

O. I. C.—Orders Booked For Spring Pigs. C. J. THOMPSON, Rockford, Michigan.

O.I.C.'s of Superior fall boars, booking orders for spring pigs. Fred Nickel, R. 1. Monroe, Mich.

Duroc Jerseys for Sale—Service Boars, Bred Sows and Fall pigs, either sex. Pairs not akin. M. A. BRAY, Okemos, Mich.

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DUROC JERSEYS—Both sexes, all ages. Satisfac-tion guaranteed. Express prepaid. Herd established 1888. J. H. Banghart, Lansing, Mich. FANCY bred Duroc Jersey sows due to farrow in Apl. Special prices for March. Also fall pigs, both sexes; reasonable prices, John McNicoll. North Star, Mich.

30 High Class Boars ready for service. Special of growth, style and finish. Satisfaction guaranteed. Come or write. J. C. BARNEY, Coldwater, Mich

CLOSING OUT SALE Butler's Big Type Poland Chinas. Everything goes, Herd Boars. Brood Sows, fall boars and gilts. Jersey bulls. Write for what you want, we will quote you a very low price. J. C. BUTLER, Portland, Michigan.

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Registered Poland China Swine FOR SALE. The good. NELSON J. WYCKOFF, Summit City, Mich.

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P. D. LONG, R. No. 8, Grand Rapids, Mich.

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L. W. BARNES & SON, Byron, Shiawassee Co., Mich.

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Poland Chinas—Home of Michigan's Grand Champion Boar. Bred sows & fall pigs by this great sire. They're priced right. E. J. Mathewson, Nottawa, Mich.

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JACKS and MULES



Krekler's Jack Farm West Elkton, Ohio Branch Barn-Cl nton, Indiana



Nasal Catarrh.—Nearly all my sheep are snotty and I would like to know what can be done for them. J. B., Woodbury, Mich.—Mix together equal parts ground gentian, ground cinchona, ground quassia, ginger and cooking soda and give each sheep two-thirds of a teaspoonful at a dose in feed once or twice a day.

sheep two-thirds of a teaspoonful at a dose in feed once or twice a day.

Eczema.—Four-year-old mare has an itchy condition of skin; it bothers her most when driven fast enough to make her sweat. There are a few pimples on skin and I am told she suffers from eczema. O. C., Romeo, Mich.—Clip mare, wash her with soap and water, adding a little borax to suds, and apply 1 part coal tar disinfectant in 50 parts water; or apply cooking soda and water, 1 oz. soda to each pint of water. Give her a dessert-spoonful of Donovan's solution at a dose two or three times a day.

Acidity of Stomach—Knuckling.—Colts, 11 months old, seem- in fairly good condition but are too fond of chewing wood. One of these colts knuckles on fetlock joint. R. J. K., Conklin, Mich.—Give each colt a dessertspoonful of ground gentian and a tablespoonful powdered charcoal at a dose in feed two or three times a day. Blister fetlock joint with cerate of cantharides every ten days.

Ozena.—Twelve-year-old mare has had a nasty discharge from nostrils for past 12 months. She shows no symptoms of having heaves and is not wind broken.

P. F., Grass Lake, Mich.—It is possible that she will have to be trephined before the nose can be properly treated. Give 1/2 dr. powdered sulphate of copper and 1/2 oz. powdered fenugreek at a dose in feed three times a day. It will also help to give 20 grs, quinine at a dose three times a day. For a nasal douche, dissolve 1 oz. salt in 3 pts. tepid water and apply twice a day, or apply 1 pt. hydrogen peroxide in 5 parts water twice a day.

Sore Eyes.—My 15-year-old mare has not be roughled with sore eyes; mucus membrane of blief in very red. C. D. Weltz Mich.—It

Sore Eyes.—My 15-year-old mare is troubled with sore eyes; mucus membrane of lids is very red. C. D., Waltz, Mich.—Apply to eyes 1 part adrenalin and 2,000

water twice a day. atery Bowel Movements.—Horse's Watery Watery Bowel Movements.—Horse's bowels are altogether too loose; movements are very watery. I am feeding corn and oa't straw. A. C., Grant, Mich.—Give 2 drs, sub-nitrate of bismuth and 1 dr. salol at a dose in feed three times a day. You should feed him oats and well cured timothy. Corn and oat straw is not a proper food for this kind of a case. case.

Warts on Teats.—How can I remove warts from cow's teats without making teats or bag sore? W. B., Brighton, Mich.—Apply acetic acid to flat ones and cut off those that have necks. Apply castor oil occasionally, and it will prevent oth-

oil occasionally, and it will prevent others from growing.
Caked Bag.—Holstein heifer, due to freshen April 6, is troubled with caked bag which causes some pain. J. M. F., Lake Odessa, Mich.—Milk udder one-third empty twice daily and apply warm linseed oil twice a day. Give her ½ oz. powdered nitrate potash at a dose in feed two or three times a day and keep her bowels open. She should not be overfed on grain; should be exercised some daily.

bowels open. She should not be overfed on grain; should be exercised some daily. Ringworm.—Brood sow that will farrow about April 14 has two or three sore spots on shoulder that appear rather red. W. B. T., Leonidas, Mich.—Apply ointment once a day for three days; then apply 1 part sub-nitrate bismuth and three parts vaseline every day.

Scours When Driven.—I have a driving horse well along in years that scours badly when driven and I would like to know what to do for him. J. D., Saginaw, Mich.—His grinder teeth may need floating, his feed should be changed, give him less water before and while you drive him, and I would suggest that you feed a good quality of oats and timothy. Give 1/2 oz. hypo-sulphite soda, 1/2 oz. ground ginger, and 2 drs. powdered catechu and 1 dr. powdered opium at a dose in feed two or three times a day.

Heaves.—Have a horse 14 years old that has heaves; he is fed mixed hay, ground corn, oats and oil meal. A. B., Kent City, Mich.—Feed no clover, musty or dusty badly cured fodder of any kind and very little bulky food. Give 1/2 dr. powdered opium, 1 dr. powdered lobelia and a dessertspoonful Fowler's solution at a dose in feed two or three times a day.

to stable lays down as if tired, but he is in good flesh. J. B. F., Holland, Mich.—Select for him some well cured timothy hay and feed no other kind of fodder. His food supply should be mostly grain and there is none better than oats. See treatment for heaves, this column.

Corns—Chronic Cough.—I have a six-year-old horse that has been troubled with a corn on each fore foot, for the past 12 months and he is still bothered with them. Three times I had them fired with a corn on each fore look, for the past 12 months and he is still bothered with them. Three times I had them fired with hot brown sugar last spring and our local Vet. burned them out with a redhot iron. The holes filled and our horseshoer packed them with hot tar. Now I would like to know if corns are hard to kill. This horse has had a cough for the past 12 months, but is well every other way. R. H. H., Eaton Rapids, Mich.—If you will keep his front feet moist and use a three-quarter shoe on him, his corns will get well. Cutting and burning them seldom ever cures a corn, unless the cause is removed and this is usually undue pressure. For her cough give 1 dr. guaiacol (Merck), two tablespoonfuls whiskey and a tablespoonful glycerine at a dose in feed two or three times a day. Coffin Joint Lameness.—I have a good

Coffin Joint Lameness.—I have a good Coffin Joint Lameness.—I have a good young mare that is lame in coffin joint; will cutting of the nerve be a practical cure G. E. M., Jackson, Mich.—When blisters and other milder remedies fail, a removal of an inch of the nerves on each side of leg, either above or below fetlock, will relieve her of lameness and this is a very humane way to treat such cases. Kindly understand, sensation is taken away from foot, therefore nail punctures, snags and the like may enter foot without causing pain and the foot may be in bad condition before it is discovered. covered.

Indigestion—Bowel Looseness.—I purchased a cow on January 1; was quite loose in bowels, had been fed on ensilage and was exceptionally fat. She freshened about three weeks later and did well for four weeks, when she suddenly lost part of appetite, and has not done well since. D. R. K., Rapid City, Mich.—Give her 1 oz. ground gentian, 1 dr. ground nux vomica at a dose in feed three times a day. Also give her 50 grs. of salol at a dose in feed three or four times a day until her bowels become normal. Bowel ailments of this kind are best regulated by feeding and watering and keeping the animal quiet.

Rheumatism.—We have a calf that is six weeks old which shows considerable stiffness in both fore quarters. S. J. C., Rockford, Mich.—Give your calf 5 grs of salicylate of soda at a dose three times a day and rub fore quarters with spirits of camphor twice a day.

Vertigo.—I have a cow that has been Indigestion—Bowel Looseness.—I pur

a day and rub fore quarters with spirits of camphor twice a day.

Vertigo—I have a cow that has been fed all the clover hay and cornstalks she would eat all winter and now she is dull and stupid, but appears to be healthy. She is due to freshen in a week or ten days. Our local Vet, tells me he has never seen a case of this kind before.

B. C., Merrill, Mich.—Give your cow I be posom salts daily until her bowels open fairly free; also give 1/2 oz. bromide of potash at a dose three times a day.

Black Teeth in Hogs.—Is there such a disease as black teeth in swine; if so, how is it contracted, and what is the remedy? F. W. G., Decatur, Mich.—Weil pigs occasionally have a tooth or two that is black, but not diseased, these teeth do be harm and in most cases are never no harm and in most cases are never discovered. In slaughtering establishments a great many of the hogs have discolored teeth and no doubt they have always had them, but they never affected their health. My advice is to pay no

Scours When Driven.—I have a driving horse well along in years that scours bandly when driven and I would like to know what to do for him. J. D., Saginaw, Mich.—His grinder teeth may need floating, his feed should and the winged, give him and I would suggest that you feed a good quality of oats and timothy. Give 46 ox. hypo-sulphite soda, 49 ox. ground ginger, and 2 drs. powdered catechu and 1 dr. powdered opium at a dose in feed two or three times a day.

Heaves.—Have a horse 14 years old that has heaves; he is fed mixed hay, ground corn, oats and oil meal. A. B., Ground corn, oats and oats and

two days, and is fed corn and hay. This mare is affected with goitre. J. H., Ramona, Mich.—Your colts died perhaps as the result of a chill or from navel infection. Tie the cord one inch from body, using a silk or linen thread that has been soaked in one part carbolic acid and eight parts olive oil or glycerine, then apply equal parts oxide of zinc and boracic acid to navel once a day. The colt and mare should be kept in a clean, well ventilated place and she should be exercised daily before foalling.

Broken Wind.—Have a 10-year-old broken-winded horse, that I would like to know how to feed; when exerted he puffs and blows a great deal and when brought

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announcement is for the men This announcement is for the men who know a horse, who need a horse, and who are familiar with values when they find something suitable. Have you, Mr. Stallioner, spent dollars uselessly searching for a first-class Belgian stallion or a No. 1 Belgian mare for a price at which you could afford to own same? Have you, Mr. Prospective Purchaser, decided where you are going to find what you want?

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firms for the ordinary sort. If you are in the market for an extra good imported Belgian stallion or mare, come to Hewo and save all these useless side trips, secure a horse that represents every dollar that is demanded for same, and be a gainer of several hundred dollars on account of "the difference in price."

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W. L. DeCLOW. Cedar Rapids Jack Farm, Cedar Rapids, Ia.

PRACTICAL SCIENCE.

INTRODUCTION TO THE PRINCIPLES Indeed, the portion of the food that is OF ANIMAL NUTRITION.

BY FLOYD W. ROBISON.

Vegetation Preceded Animal Life.

There has been some considerable discussion among logicians as to which form of life, animal or vegetable, took priority on this planet. Trace back as far as history and geological evidence carries us, evidence of both animal and vegetable life is found. There can be little opportunity for discussion, however, we think, when the absolute dependence of animal life upon vegetable life is comprehended. True, there are certain forms of animal life which seemingly have no dependence upon vegetation; certain of the completely carnivorous type of animals live entirely upon flesh and the remains of other animal life. But tracing back to its beginning we can readily see that animal life has its origin in vegetable life. In fact, the correctness of the biblical adage, "All flesh is grass," has never been seriously questioned. We have studied briefly the evolution, we may say, of life upon the planet, beginning with the general formation of soil from the dissolving and disintegration of rock due to chemic forces, and the appearance somewhat later of the low forms of plant life and their subsequent variation into the almost indeterminable number of vegetable forms. This variation of species to adapt plant life to variety of conditions produced by weather and reduction of rock resulted in, centuries ago, the arival of a period of riotous plant existence.

There are living examples today of this period of vegetable life. Estimates have been made of the length of life of some of the giant trees in California, and we now know that some of these trees must have been standing in those places when Christ was on the earth, a theme magnificent in itself and furnishing much food for the quiet contemplation of a thinking

Animal Life Dependent on Vegetable

The appearance of vegetation on the earth was the second step in the earth's preparation for the final existence of man. Manifestly, vegetable life could find no opportunity for existence until the solid rock of which this planet at first consisted became, through natural agencies, disintegrated and dissolved so that its various mineral elements could fulfill their office as administrative agents to plant life. Likewise animal life has been entirely dependent upon plant life and it is impossible for animal life to gain any degree of sustenance direct from the min- this little body that the first particle eral matter. But, if the elements of the universe are molded into the organic structure through the medium of vegetable life, then it is possible for animal life to exist.

Analysis of Animal Body no Index of its Demands Upon the Food Supply.

We cannot gain a true index of the demands of the animal body upon the vegetable matter by making an analysis of has no more assimilated and made an that animal body at maturity. can we arrive at the true index of the demands upon plant life upon the soil in made an integral part of its delicate As we have stated previsuch a way. cusly, we believe some considerable error drop of water with which it had come in has crept into our theory of the use of contact but had not absorbed. commercial manure because of the al- Why Scientific Selection of Food and Dismost universally prevalent idea that the demands of the plant on the soil can be judged by making an analysis of that We have stated our plant at maturity. reasons heretofore for differing in this We now extend that same logic to animal life, in which sphere its truthfulness is more readily and more generally apparent.

Metabolism Defined.

of a more or less guard material to the animal body. Most of it, apparent. because of its natural structure, contains ingredients or constituents which do not readily yield to the digestive influence in the animal body. Consequently, there is an undigested residue which represents in the main the rejected portions of the food supply. During an animal's life this in as fine a state of division as it is posmay amount to many, many times the sible to get it. We are of the opinion that body weight of the animal at maturity. the most desirable form in which lime

digested is in itself exchanged from time to time, due to the various activities of the body, which exchange we call metabolism. These products of metabolism likewise represent many, many times the weight of the constituents in the animal body at maturity. So it may be seen readily that in animal life as in plant life there is a constant in-come and out-go of food material and rejected matter. The life of the individual animal as with the individual plant, depends largely upon securing a healthy and representative interchange between the in-come and outand a climate adapted to that plant's particular needs.

Study of Animal Nutrition Hinges Upon the Single Cell.

Scientists have attempted to study problems of animal nutrition heretofore plex animal body. plex arrangement.

An Illustration.

containing some amoebae and watch their from 50 to 75 cents a ton. activity in the drop of water. We may and then an indentation in the wall of are resorted to as sources of lime. taken in and is undergoing a process of of lime for the farmers of Michigan. absorption and of being converted into protoplasm in the single-cell. This procagain attracted. It remains in contact the purchase of lime. a moment and then bounds free without attempting to assimilate this second particle of material. What is it that has told with which it came in contact was food on and the second particle was poison? There is an individual, we would say, without sense of feeling or any of the other senses with which complex animal bodies are endowed, yet exerting all of the powers of selection for which healthy animal bodies are noted. In animal digestion the same process is undergone and an animal Neither integral part of its body food material which it has eaten than that amoeba structure the particle of material in the

cretion Pays.

In plain words, the food the animal eats must pass in review all along the alimentary canal of these one-celled you will, in checking the wisdom of the animal in the food which he has selected. A moderate amount of poisonous material will be rejected when man or the animal, get in proper condition for availability in from his lack of discretion and wisdom, Like plants, only more readily apparent, forces upon these one-celled bodies which very finely ground is as advantageous and nis digestive system excessive intricate digestive system which means amounts. But when worn out in their found. This product, finely pulverized, simply that there is brought into contact fight against hopeless odds, they weary may be purchased and delivered f. o. b. with the minute cells in the animal body and losing thus their vigilance the poison- your station at perhaps \$5.00 per ton and food material which administers, if ac- ous material filters through and comes in at such a rate, to our mind, is a much ceptable, to the nourishment of the ani- contact with the sensitive protoplasm better and more economical investment mal body. Very little, if any, food ma- within the cell, and the evil consequences than either one of the two sources menterial contributes 100 per cent nourishing of this malnutrition is thus rendered very tioned in your letter.

LIMING OF SOILS.

(Continued)

Forms of Lime. Lime, like fertilizers, should be applied

may be applied to the soil, from a standpoint of crop effect, and from a standpoint of economy as well, is in the form of finely ground carbonate of lime. Quicklime, or slaked lime, is more desirable from the standpoint of fineness of division than is carbonate of lime but the disadvantages in the use of quicklime, to our mind, outweigh its advantages over carbonate of lime in this respect. Quicklime may be used on the soil but if extreme care is not used in the matter the soil immediately adjacent or in contact with the quicklime will be injured, which injury, to our mind, will offset many of the advantages that would later accrue because of the presence of lime.

Lime Readily Carbonates.

Again, without doubt to our mind, practically the first change the lime undergoes go of material. In animal life we call this when spread upon the soil is the carbona healthy metabolic relationship. In plant ating change by means of which the lime life we would call it a well nourished soil becomes converted into carbonate of lime at once and hence is no more directly soluble than is the finely ground carbonate of lime which we distributed in the first place.

In certain sections of the state there too much in the aggregate. It has taken are immense beds of marl which, if they a number of years to convince the ex- are sufficiently near so that the transperimenters that the most intricate prob- portation item is not an important one, lem of metabolism is represented just as may be used to good advantage. Marl, fully in the life history of a single cell however, should be thoroughly dried and as in the most highly organized and com- unless it is dry it is scarcely economical We cannot hope to for the farmer to haul it upon his field. solve problems in the nutrition of man Again, at the sugar factories, there are and animals until we know something of various products which, could they be the nutrition of the single-celled body of obtained cheap enough, would be desirwhich animal bodies are made up in com- able. Lime that is in chunks, or even in lumps the size of a pea, are altogether too coarse to be added advantageously to the Suppose for the sake of an illustration soil. As a comparison, suppose that finely we take something that is more or less ground limestone can be purchased f. o. familiar. One of the common low forms b. your town for \$4 or \$5 per ton. To our of life most easily accessible is the single- mind it is cheaper than limestone which celled amoeba. Suppose we place on the varies all the way from the size of a pea stage of our microscope a drop of water to the size of an egg, which would cost

It is not necessary for us to dwell on the see this small una-celled organism float- sources of lime since we have covered the ing along until presently it comes in con- sources which are available for the farmtact with a morsel of food material. Some ers of this state. We may simply menconscious, unseen attractive force draws tion, besides limestone, in certain secthe amoeba into contact with this morsel tions of the country, quicklime, slaked of food. It remains in contact a moment lime, oyster shells, basic slag and gypsum the one-celled body is noticed and before our mind, as stated before, limestone is long the particle of food material has been the most economical and desirable source

Caution.

In conclusion on this subject, we will ess completed, the amoeba pursues its simply state a word of caution where lime journey. Directly it comes in contact is to be used. Remember that fineness with another particle in the water and is of division is the all-desirable factor in

LABORATORY REPORT.

Which is the more economical to apply on the land, limestone (varying from coarse gravel to egg size), at 75 cents per ton, or fresh burned stone lime at \$4 per ton? Can secure either at the beet sugar factory 14 miles from my home. Have secured some lime cake or crusts from the sugar vate gratis by bestings are stored. the sugar vats gratis, by hauling away from door of factory.

Ionia Co. G. S. McM.

Regarding the question with reference to limestone, raised by G. S. M., above, will say that in our opinion limestone varying in size from coarse gravel to egg size at 75 cents per ton is not ar economical product to buy and put upon the farm. In the same way we should say that fresh burned limestone lime, if, as we understand by this term you mean lime in lumps and chunks, would not be economical at the price of \$4.00 per ton. Quicklime should be finely ground to be economically applied to the soil, otherwise it will slack in lumps and will be too guards which exercise their discretion, if powerful in its effect upon the immediate soil surrounding it. At the same time, coarse limestone, such as is included in the offestion above, requires too long to the soil. We think limestone which is

Bear this thing in mind in the application of lime, and that is it should be in just as fine condition as possible so that it may be evenly and thinly distributed over the soil.

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According to an estimate made about five years ago by Secretary of Agricuiture Wilson, the value of the dairy byproducts of the country for one year would amount to considerably over fifty million dollars. This item alone we can readily see is of vast importance to darymen and should command their careful attention.

Skim-milk as a Human Food.

Of the various by-products, skim-milk is by far the most important and is the most susceptible to varied and economic Skim-milk as a human food is a question that has been studied in all its phases by the most scientfic men, until at the present time the problem of preserving this liquid food in a solid form has been solved, and there are numerous factories where a product known as powdered milk is being manufactured.

There are four kinds of powdered milk. One product is made from cream, one from whole milk, one from half-skimmed milk and one from skim-milk. The product made from skim-milk is by far the most important and the trade in this product is rapidly increasing. By a secret process the manufacturers are able to remove the water from the milk, and the resulting product is a white powder, which, when mixed with water makes a pure and wholesome article of diet. This powdered milk is used largely by bakers and confectioners, to whom a pure article of skim-milk is a daily necessity. It may be stored in cans or barrels and used as needed, and the baker or confectioner is layed milk trains.

useful portion of the every-day diet of a in blood and bone building constituents." large number of people. The United States navy ordered large quantities of milk and other feeds have been fed to this product for their trip around the pigs to ascertain the effect of these feeds world, and from present indications a large foreign demand will be ready to be It has been found by tests that the bones supplies as soon as the good food quali- were made stronger by feeding milk. ties of the new product have become established.

the business I have found that economy feeds. in manufacturing must receive equally as plants and condensaries is no longer idle an agricultural fact, for the reason that tems of the animals. they cannot realize an increased profit by

this object. We should have experts to fed. which this product is adapted.

matter and markedly superior in albu- kinds of grain. minoids, or flesh-forming constituents, Calves for veal may be fed on whole due, undoubtedly, to the casein of the milk for a while, then they may be gradmilk being mixed or incorporated with the ually changed to skim-milk and grain and fibrin of the flour. Bakers have long fed for a while, and then fitted for marknown the value of skim-milk in bread ket by feeding them whole milk for a making, yet the difficulty of obtaining a while, to put on a smooth finish and imuniform product has been the cause of prove their sale. In feeding skim-milk their not utilizing it, but with the com- overfeeding must be avoided, as calves ing of powdered milk this objection is re- are easily made sick. moved, and now it is possible to keep the New York.

product in barrels in their bakery and at any time when it is needed all that is necessary is to add a little pure water and the white powder does the rest. Used in this way there is a great future possibility for the powdered milk industry and it is certain to become an important factor in determining the value of all dairy products in the near future. The condensary plants are also an important factor in utilizing the whole of the milk to a more profitable advantage than the creamery and the cheese factory.

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It is next best for animals-making rapid growth, but which need food other than milk, mainly of a carbonaceous nature.

No class of live stock will give greater returns for skim-milk than poultry of various kinds. At the New York Experiment Station chickens were grown successfully on a diet composed largely of skim-milk, although they were allowed a run of the fields during the time they were being fed this ration.

It was estimated in this test that after allowing from 25 to 50 cents a hundred pounds for the skim-milk and some other food in proportion, the cost of producing one pound of live weight was less than six cents up to three pounds each. During the time the test was made the skimmilk was fed sweet, but it has been found that it is equally as satisfactory when fed thick and loppered, and the waste is much less in that form. Many practical poultrymen believe that skimmilk is worth from 50 cents to \$1.00 a hundred when fed to young ducks and turkeys.

The most rapid gains in pig feeding are made by dairy farmers who understand how to feed our dairy by-products in connection with grain foods. Professor Henry of Wisconsin, who is without doubt the highest living authority on feeding domestic animals, says regarding the value of skim-milk as a food for swine:

"Skim-milk has a value as a food for independent of the city milk dealer or de- stock that is higher than the mere serving as a substitute for grain. All of the con-The use of this by-product is deserving stituents of milk are digestible, and this of being encouraged, and it may make a valuable by-product of the dairy is rich

Experiments have been made in which upon the bone and muscle of the animals.

When we consider the use of this food for blood and bone making we must con-During the past two years I have writ- sider its easy digestibility and that, by ten a number of articles for this paper in adding a number of other foods to the which I have emphasized the necessity ration it makes it more palatable and difor economy in production, but after a gestible. We must hold skim-milk to a close study of the manufacturing end of high place in the list of available farm

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W. MILTON KELLY.

REAM SEPARATORS

ARE THE MOST SANITARY

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A brand new, well made, easy running, easily cleaned, perfect skimming separator for \$15.95. Skims one quart of milk a minute, warm or cold. Makes thick or thin cream. Thousands in use giving splendid satisfaction. Different from this picture, which illustrates our low priced large capacity machines. The bowl is a sanitary marvel and embodies all our latest improvements. Our richly illustrated catalog tells all about it. Our wonderfully low prices and high quality on all sizes and generous terms of trial will astonish you. Our twenty-year guarantee protects you on every American Separator. Western orders filled from Western points. Whether your dairy is large or small, get our great offer and handsome free catalog. ADDRESS,

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(12)

PRACTICAL SCIENCE.

INTRODUCTION TO THE PRINCIPLES Indeed, the portion of the food that is OF ANIMAL NUTRITION.

BY FLOYD W. ROBISON.

Vegetation Preceded Animal Life.

There has been some considerable discussion among logicians as to which form of life, animal or vegetable, took priority on this planet. Trace back as far as history and geological evidence carries us, evidence of both animal and vegetable life is found. There can be little opportunity for discussion, however, we think, when the absolute dependence of animal life upon vegetable life is comprehended. True, there are certain forms of animal life which seemingly have no dependence upon vegetation; certain of the completely carnivorous type of animals live entirely upon flesh and the remains of other animal life. But tracing back to its beginning we can readily see that animal life has its origin in vegetable life. In fact, the correctness of the biblical adage, "All flesh is grass," has never been seriously questioned. We have studied briefly the evolution, we may say, of life upon the planet, beginning with the general formation of soil from the dissolving and disintegration of rock due to chemic forces, and the appearance somewhat later of the plex animal body. We cannot hope to low forms of plant life and their subsequent variation into the almost indeterminable number of vegetable forms. This variation of species to adapt plant life to the variety of conditions produced by plex arrangement. weather and reduction of rock resulted in, centuries ago, the arival of a period of riotous plant existence

There are living examples today of this period of vegetable life. Estimates have been made of the length of life of some of the giant trees in California, and we now know that some of these trees must have been standing in those places when Christ was on the earth, a theme magnificent in itself and furnishing much food for the quiet contemplation of a thinking tact with a morsel of food material. Some ers of this state. We may simply men-

Animal Life Dependent on Vegetable Life.

earth was the second step in the earth's the one-celled body is noticed and before our mind, as stated before, limestone is preparation for the final existence of man. Manifestly, vegetable life could find no opportunity for existence until the solid rock of which this planet at first consisted became, through natural agencies, disintegrated and dissolved so that its various mineral elements could fulfill their office as administrative agents to plant again attracted. It remains in contact the purchase of lime. life. Likewise animal life has been entirely dependent upon plant life and it is impossible for animal life to gain any degree of sustenance direct from the mineral matter. But, if the elements of the universe are molded into the organic and the second particle was poison? There structure through the medium of vegetable life, then it is possible for animal life to exist.

Analysis of Animal Body no Index of its Demands Upon the Food Supply.

We cannot gain a true index of the demands of the animal body upon the vegetable matter by making an analysis of that animal body at maturity. Neither can we arrive at the true index of the demands upon plant life upon the soil in made an integral part of its delicate As we have stated previsuch a way. cusly, we believe some considerable error has crept into our theory of the use of contact but had not absorbed. commercial manure because of the almost universally prevalent idea that the demands of the plant on the soil can be judged by making an analysis of that We have stated our plant at maturity. reasons heretofore for differing in this very point. We now extend that same logic to animal life, in which sphere its truthfulness is more readily and more generally apparent.

Metabolism Defined.

intricate digestive system which means amounts. mal body. terial contributes 100 per cent nourishing of this malnutrition is thus rendered very tioned in your letter. material to the animal body. Most of it, apparent. because of its natural structure, contains ingredients or constituents which do not readily yield to the digestive influence in the animal body. Consequently, there is an undigested residue which represents in the main the rejected portions of the in the main the rejected portions of the food supply. During an animal's life this in as fine a state of division as it is posmay amount to many, many times the sible to get it. We are of the opinion that body weight of the animal at maturity, the most desirable form in which lime

digested is in itself exchanged from time to time, due to the various activities of the body, which exchange we call meta-bolism. These products of metabolism likewise represent many, many times the weight of the constituents in the animal body at maturity. So it may be seen readily that in animal life as in plant life there is a constant in-come and out-go of food material and rejected matter. life of the individual animal as with the individual plant, depends largely upon securing a healthy and representative interchange between the in-come and outgo of material. In animal life we call this life we would call it a well nourished soil ticular needs.

the Single Cell.

Scientists have attempted to study problems of animal nutrition heretofore a number of years to convince the experimenters that the most intricate problem of metabolism is represented just as fully in the life history of a single cell as in the most highly organized and comsolve problems in the nutrition of man and animals until we know something of the nutrition of the single-celled body of which animal bodies are made up in com-

An Illustration.

Suppose for the sake of an illustration we take something that is more or less familiar. One of the common low forms of life most easily accessible is the singlecelled amoeba. Suppose we place on the stage of our microscope a drop of water containing some amoebae and watch their activity in the drop of water. We may see this small una-celled organism floating along until presently it comes in conconscious, unseen attractive force draws long the particle of food material has been taken in and is undergoing a process of of lime for the farmers of Michigan. absorption and of being converted into protoplasm in the single-cell. This proc-Directly it comes in contact journey. a moment and then bounds free without attempting to assimilate this second particle of material. What is it that has told this little body that the first particle with which it came in contact was food is an individual, we would say, without sense of feeling or any of the other senses with which complex animal bodies are endowed, yet exerting all of the powers of selection for which healthy animal bodies are noted. In animal digestion the same process is undergone and an animal has no more assimilated and made an integral part of its body food material which it has eaten than that amoeba structure the particle of material in the

Why Scientific Selection of Food and Discretion Pays.

In plain words, the food the animal eats must pass in review all along the canal of these one-celled guards which exercise their discretion, if you will, in checking the wisdom of the animal in the food which he has selected. A moderate amount of poisonous material will be rejected when man or the animal, from his lack of discretion and wisdom, Like plants, only more readily apparent, forces upon these one-celled bodies which animals are possessed of a more or less guard his digestive system excessive economical a way to apply lime as can be simply that there is brought into contact fight against hopeless odds, they weary may be purchased and delivered f. o. b. with the minute cells in the animal body and losing thus their vigilance the poison- your station at perhaps \$5.00 per ton and food material which administers, if ac- ous material filters through and comes in at such a rate, to our mind, is a much ceptable, to the nourishment of the ani- contact with the sensitive protoplasm better and more economical investment may be dy. Very little, if any, food ma- within the cell, and the evil consequences than either one of the two sources men-Very little, if any, food ma- within the cell, and the evil consequences

LIMING OF SOILS.

(Continued). Forms of Lime,

Lime, like fertilizers, should be applied

may be applied to the soil, from a standpoint of crop effect, and from a standpoint of economy as well, is in the form of finely ground carbonate of lime. Quicklime, or slaked lime, is more desirable from the standpoint of fineness of division than is carbonate of lime but the disadvantages in the use of quicklime, to our mind, outweigh its advantages over carbonate of lime in this respect. Quicklime may be used on the soil but if extreme care is not used in the matter the soil immediately adjacent or in contact with the quicklime will be injured, which injury, to our mind, will offset many of the advantages that would later accrue because of the presence of lime.

Lime Readily Carbonates.

Again, without doubt to our mind, practically the first change the lime undergoes when spread upon the soil is the carbona healthy metabolic relationship. In plant ating change by means of which the lime becomes converted into carbonate of lime and a climate adapted to that plant's par- at once and hence is no more directly soluble than is the finely ground carbon-Study of Animal Nutrition Hinges Upon ate of lime which we distributed in the first place.

In certain sections of the state there too much in the aggregate. It has taken are immense beds of marl which, if they are sufficiently near so that the trans portation item is not an important one, may be used to good advantage. Marl, however, should be thoroughly dried and unless it is dry it is scarcely economical for the farmer to haul it upon his field. Again, at the sugar factories, there are various products which, could they be obtained cheap enough, would be desirable. Lime that is in chunks, or even in lumps the size of a pea, are altogether too coarse to be added advantageously to the soil. As a comparison, suppose that finely ground limestone can be purchased f. o. b. your town for \$4 or \$5 per ton. To our mind it is cheaper than limestone which varies all the way from the size of a pea to the size of an egg, which would cost from 50 to 75 cents a ton.

It is not necessary for us to dwell on the sources of lime since we have covered the sources which are available for the farmtion, besides limestone, in certain the amoeba into contact with this morsel tions of the country, quicklime, slaked of food. It remains in contact a moment lime, oyster shells, basic slag and gypsum The appearance of vegetation on the and then an indentation in the wall of are resorted to as sources of lime. To the most economical and desirable source

Caution.

In conclusion on this subject, we will ess completed, the amoeba pursues its simply state a word of caution where lime to be used. Remember that fineness with another particle in the water and is of division is the all-desirable factor in

LABORATORY REPORT.

Which is the more economical to apply on the land, limestone (varying from coarse gravel to egg size), at 75 cents per ton, or fresh burned stone lime at \$4 per ton? Can secure either at the beet sugar factory 14 miles from my home. Have secured some lime cake or crusts from the sugar vats gratis, by hauling away from door of factory.

Ionia Co. G. S. McM. Ionia Co G. S. McM.

Regarding the question with reference to limestone, raised by G. S. M., above, will say that in our opinion limestone varying in size from coarse gravel to egg size at 75 cents per ton is not an economical product to buy and put upon the farm. In the same way we should say drop of water with which it had come in that fresh burned limestone lime, if, as we understand by this term you mean lime in lumps and chunks, would not be economical at the price of \$4.00 per ton. Quicklime should be finely ground to be economically applied to the soil, otherwise it will slack in lumps and will be too powerful in its effect upon the immediate soil surrounding it. At the same time, coarse limestone, such as is included in the question above, requires too long to get in proper condition for availability in the soil. We think limestone which is nd is as advantageous But when worn out in their found. This product, finely pulverized,

Bear this thing in mind in the application of lime, and that is it should be in just as fine condition as possible so that it may be evenly and thinly distributed over the soil.

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UTILIZING SKIM-MILK.

In these days much of the profit, and in many cases, the whole of the success, of a business depends upon utilizing the byproducts to the most profitable advantage. If we will make a careful study of the business methods employed by the leading manufacturing plants we will find that it is upon the economical use of their byproducts that they have built up a successful business. It is upon the more economical use of these valuable by-products that I desire to present a few thoughts to dairymen.

According to an estimate made about five years ago by Secretary of Agricuiture Wilson, the value of the dairy byproducts of the country for one year would amount to considerably over fifty million dollars. This item alone we can readily see is of vast importance to darymen and should command their careful

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A brand new, well made, easy running, easily cleaned, perfect skimming separator for \$15.95. Skims one quart of milk a minute, warm or cold. Makes thick or thin cream. Thousands in use giving splendid satisfaction. Different from this picture, which illustrates our low priced large capacity machines. The bowl is a sanitary marvel and embodies all our latest improvements. richly illustrated catalog tells all about it. Our wonderfully low prices and high quality on all sizes and generous terms of trial will astonish you. Our twenty-year guarantee protects you on every American Separator. Western orders filled from Western points. Whether your dairy is large or small, get our great offer and handsome free catalog. ADDRESS,

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When writing to advertisers mention The Michigan Farmer.

DOES IT INJURE COW TO HAVE CALF it wasn't strong enough to bear the ex-NURSE HER FIVE OR SIX WEEKS?

Does it injure a cow to let a calf run with her for five or six weeks and then veal it, or would a heifer make a better cow if she was milked by hand from the start? Which will bring the most money, the veal calf or to make butter and sell it? Will the calf make as good veal where fed from the pail as it would if allowed to run with the cow?

Berrien Co.

A. D. Berrien Co.

There is no question but what it is injurious to the cow to leave the calf with her five or six weeks to fatten the calf, and then kill the calf and milk the cow by hand. It would be much better for the cow to leave the calf with her only just long enough to nurse and get some of the first milk from the cow, say one day or so, then remove the calf and milk the cow by hand and feed the milk to the calf if you want to veal it. The reason is something like this: If you leave the calf with the cow five or six weeks the cow becomes very much attached to it. Now, she thinks that the sole purpose for which she gives milk is to support the calf. That is natural. When you remove the calf after she has become attached to it, she rebels and she won't give down her milk. She wants to save the milk for the offspring, for the calf, and she will not ing my own silo I would set the staves give it down to a hand-milker. The consequence is that the cow will not be developed as well as she would if the calf had been removed at once before she became attached to it. The intelligent milker tries to get on the right side of a cow at the very beginning, get her confidence, before she becomes attached to her calf, then she gives down the milk naturally to support her offspring. She does not become accustomed to the nursing of larger on the inside than on the out, so the calf, and the hand-milker is readily substituted in her affection to the natural

By milking the cow and feeding the calf from a pail you can get almost as good results as you can to let the calf nurse, perhaps not quite, but if the calf is taught to drink and is fed a good liberal that are cut out for the doors can be held amount of milk you can fatten him in five together by cleats nailed crosswise. or six weeks so that he will make good veal.

Now as to whether it would pay to veal a calf or to "Deacon" it depends almost entirely upon the price of butter-fat and the price of veal, and one must figure this out for himself. Usually, however, the milk is worth as much as the veal, but, of course, you have the calf to start with, his weight at the time he is dropped is a gift, as it were. If the mik that you give makes as much veal on this calf as the butter-fat is worth then you are ahead, because you have the weight of the calf at birth besides. On general principles, I don't like to kill a calf because to me it seems that it is a waste, that they ought to be saved for food, and my idea always is to veal them but to milk the cow by hand and feed them from

A HOME-MADE STAVE SILO.

Please give me some advice on building a stave silo. I have plenty of timber to get the staves made from and can get them milled three miles from my farm, tongued and grooved, to match with a bevel if I wish. I can buy the rod iron, made of soft steel, at 1c per foot, for the hoops. I need no roof as I wish to build inside the barn, and no anchor. Will have a cement basement four feet in the ground. I keep about 12 head of cattle, six cows and the rest young stock. Please suggest a doorway that will not be an infringement on the Harder patent. My plan was to build a round door with a beveled edge closing from the inside and letting the weight of the silage keep the door in place.

Leelanau Co.

Subscriber.

Leelanau Co. SUBSCRIBER.

A few years ago it was a custom of farmers to build their own stave silos. Later manufacturers have got to building these silos, pushing them on the market, buy a silo already made and ready to them a limited amount before placing a set up. The carpenter will set one up in quantity for their use. a day or two and the whole job is done, and it relieves the farmer of a whole lot of bother, but where one has a mill close at hand where he can get the staves sawed and tongued and grooved and can get this work done a little bit out of season when he is not in so much of a hurry, he could get the material for a sito cheaper perhaps, than he can buy of the manufacturer. He can also get the iron for the hoops and have a blacksmith make the hoops. He can buy the lugs for these hoops from any reliable manufacturer. For instance, in my silo, which is 50 feet high, I found when I came to fill it that

cessive pressure, and I ordered the lugs for hoops, had the blacksmith weld the iron together and cut the thread, and we put the hoops on. Now anyone can do this with a stave silo just as well. How much cheaper a home-made silo could be built than what one would have to pay the manufacturer, is something that I could not tell. Really, I don't know the cost of a manufactured silo. It would all depend upon what you valued your timber at, how much the mill would charge you, and then there is another thing to consider, whether, after you got it all done it would be as good as a manufactured silo. Where the manufacturer has the right kind of machinery for making these staves he undoubtedly can do a little better job, but even good silos can be made from staves without having them tongued and grooved. Simply take 2x6's and have them jointed so that they are straight, then put them together and put the hoops on and draw them up tight, and the edges of the 2x6's will fit into each other and make a good serviceable silo. farmer must use his own judgment whether he will make his own stave silo or buy one ready-made.

So far as the door is concerned, I think W.'s plan is all right. If I was makup clear around and put on the hoops and draw it up tight before I made any doors Then I would mark out my doors where I wanted them, leave a couple of feet between the doors in the staves and I would nail one-half inch lumber across on the outside of these staves to keep them in place; then, by taking pains in sawing out the staves for the door so, as W. suggests, that the door will be that the door will just fit in from the inside and be held in place by the silage, you will have just as good a job as anybody. Of course, the continuous doorway makes it a little nicer about throwing out the ensilage but this is only a secondary matter. The pieces of staves

A SILO WOULD CERTAINLY HELP.

I would like to get a little information regard to a silo. We have a farm of 00 acres. We keep about 20 head of cat-I would like to get a fittle information in regard to a silo. We have a farm of 200 acres. We keep about 20 head of cattle, 10 cows and the rest young cattle. It try to put in about 10 to 14 acres of cornevery year and cut about 40 acres of hay, but find that we do not have enough fodder to feed our 20 head of cattle and seven head of horses. Now what I would like to know is, would it pay us to put up a silo or feed as we have been feeding and keep less cattle. If I put up a silo could we raise hogs just the same as we do now, as we try to market 25 to 30 every fall. We never winter any over, only our three brood sows. What would be the best to raise a little extra corn to husk and feed or raise more barley? I would like to keep in the hog line, where we have so many cows.

Tuscola Co. J. K.
You will find, just as soon as you build

You will find, just as soon as you build a silo, that you can keep more stock on your farm on the same acreage of corn than you can now. There is no question about that. I am sure that a silo will help you out wonderfully. If you would plant say half of your corn a little thicker so as to get more tons of roughage to the acre then you could husk the balance of it so that you could have some food for your hogs. I really think there is nothing like corn to finish off the hogs. You can get along pretty well with a very little corn for hogs until you come to finish them, then there is nothing that will take its place. If you had seven or eight acres of ensilage corn planted thick it would help you very much on the silage

PROVIDE SALT FOR THE COWS.

Make some arrangement so that cows will have daily access to salt. Either and now days you dont hear very much rock or granular grades will meet the of home-made stave silos, but there is no reason why they cannot be made just as at a time, but if they have been deprived Of course, it is much more convenient to

BOOK NOTICES.

"Dairy Farming." by Prof. John Michels, S. S. A., M. S., formerly Professor of Dairy and Animal Husbandry at the North Carolina State College of Agriculture, now in the chair of Dairy and Animal Husbandry in the Milwaukee County School of Agriculture, Wisconsin. This mal Husbandry in the Milwaukee County, School of Agriculture, Wisconsin. This is a practical book of 300 pages, taking up every phase of dairy farming from a practical standpoint, by a man whose training has included the management of large dairy propositions, as well as the training has included the management of large dairy propositions, as well as the technical training necessary to the application of scientific methods in dairying. Published by the author. Price, \$1, may be ordered through the Michigan Farmer.

\$3,000 A Y

Mr. Chas. Foss, Cedarville, Ill., is making that and more on his 96-acre dairy farm. Mr. W. L. Hunter, Raymond, Neb., has had to enlarge his dairy to meet the great demand for his cream. N. H. Locke Company, Lockeford, Cal., gets 8 to 10 cents per gallon above highest market price for cream, and won 17 prizes at State Fair. You can win like success.

These men, like others making biggest profits,

SHARPLES Tubular Cream Separator **Exclusively**

This is because Tubulars have twice the skimming force of other separators, skim twice as clean, pay a profit no other can pay. Tubular cream and butter bring extra prices because dairy Tubulars contain no disks nor other parts to chop or taint the cream. For these reasons, over 100,000 dairymen in Iowa alone use Tubulars. As widely used everywhere. Do you want a free trial? Want to trade your present separator in part payment for a Tubular? You can do either



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The oil for motor cars and motor boats that reduces the cost of maintenance and



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5,000,000 Gallons This Year Good evidence that it has given satisfaction. arbon-proof—insures easy motoring in tropical ad zero weather.

Try it. For sale EVERYWHERE by all reputable dealers.

Standard Oil Company

(An Indiana Corporation) Try Matchless Liquid Gloss for polishing automo-bile bodies, wind shields, windows, etc.

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Those who usually buy oil in small amounts can save a neat sum buying by the barrel or half-barrel. It's economy for everyone who owns a gas car to buy this way.

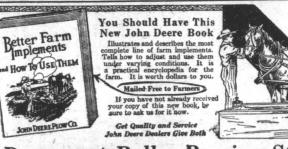
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"BB" unique Cuo Gresse and Also include Cup Grease and Fibre Grease of high melting point.

All are called POLARINE and are the recognized standard greases for Motor Car and Motor Boat lubrication.

Each grade has superior merit in durability and cushioning properties.



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Buy Your Wagon Once For All

There is a wagon made that is stronger, more durable and of lighter draft than any other This wagon is

Built Like a Bridge

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the strongest known wheel construction. Every spoke is staggered and forged hot into the tire. Regardless as to whether the spoke is at the top, side or

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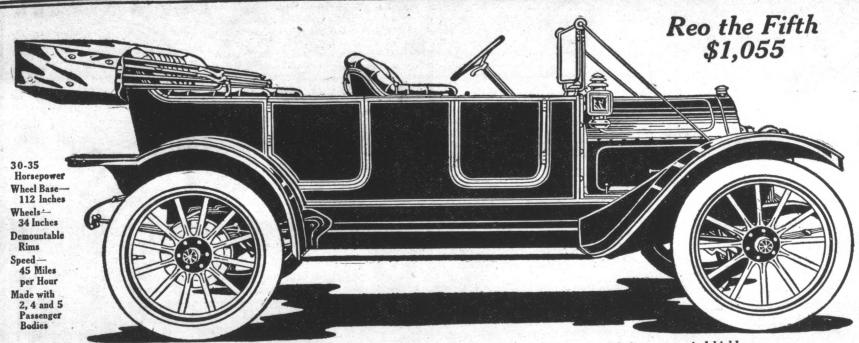
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That roller bearings reduce draft is generally conceded. Of he various styles, the straight roller bearing is the simplest and most successful. For this wagon the straight roller bearing is especially adapted. The spindles and hubs are straight. Consequently, as this wagon is equipped with straight roller bearings it is of light draft.

A little book we'll be pleased to send free, tells of a good many more superior features this wagon has.

Be sure to tell us whether you want your copy of "Better Farm Implements get the "Wagon Book" containing full information regarding the above de and How to Use Them" and in order to tribed wagon, ask for Package No. B5

JOHN DEERE PLOW COMPANY, MOLINE, ILLINOIS



Top and windshield not included in price. We equip this car with mohair top, side curtains and slip cover, windshield, gas tank and speedometer—all for \$100 extra. Self-starter, if wanted, \$20 extra.

The 25-Year Car

By R. E. Olds, Designer

The Center Control

Reo the Fifth

Is the only car based on 25 years spent in car building.

In those 25 years I have created 24 models, and have watched their performance with tens of thousands of owners.

I have also kept in touch, since the start of this industry, with all that other men have

Here is the final result-my finest creation-the best that I

How I Watch It

Never was a car so watched in the making as I am watching this. The prestige of a lifetime is staked on it.

In this car we insist on utter exactness, regardless of time. Parts are ground over and over.

Steel for this car is all analyzed, so we know its exact composition. Each car gets a thousand inspections.

The margin of safety in every part is extreme. We old designers know the need for

I use roller bearings — Timken and Hyatt-instead of the usual ball bearings. In no part is cost considered.

The carburetor is doubly heated-with hot air and hot water-to deal with low-grade gasoline.

Unusual Beauty

The car is immersely impressive. It is long and roomy. The wheels are large, the car is over-tired. We avoid all the petty economies.

coats. The lamps are enam- more class

No Side Levers

The best new feature of the

It is this center control,

shaped like a cane handle. All

year is brought out in Reo the

eled. Even the engine is nickel trimmed.

There is deep upholstering, made of genuine leather filled with hair.

At twice the price no car The body is finished in 17 could offer more comfort or

There are no side levers-

neither inside nor outside the

door. So the entrance in front,

Both brakes are operated by

foot pedals, one of which also

operates the clutch. Never was

on either side, is clear.

initial price. I believe it too low to continue.

It is based on the present low cost for materials, on enormous output, on ideal conditions.

This price I regard as a passing sensation. It is subject to instant advance. Under average conditions, it would be impos-

But Reo the Fifth will always sell lower than any other car in its class. We have a model factory, modern equipment, enormous capacity. And we have the experience.

We are not over-capitalized -have no bonded debt. And we save about 20 per cent in the making by confining our output to only one chassis.

Thus the best car I can build is being sold at this moment for \$1,055.

a car so simple in operation. Left Side Drive

These features permit of the left side drive, as in electric cars. The driver sits, as he should sit, close to the cars he passes and on the up side of the road.

Yet his gear shifting lever is at his right hand, and the brake pedals right before him.

This ideal arrangement is found today only in Reo the

\$1.055 Too Low

The only point which does not meet my approval is this

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Reo the Fifth is shown by dealers in a thousand towns. We will tell you the nearest when you write for our book.

This book shows the various styles of bodies. It pictures every detail. It enables comparison with all other cars. It is the most popular book of the

Write for it now. Address

Reo Motor Car Co., Lansing, Mich. General Sales Agents for R. M. Owen & Co.

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rections.

the gear shifting is done by

moving this lever less than

three inches in each of four di-

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is started.

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The Lawrence Publishing Co.,

Detroit, Mich.

DETROIT, APRIL 13, 1912.

tion of yellow butter.

Legislation.

nue tax on matches made from white phosphorus. The passage of this bill majority of cases from the reports so far recognized a somewhat new principle in legislation which entitles it to be designated as public welfare legislation. The reason for its passage was that those engaged in the manufacture of such matches are likely to contract a loaththe white phosphorus.

During the consideration of this bill small majorities. various congressmen discussed in an interesting way the principles involved and of the roads is still an unsettled one in the constitutional right of the govern- most communities, but there should be ment to crush out an industry through an a disposition on the part of all to use their excessive internal revenue tax. The vote influence toward getting the greatest was strongly for the bill and constituted amount of benefit from the labor expendan endorsement of the principle that con- ed on the earth roads in every locality, gress has the authority to levy a prohibitive tax as a means of providing for the general welfare of the people of the of the King drag upon earth roads at the United States, as well as for the purpose right time. In another column two simof producing revenue, thus taking into ple forms of this implement are illustrataccount the moral and social effect of a tax upon the people through the taxing of any commodity.

This principle has been before recognized, but not to the extent of the levying of a prohibitive tax. The same principle is recognized to a degree in the ment. levying of taxes upon tobacco and liquer, and also in the tax upon colored oleomargarine. This new recognition of the principle may also be construed as a vindication of legislation to prevent the coloring of oleomargarine in imitation of yellow butter.

Commission.

President, of a commission of five members, to be known as The Farmers' National Co-operative Credit Commission.

DETROIT_APRILL 13, 1912.

CURRENT COMMENT.

The agricultural Comments of the c

the Roads. counties where different phases of the county

A bill recently passed road problem were voted upon, it is in-General Welfare the lower house of con- teresting to note that there was a comgress providing a pro- paratively even division of sentiment uphibitive internal reve- on this subject, although the proposition iches made from white submitted seems to have prevailed in a received. In many localities where the proposition of making a small appropriation for the building of a mile of state reward gravel road was voted upon, the proposition failed by small majorities. In the cities and villages so far heard from some disease due to the deadly poison in the vote upon the good road question seems to have generally prevailed by

It would thus appear that the problem of the roads is still an unsettled one in most communities, but there should be a disposition on the part of all to use their influence toward getting the greatest amount of benefit from the labor expended on the earth roads in every locality, and there is no doubt that the greatest possible returns will result from the use of the King drag upon earth roads at the right time. In another column two simple forms of this implement are illustrated so plainly that any handy man could construct one in a few hours, and it is to be hoped that both townships and individuals will improve their opportunities to better the roads throughout the season by the timely use of such an implement.

ed to arbitrate the question of work ours by referring the matter to an arbitration committee.

Foreign.

Statements made in New York by representatives of the revolutionary party of Mexico for the purpose of informing the American people of the reason for recent uprisings, are to the effect that the presuprisings, are to the effect that the presuprisings are to the effect that the presuprisings, are to the effect that the presuprisings. It would thus appear that the problem

A LOSS TO AGRICULTURE.

Through the death of Mr. John B. Connor, of Indianapolis, for many years connected with the Indiana Farmer, American agriculture has suffered a loss which will be keenly felt, particularly within the it A bill has been in- circle of his active influence. He was, a A Farmers' Credit troduced in congress man constantly alert to promote the pub-Representative lic good; one who had the welfare of his Norris, of Nebraska, fellowmen at heart as well as his own; providing for the appointment by the one who was honest, upright and trustworthy in all relations of life-withal a model citizen and one who has devoted

along this line. There is also no doubt with the times in fostering agriculture in that the only effective means of restraining and preventing this unfair competition, is to continue to prohibit the coloring of this substitute product in imitation of yellow butter.

In the report of the refamily vault in Trinity Churchyard to turns from the various Arlington, Washington. The New Jersey legislature has appropriated \$10,000 for the erection of a monument at Arlington in his memory.

the erection of a monument at Arlington in his memory.

The steamship Ontario, en route from Baltimore to Boston, caught fire and was beached a short distance west of Montauk Point, Long Island. The 32 passengers aboard were taken from the burning vessel. The crew, however, remained and hope to get the fire under control.

Dr. Walker, one of Detroit's leading surgeons, died in that city, of pneumonia last Friday.

A cold storage plant at Rockwood, Mich., collapsed Monday and is a total wreck.

Debating teams selected from the student bodies of Olivet, Hope and Alma colleges will meet this week at the different institutions.

institutions

The employes of the D. U. R. have voted to arbitrate the question of work hours by referring the matter to an arbi-

made two days before the Home Rule bill is brought before the English House of Commons.

In the ballot taken by the miners of Great Britain on the question of continuing the strike or accepting the conditions made possible through the minimum wage scale act by Parliament, there was a slight majority favorable for continuing the strike, but since it requires a two-thirds vote for beginning a strike, the leaders decided that a like vote would be necessary for continuing it, and lacking it they issued a call declaring the strike off and men are already returning to work in a number of different districts.

MICHIGAN CROP REPORT.

Wheat.—The condition of wheat on April 1 in the state was 84, in the southern counties 79. In the central counties 88, in the northern counties 90 and in the upper peninsula 94.







THERE'S A BIG SAVING In Making Your Own Cement Drain Tile and Building Blocks

We furnish Machines and instructions.

Prices reasonable—Machines Practical. Write for catalog.
Wm.: Cobb Foundry, Jackson, Mich.

Wanted at Once Young married couple to work small den furnished. Forsober, energetic, experienced man will pay fair salary. References required. Address F. F. T., care Dime Savings Bank, Detroit, Mich.

Patents that PROTECT For Facts about Prizes, Rewards, etc., send 8c stamp fr our new 128 page book of intense interest to Inventor R. S. & A. B. LACEY, Dtep. 89, Washington, D. C. Estab. 186

DOUBLE THE YIELD of your potatoes by planting northern grown seed, bred up by hill selection. Prices reasonable. Circular free. B. Follett, Hale, Mich

REE.—Send full address of three flower buyers, and ten cents for postage and packing, and get a Fansy Geranium, and a Geranium Novelty Tree. Value forty cents. Catalogue free. A. D. ROOT, Geranium Specialist, Wooster, Ohio, U. S. A.

for an average crop of the various kinds of fruit in the different sections of the state:

		Sou.	Cent.	Nor.	U
State	. (Co.'s	Co.'s	Co.'s	Pe
Apples	80	77	79	88	89
Pears	71	70	69	74	92
Peaches	32	29	32	42	
Plums	65	62	65	71	94
Cherries	73	68	74	84	.94
Small fruit	81	77	84	84	95
In regard to	17	e mie	stion	"Wha	t n

In regard to the question, "What per cent of orchards are being sprayed?" correspondents report 37 in the state, 40 in the southern counties, 28 in the central counties, 36 in the northern counties and 33 in the upper peninsula.

CROP AND MARKET NOTES.

CROP AND MARKET NOTES.

Eaton Co., April 5.—Snow is fast disappearing under the warm rays of the sum. Very little rain yet, hence the frost is coming out slowly and the big drifts of snow adorn the roadsides. Fine sugar weather, and a large amount of sugar and syrup is being made. Prices good on most things the farmer has to sell. At auctions the last week in March loose hay sold as high as \$29 per ton. As predicted last summer, the high price offered by dealers soon after haying tempted farmers to sell more than they should, and now they must buy at a big advance. The following are local prices for produce: Beans, \$2.15; wheat, 91@93c; rye, 90c; corn. 65c; oats, 50c; butter, 25c; eggs, 16c; potatoes, \$1; hogs, \$5.50@7.50; calves, \$5@7; cattle, \$3@6; lambs, \$3.50@6; wool, 18@20c; clover seed \$12@13.50. The good roads proposition carried at the election, in the townships by 266 and in the cities by 1,077.

Newaygo Co., April 4.—Fine weather with the snow all gone. The frost is mostly all out of the ground. With the continued warm weather, the farmers can go to plowing in a week. It begins to look like we would have early pasture as the grass is greening up fast. Feed is scarce and high in price. Lots of autction sales and farms changing hands at good prices. Fall grain and clover is looking god. Seed potatoes will be out of sight in price on account of so many freezing in the pits and cellars. Potatoes are bringing \$1.20; wheat, \$5@88c; oats, 55c; corn, 70c; rye, 75c; eggs, 17c; butter, 28c; fowls, 10c; clover seed, \$10; hay, \$20; clover hay, \$16; butter-fat, 29c.

Sanilac Co., April 5.—Weather indications point toward spring. Today makes three days of weather that will certainly start the ice breaking and moving in Lake Huron and the ice conditions affects weather conditions materially. The frost is going out with great rapidity. Clay roads are almost impassable. Not much good weather for making maple sugar. About the usual acreage of beans will be planted this season. Many silos are being erected each year. Wa

butter-fat. 29c.

seed, \$7.50 per bu; beans, \$2.20; eggs, 20c; butter-fat, 29c.

Emmet Co., April 1.—Light snow fell for March, with considerable more sunshine than usual. Farmers are now using wagons for teaming, though there is still a large amount of snow in the roads. Winter grains and grass seeding have been well protected during the winter. Snow going slowly; no spring showers as yet. Feed getting scarce with farmers. Hay, \$20; straw, \$12; potatoes, \$1 per bu. Livingston Co., April 1.—The severe weather of the past four months has at last changed and it begins to act a little like spring, but it will take several days of warm weather to get the soil in condition to work, as the frost is very deep; probably no plowing will be done for two weeks at best, which will make oat sowing very late. The late spring will be hard on horses for when work finally begins it will have to go with a rush, as practically no work has been done as yet. Feed of all kinds scarce and almost prophbitive in price. Hay bringing over \$20 per ton, loose. Prices for live stock have advanced materially, but not very much on feed. It is a little early to predict the condition of wheat and clover.

Northern Isabella and Southern Clare Co.'s., March 25.—The weather is mod-

on feed. It is a little early to predict the condition of wheat and clover.

Northern Isabella and Southern Clare Co.'s., March 25.—The weather is moderating after a severe winter; neither sleighing nor wheeling but lots of snow banks. Not much work being done except the chores. Winter wheat looks poor where the snow is off. Hay is very scarce and high; lots of potatoes frozen; selling for \$1 per bu. Oats sold at auction as high as 71c per bu; cows at \$50; market eggs, 16c; butter, 25c.

Washtenaw Co., March 26.—Farmers are becoming impatient over the continued cold weather, which will make, if it continues much longer, a short and hurried season for accomplishing the spring work, making it especially bad for the oat crop which, under the most favorable conditions is certain to be later than usual. Feed is becoming increasingly scarce—hay being almost prohibitive in price. A good deal of colds and distemper among horses, fatal in some cases. Stock thinner in flesh than usual. Few dairy cows more than barely paying out for food consumed. Very little grain hauled to market as the home demand takes most of it. Wheat should make another good crop as it is still covered with snow. Everything bringing a good price.

Ohio.

Carroll Co., March 31.—We have had plenty of rain and bad weather. The

Carroll Co., March 31.—We have had plenty of rain and bad weather. The ground is so full of water that very little has been done in the fields as yet. Last year the farmers had lots of plowing done by this time. Horses are scarce and high in price this spring. All kind of feed is scarce among the farmers already. Eggs. 18c; butter, 26c; potatoes, \$1.70; oats, 55c; corn, 75c; wheat, \$1.10; No. 1 timothy, \$20 per ton.

YOU CAN DRAIN **YOUR LAND**

OU know drainage is the most valuable improvement you could make to your farm, but you have not felt like tiling before because it meant too heavy an investment—two much labor—too slow a job. Now—the horse power Cyclone Tile Ditching Machine cuts the average cost of a finished tile ditch down to 3 or 4 cents per rod—ditch cut—tile laid and covered.

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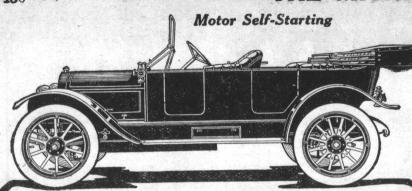
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PROVIDING GREEN STUFF FOR THE POULTRY.

One of the principal elements entering casion demanded. into egg production is a sufficient vegetable ration, and where flocks are wholly or even partially confined it is sometimes a problem to provide the necessary green food. Sprouted grain is conceded to be and this fact has given me an idea. I don't suppose it is original; there is little that is. However, I suggest that poultry growers try it out.

Sow the area to which you confine the poultry, or a portion of it at least, to oats as early as the grain will sprout nicely, putting the seed on liberally. After harrowing it in, let the hens scratch at will; they will not get it all before it has sprouted. A few days later, depending, of course, upon the condition of growth, sow and harrow in more oats. In this way a constant supply of green food will be furnished, even though a dry season, as the repeated sowings and harrowings will keep the soil moist. This plan also furnishes needed exercise for the flock, for it is just as necessary that a hen scratch as that an athlete train to keep in condition. If she doesn't she will get fat and become useless.

Owners of farm flocks that are given free range will say that this does not apply to them so long as grass is abundant. This is not always true, as grass, at some ime during the season, becomes dry and tough and the fowls do not care for it. If this is not true why do they always work on newly planted plats or fields? In the case of a field of fall-sown wheat we all know that they will keep a large area picked off if given the opportunity. Such is their "hankering" for green stuff that they will keep field beans cropped close, all of which demonstrates their desires very plainly, and the necessity for supplying that want I cannot make too strong.

trouble. I would ask them, how many is they do not get proper exercise. When

from the fact that it did not require much capital, a consideration which especially appealed to us just at that time. As Mrs. W. is of the energetic type, and anxious to do all she could to help pay for the farm, she figured that she and the children could carry on the work with what necessary assistance I might give as oc-

We first invested in a 160-egg incubator, quite late in the season, and brought off two very successful hatches. In the fall I enlarged the henhouse, giving 700 sqft. of floor space, which seemed ample. one of the best egg promoters" in the The next spring we bought another incubator, a 400-egg machine, which proved a success all around. That season we raised several hundred fine chicks and the business seemed to be coming our

The next step was to build a spacious brooder house, 18x60 ft., which I did that same fall. The following spring we invested in another 400-egg machine and were now prepared to hatch chickens. Mrs. W., by careful study and close attention, became an expert with the incubators and could hatch them faster than I could build the brooders. This season we had at one time over 1,500 chicks but did not save over 700 or 800 of them. This, however, was our banner year and we sold over \$600 worth of eggs and

I built another poultry house, which made in all about 4,000 sq. ft. of floor space for poultry, but from this on everything seemed to go against us. In spite of our best efforts, we had poor results. Our greatest difficulty seemed to be in making the chicks live after they were 10 to 20 days old. They died by hundreds and hundreds in spite of all we could do. This naturally discouraged us, and in another year we were out of the poultry business, on a big scale, to stay out. I used the poultry houses for other purposes, and we were content to raise a small number of chickens each year.

Our failure can be attributed to the "bowel trouble" which has caused thousands of others to quit the business. The idea of hatching chickens by artificial I know that many farmers will scoff means is all right, but making them live and assert that they have raised chickens in brooders is, in my opinion, all wrong all their lives without going to all this and practically impossible. The trouble-



Silver Laced Wyandottes and a Few Mongrels-An Illustration of how a Few of the Latter Detract from the Appearance of a Pure-Bred Flock.

kept on the average farm under intelli-success through the use of this method. gent handling, and the percentage of farmers as a class appreciate.

WM. J. COOPER. Isabella Co.

ANTICIPATION VS. REALIZATION IN POULTRY RAISING.

and wife in raising poultry on quite a cash was small. large scale here in Michigan. We had Having had this experience I feel that of such a seemingly easy venture.

We became enthusiastic over the idea of fowls on any farm, but it does not pay

chickens, and what their egg yield? It reared with hens they are on the move is easy to keep a few fowls around a most of the time, and I believe that the place and get a very good average return, best way is to let hens raise them after as there is always enough for a few. But they have been hatched in incubators. We with a large flock it is another thing, still have one of our large machines and Right here the average poultry keeper when we fill it with eggs we also set a 'falls down" and finally concludes that it dozen or 15 hens. When the chicks come doesn't pay to keep a large flock; it sure- from the machine they are given to the ly doesn't under the same policy of neg- hens, as a hen will manage 25 to 30 lect that is followed with the smaller chicks without difficulty and will raise flock. But the size of flock that can be most of them. We are having excellent

The trouble in raising poultry on a large profit it will return, are far greater than scale is that the yards soon become infested with vermin, and when disease appears it is hard to stamp it out or even to I think that the system of having colony houses, and thus dividing the stock into small flocks well scattered over a large space, would work better. The article entitled "Turning Over a The only reason we did not lose a lot of New Leaf in Farm Poultry Manage-money in our venture is that we got ment," which appeared early in the pres- along very cheaply. I constructed all of ent year, impels me to give the readers the houses and, as most of the material of this journal the experience of myself came from the farm, the expenditure of

been close readers of several poultry I can confidently advise those contemjournals and had noted with much inter- plating such a venture to go a little slow. est the reported successes of hundreds of Anticipation, nine times out of ten, is poultry farms throughout the country, greater than realization in the poultry Naturally, we came to believe that a small business, no matter whether results are fortune was the almost inevitable reward attributed to luck or to good management. It pays well to have a good-sized flock

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to give attention to exaggerated accounts ens the membrane, but I have dipped that often come to one's notice and then go to extremes in trying to grow poultry on a big scale, since one can easily sink much hard-earned money by so doing. B. F. WASHBURNE.

USING ASHES IN THE POULTRY HOUSE.

Only a few days since, in perusing one and, if followed, would do untold mischief. A poultryman, in telling how he keeps his poultry house free from lice, says that every time he goes to feed his fowls he carries a pail of ashes with him and scatters them about until the air is filled with the dust and the floor is thoroughly covered. He declares that in consequence his fowls have always been free from lice.

Now, in a study of agricultural chemistry we learn that the worst possible use that can be made of wood ashes is to scatter them in the poultry house, and especially under the roosts, as a mixture of ashes and manure, without the free use of soil or other absorbents, can only serve to reduce the value of both. The potash of the ashes tears the ammonia of the manure from its combinations, changes itself to a less desirable form and the ammonia to the volatile carbonate of ammonia, and away this latter goes, lost to the owner and working michief among the fowls roosting above it.

In the use of coal ashes, either of hard or soft coal, the result is different, how-About the best use that can be ever. made of them is to sift and use them in the poultry house; but wood ashes should not be mixed with manure of any kind. Unless one has some special object in view it is better to apply the ashes to soil unmixed.

J. M. W. Oceana Co.

LITTLE ATTENTIONS NECESSARY TO SUCCESSFUL HEN HATCHING.

One most important detail is to dress the bodies of the hens with insect pow-Flowers of sulphur will not hurt skin or eggs. The method of dressing is very simple. One person holds the hen by the legs, with one hand under the breast. Another opens the feathers with the fingers of one hand, and with the other dredges some sulphur right on to the skin, about three places along the back, some on each side, and some in the neck hackle and just under the tail. It does are many.

When hens desert their nests it is bepartly to the hen taking very little exercise and dusting, and partly no doubt to the increased temperature, the lice increase much faster than at any other When the hen is put out with chicks a final dressing should be given. In addihand and dredged all over, rubbing the boxes and brood frames should also be powder well into the fluff. This gives gotten in readiness. It is easy to manage them a fair start in life.

be examined, and, if too dry, a little ural pollen is abundant. warm water may be poured into the heaps

Testing a Few Days Before Hatching.

When the hens are off feeding the nests hot water can be added from time to time eggs. Some incubator makers object to to supply them with water. eggs being dipped and say that it tough-

many thousands and could always hatch as many chickens after it as anyone. There is not the same necessity with an incubator, as we can steam that, and the eggs have been more carefully tested. But many a novice who could not pick out a rotten egg by light test can easily do it by the water.

The eggs will act in three ways. One or two may sink to the bottom of the of our farm papers, I came across a bit bowl. They either contain chickens which of advice which I think very misleading have died recently, or they have been chilled at some time and retarded but might hatch out a day or two later. In any case they are not dangerous, and may be left in. Most will float upright, wide end a little out of the water. These are live chicks and will be seen to bob in the water. If the infertiles have not been removed, they will float in the same way. Now for those to guard against. Rotten eggs will float much higher out of the water, and lean more or less to one side. These should be removed, as they are those in which the life germ died early and a chemical change has taken place in the egg, resulting in the formation of a very deadly gas-sulphureffed hydrogen. Partly owing to the expansion of the gas, and partly owing to the brittleness of the shell, which is due to the action of the salts from the hen's body, these eggs are very likely to burst in the nest, and if they do it is fatal to most of the hatch.

I have no time to go into embryology here, entrancing study though it is, but will merely say that for about two days before hatching the chick uses its lungs and breathes the air which passes through the pores of the shell, the lungs having taken up the work which that fine, pulsating membrane, the allantors, had previously done. It will be seen that with the hen sitting closely, the breaking of one of these eggs must flood the nest with a filthy poisonous gas which remains long enough to kill many or all. As the eggs chill sooner after being dipped, it is better to let the hen go on as soon as a nest has been tested.

W. R. GILBERT. Canada.

APRIL AMONG THE BEES.

April is the month in which all colonies should be examined. We usually have some nice days in which to do this work. If any colonies have died during winter, remove the combs of honey that remain and place them under some other strong colony before robbing begins. If any colonies have become queenless, procure not take a minute, and the advantages queens for them. Do not let the colony dwindle away for want of a queen, for it may yield you 50 or even 100 pounds of cause they are infested with lice. Owing honey the coming season. The bottom boards should also be scraped, removing the accumulated cappings which always gather there during winter. On top of the hives you will probably find ants period. It is well to give another appli- gathered in the packing, with thousands cation about the tenth day to destroy any of eggs ready to hatch. Clean them out that have hatched out in the meantime, and sweeten up the hives in general. It may be that some need a coat of paint. Get ready for the honey flow and give tion each chick should be held in one the bees a chance to build up. Section bees when all the preparatory work is At the seventh day it is well to test the properly done. It will do no harm to let eggs, for if there are many unfertiles they the bees get a little cornmeal from the can be removed and the rest closed up, bin. Some bee-keepers make a regular so that one or two hens may be reset, practice, in spring, of setting meal in However, the presence of a few unfertiles sunny spots protected from the wind for in the nest is not so prejudicial to the rest the bees to gather as a substitute for as they are in an incubator. At about pollen to stimulate brood rearing. This the tenth day the soil under the nest can is not necessary in locations where nat-

When breeding is heaviest bees require of soil at the corners of the nest. A few most water. In early spring they may teaspoonfuls will be enough, so that the be seen about the well in search of this soil will be slightly moist. Probably the necessary article. They will fly a great eggs would hatch, but if there are dry- distance for it, if not obtainable near by. ing winds it is certainly needed, and they Many bees are lost and chilled in thus will give a greater percentage of chick- carrying water for their brood. If there no water accessible, close to the apiary, it will pay to supply some. Take While not very generally practiced, I a barrel, set it a few feet from the firmly believe in subjecting the eggs to ground, fill it with water and cover the the water test about the eighteenth day, top so that no bees will be drowned. Then A bowl of warm water and a can of boil- bore a very small hole near the bottom ing water should be taken to the nests. of the barrel and let the water drip on a board. The board should be slanted can be tested one by one. The tempera- slightly to cause the water to flow slowly ture of the water should be 105 degrees, along. From this source the bees will be which is about as warm as one can com- able to help themselves. The nearer the fortably bear the hand in. A little of the water is to the apiary the fewer bees will be required as water carriers, a very to keep the heat at 105 degrees. The pur- important feature at this season when pose of dipping is two fold-one to moist- the warmth and energy of every bee are en the membrane and soften the shell, so needed in the hive to help build up the as to make it easier for the chickens to colony. When honey begins to come in come out; the other to detect the rotten from the field it is no longer necessary

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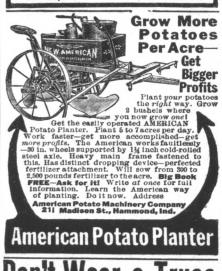
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absolutely necessary. The home gardener, trucker, small fruit grower, can decrease labor, increase crops and profit by using Iron Age tools. Our Single and Double Wheel Hoes are strong, light, compact. Easy to push—make gardening a real pleasure. Special attachments for a dozen uses. Perfect weed killers, cultivators, hillers, etc. We are wheel hoe specialists. If you need a garden tool, you need an Iron Age. Attachments can be added as needed; they reduce tool expense. Ask your dealer to show them. And send for free bsoklets of complete line garden, or chard and field labor-saving tools. A postal will bring them saving tools.

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this season without first getting prices on my clean, healthy Ohio grown 1 and 2 year old trees. Have specialized in growing fine nursery stock for 30 years. Catalog free.

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SHAPING THE NEWLY PLANTED TREES.

An important part of orchard work just at the present time is the forming of the tops of the young trees. The height of is determined at the start. There is no question but what the lower the tops can be formed the better it will be for the tree, vet cultivation must be carried on and the tops of the trees must be adjusted to accommodate this work. I have of straw or other mulch to cover the ground I would form the tops of the trees and would use mulch instead of cultivatmice. But this is out of the question, thus gained. and the proposition is to form the tops as low as possible and still allow room for cultivation. This work must be done with teams, and the teams must be worked by hired men, and the hired man must always be reckoned with in all of our orchard problems. If a man is expecting to the merits of handling the team and tools cane borer. around these low tops he would not have greater consideration for his own convenis quite different from working in an open field. And when a man comes to make this practically his business for perhaps four months, the matter of "picking all of the fruit from the ground" loses much raise them up and forego the inconven- plant as a whole. ience of using ladders in harvesting the

But this is a matter that one must demuch if started too high.

Another thing to be noted is that low branching of the limbs does not necessarily mean lower tops. We not infrequently see trees with the branches coming out only a few inches from the ground, and still the tops no lower or wider than others which branch considerably higher. The limbs of such lowbranching trees are more likely to break down than those that branch higher up and are correspondingly shorter. In our work I have come to about 20 to 24 inches above the ground as about the right height to start the branches. The young trees at planting are cut off 24 inches or a little more, above the ground, if this is possible as they come from the nursery, as the branches must come out below this. Sometimes we get trees from the nursery that have been trimmed up too high for this, but we try to get those which are not.

I am now working on a lot of young trees of different kinds from one to five years old. I like to do this work myself. With the yearlings I select three or four branches, never more than five, at about the height I have stated, coming out at even distances around the tree so as to make an even, symmetrical head, and cut away all the rest. Never leave two limbs, as a crotch is sure to split. If any are making a stronger growth than the others, which will usually be found the case, these are cut back to even up the length. Usually all are cut back more or less, owing to the vigor of the trees. It is well to have a lot of coarse strings in one's pocket, for frequently a limb will be which turns down too low, or perhaps to one and for the same purposes. desired position and tied across to a limb the curculio. on the opposite side. It will soon grow the most desirable branch to an upright the fruit matures. position and tie it to the old trunk, cut- An application of one pound of copper spring the required branches can be se- three weeks before harvest time. lected and the top formed the same as Carefully go over the plum trees and

It is necessary for each pruner to have an ideal tree in his mind, and the forming of the tops is a matter of bringing the trees into conformity with that ideal. No two men form the tops exactly alike. The inverted vase form is the one most approved, leaving the tops open in the center so that the sun may reach all parts of the tree. This is a matter of leaving the proper number of branches on the main limbs growing out at the proper the trees is a matter of moment and this distance from the trunk, and this is a different proposition with different kinds of trees and of different varieties of the same kind. A very good way is to study old trees and note how many branches may be allowed in these and at what distances from the trunk, remembering that often thought that if I could get plenty the smaller limbs and branches we leave now practically remain where they are, except for changes that may be made we are now planting, close to the ground, later by the load of fruit bringing them closer to the ground. Then arrange the ing, taking the chances against fire and branching in the light of the observation

Allegan Co. EDWARD HUTCHINS.

ESSENTIALS IN PRUNING GOOSE-BERRIES AND CURRANTS

There are two essentials to be kept in mind when pruning gooseberries and curdo this work himself it may hake some rants. One is with reference to the graddifference with his plans, but it is a ual renewal of the bearing canes and the question if, when he gets right down to other with reference to the control of the

The bush form of training the gooseberry is undoubtedly better than the tree ience than for that of the hired man. It form. Bushes trained the tree form are susceptible to permanent injury if the borer should be neglected and get down in the "trunk." In the bush form the neglect of the control of the borer would generally only affect the canes neglected of its attractiveness. It's a safe gamble and new canes would take their place. that after one season's experience, if the Although sometimes the borer gets close tops are very low, he will conclude to enough to the roots to cause injury to the

The current cane borer which attacks both the gooseberry and the current does its injurious work by tunneling through cide now, for the tops cannot be lowered the pith, or center, of the cane. They almost always work down, so in pruning it is quite essential to cut all affected canes below the lowest part of the tunnel. These tunnels can easily be recognized by the blackish centers of the canes.

bearing cane of both gooseberries and currants, if it is free from the attack of the borer for several years, deteriorates in bearing qualities when it gets over five years old. Therefore it is advisable to renew the canes occasionally.

It is preferable to maintain four or five bearing canes and leave each year one or two of the strongest young growths to replace an old cane to be taken out the next year. All other young growths or shoots should be cut out.

Further pruning should consist of thinning out the tops of the bearing canes a little and cutting back the past season's growth some if quite long.

By pruning as suggested above a healthy and productive patch of gooseberries or currants can be maintained for a long time, provided spraying and good cultural methods are practiced.

Van Buren Co.

PROGRAM FOR SPRAYING PLUMS.

First Spray.—Before the growth starts early in the spring give the trees an application of strong lime-sulphur to control the European fruit-scale and the San Jose scale.

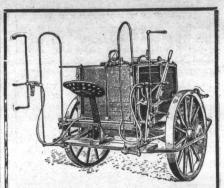
Second Spray.—Just before the buds swell apply Bordeaux mixture or selfboiled lime-sulphur to which is added arsenate of lead, for black-knot, fruit-rot, leaf-spot, and the poison for curculio.

Third Spray.—Use the same material found which is wanted for the top but for this spray as is used in the second one side. This can be raised up to the arsenate of lead is needed here also for

Later Sprays .- Fruit-rot and the curin this position, when the string may be culio is to be provided against for a removed. Sometimes, too, one or more greater part of the growing season and branches will be found growing out from for this reason the material given for the side of the trunk, but too low to con- spray two and three should be repeated form to the ideal or standard we have every 12 or 14 days until there is danger set. If left as they are they will form a of the application discoloring the fruit, one-sided tree. In such cases we bring i. e., till about four weeks from the time

ting away all of the others and cutting sulphate to 150 or 200 gallons of water off the top of this at the desired height. may be made on varieties that are par-It will soon grow in this position and next ticularly susceptible to rot from two to

with a year-old tree. The string and remove all the limbs that are affected piece of old trunk above the branch may with black knot. During the season one also be cut off. It will soon outgrow the should keep a lookout for new infestabend in the body so this will not be tions and when discovered cut out the branches and destroy them by burning.



Spraying for Profit

Spraying, to be profitable, must be done at the proper time, with the proper solution and with a practical machine.

LeROYSPRAYERS have been used for years spraying for profit. Their users claim they have paid for themselves many times.

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The Crestline "SUNSHINE"
double acting barrel spray
pump is the simplest and
most effective made. Any
one can use it. Solid brass
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Bigger Fruit Profits

Here is a spray pump invented by fruit growers. It was our endeavor to secure the best spray pump to use on our 300 acre fruit farm that produced the ECLIPSE SPRAY PUMP

It overcomes every defect found in other makes—it has proved it-self best in actual work. Put an Eclipse to work on your trees and arn bigger profits. Write for our fully illustrated catalogue. It tells why you should spray—and why you should do it with an Eclipse. It's free. Write to-day.

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Seed Corn for Sale-Improved Pride of the North. Carefully selected and guaranteed to grow. H. L. COLE, Palmyra, Mich.

A PLANT INCUBATOR.

In a country where the seasons are short, or where it is desired to obtain vegetables at an extra early period, there are various modes of starting plants in order to have them advanced suitable to be set in the open garden as soon as the season will permit.

For this purpose, doubtless the nothouse is the most convenient as, by being able to get inside at all times, the temperature and moisture conditions can be kept uniform. The hot-bed is in common use and is the most popular with home gardeners because of the less expense of maintaining it.

However, there are often occasions where it is desired to grow a few extra early plants for home use, where it is not convenient to construct and care for a hot-bed and it is not always easy to obtain manure for heating. To obviate all such wants I have a plan that is both economical and satisfactory.

I use a common goods box of any size to supply the needed number of plants. The upper cover is removed and slats nailed on two opposite sides or ends, inside, at about eight inches from the top. A shallow seed box is made of just such size to fit inside the box and resting on the slats. The seeds are sown in the shallow box in well prepared sifted soil. A frame containing glass or cloth is fitted on the box. A cover of common unbleached muslin, stretched tightly over the frame and given a coat or two of linseed oil answers about as well as glass, and in the hands of a novice, there is less chance of burning the plants than where glass is used, is much lighter to handle, and much cheaper.

The box must be high enough to accomodate a lamp underneath the seed box. We use a low lamp and place a piece of tin or other sheet metal just below ...e seed box to catch and deflect the heat, as otherwise the heat immediately above the lamp would be too concentrated. A door is fitted in the side of the box, to be used in filling and regulating the lamp. I keep a thermometer in the lower part with the lamp and aim to keep the temperature at from 60 to 75 degrees.

The seeds are sown in rows three inches apart and covered lightly. We spread a piece of muslin on the soil and water freely. As soon as the seeds germinate and are breaking through the soil I remove the covering. I start my germinator any time from the middle of March to the first of April, and even later in a season like this, as in this section (central New York), we cannot safely set out tender plants much before the first of When grown in this way, they grow very rapid, and will be ready to transplant to cold frames in about a month. It is well to gradually decrease the heat, give less water, and abundance of air a few days before transplanting, in order to harden them. Cloth covered cold frames answer very well as at that advanced season at which we use them the cloth, or muslin, gives sufficient protection to grow them until time to set them in the garden.

I start peppers, tomatoes, egg plants, or any tender plant necessary to be protected at an early season and as hundreds may be grown in this way find the convenience much superior to the window box so often used where a few plants are needed.

The air in a living room is usually too dry for the well-doing of plants, and as this arrangement places the plants out of doors and under direct light, and where abundant air can be given, the plants will retain the best of health. A piece of old carpet can be thrown over the box at night or in severe weather, during the day.

New York.

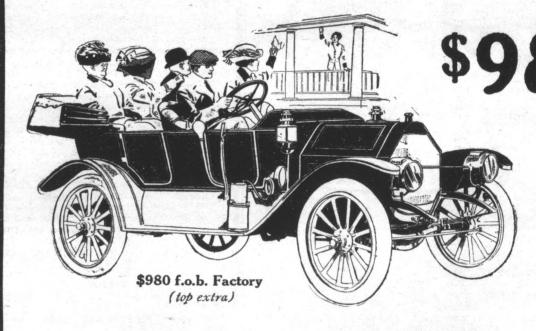
B. F. Mack.

PLANTING CURRANTS.

The soil should be cool, moist, rich and prepared deeply. Make rows six feet apart in the direction most convenient for cultivation, but preferably north and south, and plant the bushes four feet apart in the rows. Plow furrows, set plants against land-side and draw earth up against and about them, firming it The remainder of furrow can be filled by the after cultivation. One-yearold plants are usually satisfactory. Plant as early as possible this spring.

The Repp orchard at Glassboro, N. J. eontains 50,000 to 60,000 trees. usually sets out 7,000 or 8,000 trees a year. He sprays with Pyrox. Wise growers are ordering ealy. Ask the Bowker Insecticide Co., of Boston, for

Maxwell Mascotte



I want every farmer and his family to ride in the Maxwell Mascotte" at my expense

I want you to take a pleasant little holiday. I don't mean that I want you to ride up and down Main Street a few times. Some pleasant afternoon, maybe, I'd like you to get the family together and go out and visit some of the folks—just as you are accustomed to doing—only this time go in a Maxwell "Mascotte", which I will arrange to place at your disposal.

I am inviting you to do this because I want you to know the exceptional qualities and wonderful value of the Maxwell "Mascotte".

I want you to test it in the same way you will use it if you buy one, on the same roads -good or bad as they may be—the same hills—the same levels.

I know the "Mascotte" is the best all-around car for undeveloped highways, hills, mud and sandy roads and rocky byways. But I want you to know it. I know a ride—an actual road experience—will prove the many merits of this car to you and your family in the most practical way.

For reliability the Maxwell "Mascotte" is unequaled. Remember, the Maxwell won this year's Glidden Tour, the hardest test of efficiency on record. It had the best team score in last year's Glidden Tour also; it holds the world's non-stop record for traveling ten thousand miles over country roads without stopping the motor. The Maxwell has won more endurance contests than any other car in the world.

For durability the Maxwell stands supreme. Official figures prove no other car will last as long. Over 91 per cent. of the Maxwells sold in New York State during 1905-1906, are registered again this year, proving seven years of continuous service. The Maxwell will give you years of absolutely reliable service

I want to prove to you that the Maxwell "Mascotte" is the first real high-grade family touring car ever sold for less than \$1000. No other car within \$200 above its price compares with it. It has been close figuring to build such a large, powerful and stylish car as the Maxwell "Mascotte" and sell it for only \$980. No other company, lacking our wonderful manufacturing facilities, can afford to do it.

Don't fail to take advantage of my offer. I want the opportunity of entertaining you and your family in the Maxwell "Mascotte". Remember, it will not cost you a penny and involves no obligation whatsoever.

All you need do is fill out the attached coupon and send it to me personally. I will instruct our local representative to make arrangements with you for your trip. Write me today.



United States Motor Company Maxwell Division 74 West 61st Street, New York

Mr. J. D. Maxwell,

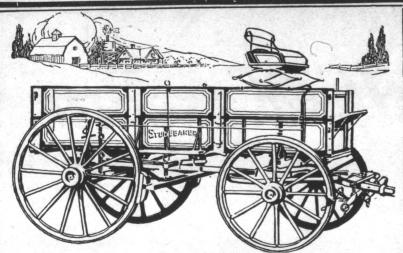
74 West 61st Street, N. Y.

I will be glad to accept your invitation to take a ride with my family in the Maxwell "Mascotte".

Kindly arrange to place a car at my disposal. It is understood that no expense or obligation on my part is involved.

Yours very truly,

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This little book is not exhaustive, but it does contain the essential information that will allow you to intelligently estimate the opportunity for profit offered. It also tells you how to take advantage of the mass of information on file in this office.

In transmitting, the folder I will write you giving the prices now asked for land and putting you in touch with responsible people having land for sale. The Santa Fe has no land of its own to dispose of.

Just drop me a post card. Do it today.

C. L. Seagraves, Gen. Colonization Agent, 2293 Railway Exchange, Chicago

(Continued from first page).

carefully cut off the roots with a sharp spade a short distance from the trunk crimson clover for the same area. depending upon the size and nature of the tree. Mark the trunk of the tree so that you will know when putting it in the new position, which side of the tree was north in the woods. Leave the tree after cutting the roots, in its old place for a season, when the severed roots will have developed a large number of fine rootlets. that can be readily taken up with the tree and which will feed the tree in its new place. By cutting off large roots and removing the tree directly one takes from the tree practically all of the feeding surface of the roots, and thus makes it almost impossible for the tree to live. At the time the roots are cut prune back the top to retain a fair balance between it and the roots the same as one does in transplanting a young orchard.

long before you intend to transplant. Make it large and fill with mold or well decomposed manure and let the leaching of this vegetable matter become assimilated by the adjacent soil. This will put the tree in possession of a liberal amount of plant food from the start and is certain to insure a successful job if the other work is done with care.

When you are ready to move the tree, which should be done early in the spring before the sap begins to flow very freely if possible, and which can be done where the hole has been prepared beforehand as directed above, clean out the hole, put some surface soil in the bottom, set the tree but slightly deeper than it stood in the forest, with the north side to the north, as indicated by the mark, carefully work the soil about the roots to avoid air spaces and firm frequently as layer after layer is put in, and at last pull a mulch the job in an hour from the time you go that struggles along for several seasons and then, perhaps, dies. The above A second formula substitutes linseed oil method will avoid, as far as it is possible, for the tallow in the following combinations of the company of the second formula substitutes linseed oil method will avoid, as far as it is possible, for the tallow in the following combinations of the second formula substitutes linseed oil method will avoid, as far as it is possible, for the tallow in the following combinations of the second formula substitutes linseed oil method will avoid, as far as it is possible, for the tallow in the following combinations of the second formula substitutes linseed oil method will avoid, as far as it is possible, for the tallow in the following combinations of the second formula substitutes linseed oil method will avoid, as far as it is possible, for the tallow in the following combinations of the second formula substitutes linseed oil method will avoid, as far as it is possible, for the tallow in the following combinations of the second formula substitutes linseed oil method will avoid as far as it is possible, for the tallow in the following combinations of the second formula substitutes are second formula substitutes as a second formula substitute in the second formula substitutes are second formula substitutes as a second formula substitute in the second formula substitutes are second formula substitutes as a second formula substitute in the second formula substitutes are second formula substitutes are second formula substitutes as a second formula substitute in the second formula substitutes are second formula substitutes are second for the s any such results.

Making a Lawn.

called a good lawn. The preparation of linseed oil be free from cottonseed oil. kind of sward you will have. In the first place, the ground should be tile drained if This formula is specially adapted for use will be carried off. Then establish the of resin and beeswax keeping it from begrade you want, for after the sward is grown it is difficult and expensive to change the level of the lawn. Make the land rich if it is not already so, by the liberal use of well-rotted barnyard manure and commercial fertilizers. If of a clayey nature work the soil down a good depth and then put the surface in a perfect condition for the reception of the grass seed. The proper care of sandy land is different; keep it packed to hold moisture by the liberal use of the roller and employing harrows and cultivators that pack instead of loosen the soil. Use garden rake on all soils after finishing the work that can be done with horse power. This raking removes all stones and sticks and other rubbish that would When the surface is carefully worked over and made very fine the ground is ready for the seed.

What seed to sow is a much mooted subject although in our latitude there is little question about the wisdom of makstent and ultigrass is so hardy mately occupies all fields that are sown to other kinds of grasses and grains, that trolled by a weak arsenical. it is unwise for the amateur to attempt to establish a lawn with any other grass. Blue-grass starts slowly, so to keep the weeds down it is wise to sow with it a quicker growing grass. Michigan farmothy and as this fills the demand for a land with verdure, kept down the weeds Write today and mention Michigan Farmer.

BEAUTIFYING THE HOME GROUNDS, and supplied the soil with nitrogen. The timothy then follows and occupies the soil until the June-grass takes possession. use in the plantings about the home will White clover can be used if one desire it perhaps aid many to avoid disappoint- in the lawn. Use the Kentucky bluegrass at the rate of 30 pounds per acre, Select the tree to be transplanted and timothy at the rate of about six quarts per acre and from four to five quarts of

CHILDREN TO GARDEN INSTEAD OF WORKING IN THE MILLS.

At the closing session of the eighth annual conference of the National Child Labor Committee, in Louisville, Kentucky, it was advised that children who have hitherto contributed to the support of the family by working in the factories, now work in the garden instead.

A plan has been outlined, and efforts are being put forth to make this desirable change. There is already a call for teachers who shall be able to give instructions in agriculture and the care of animals.

Practical lessons are to be given the children, and arrangements are expected Dig the hole for receiving the new tree to be made so that the children will devote most of the day to tilling the garden in the pure air rather than to labor in There is plenty of land, in fact, hundreds and hundreds of acres lying in unproductive idleness. It is said that this project is thoroughly feasible.

One objection to children working in the mills is that it destroys their health and future usefulness. John P. Frye says that mill workers are a puny people in the fifth generation.

FORMULA FOR MAKING GRAFTING WAX.

Will you kindly publish in your next sue a formula for grafting wax? Oakland Co. C. H. P. There are different formulas for making

grafting wax for grafting purposes, each specially fitted for service under different conditions. The usual formula is to over the top to retain moisture. Thus use four parts of resin by weight, one planted there is very little doubt that a part of tallow and two parts of beeswax. tree will grow. Of course, it can be done The three elements are melted together in the old-fashioned way of completing over a slow fire after which the mixture is poured into a pail of cold water when out to select the tree, and you may get the hands are greased and the material good results, but too many times when pulled until it is nearly white. This planted in such a way one has a tree formula can be used over quite a wide range of conditions.

A second formula substitutes linseed oil tion: Eight pounds resin, two pounds beeswax, and from one to two pints of It is seldom that you find what may be the linseed oil. It is important that the the land, the choice of seed and the after These components are melted together care determine in an extreme degree, the gradually, turned into cold water and pulled the same as for the first formula. it is not naturally located so the water in warm weather, the larger proportion coming too soft to work well in the field.

The third formula is for use in cold weather. It contains six pounds of resin, one pound of beeswax and one pint of linseed oil. This material must be kept heated in the field and applied hot to the surfaces that are to be protected. a brush for making the applications.

LIME-SULPHUR NOT A REMEDY FOR BORERS.

In your issue of March 23, W. H. J. "When the trees are dormant apply lime-sulphur wash to kill borers on all trees that are worth saving." I do not see how a contact spray will kill the borafterwards interfere with mowing the ers when they are in their burrows with

He states further: "We have two cherry pests-maggot and curculio. There is no spray that will control the maggot, but curculio can be controlled by arsenate ing the body of the lawn sward of Kentucky blue-grass (Poa pratensis). This of the curculio. He does not mean the cherry slug, for that can easily be con-

W. Postiff. Wayne Co.

PAYING CROPS.

The success of the farm is largely due ers are familiar with the growing of tim- to the quality of the seed sown. Seeds that are impure and adulterated may be quick germinating grass a better combi- bought for less, but they are not cheap nation for general lawn building than even if bought at half price. All farmers Kentucky blue-grass and timothy is hard that are interested in good seeds should to find. If the land is hard, needs to write for Brown Seed Company's catabe loosened up and supplied with more logue, of Grand Rapids, Mich., which tells nitrogen it is a good plan to add crim- all about legume crops, such as Winter son clover. This plant being an annual Vetch, Alfalfa, Cow Peas, etc. A postal dies out after it has quickly covered the card will bring you the "Catalogue."

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Secretary-Treasurer—Mrs. C. P. Johnson, Metamora.
Directors—C. L. Wright, Caro; E. W.

Woodruff, Blanchard; C. P. Johnson, Metamora; H. W. Chamberlain, White Lake; Wm. T. Hill, Carson City; Jerry Spaulding, Belding.

Address all communications relative to the organization of new Clubs to Mrs. C. Johnson, Metamora, Mich.

Associational Motto.-

The farmer, he garners from the soil the primal wealth of nations.

Associational Sentiment.-

The skillful hand, with cultured mind, is the farmer's most valuable asset.

VEARLY PROGRAMS.

The Washington Center Farmers' Club, The Washington Center Farmers' Club, of Washington township, Gratiot county, has apparently followed the plans of previous years in their annual program for 1912. This is a neat little booklet with colored paper covers. On the first page is the name of the Club, the year for which the program serves, the association, the program serves, the association with the program serves, the association of the cub, the year for which the program serves, the association with the program serves, the association of the popularity of and interest in the Club meetings during the past year. The publication of these reports cannot but be of general interest to Club people of general interes farms of the members are named, and the names of the farms, as well as that

has been organized for 15 years and has 100 adult members, aside from some 30

one of the oldest in the state. Its membership is limited to 20 families and all who are present are expected to say something upon the subject discussed, the men at least, which the delegate considered to be a good feature which could not be maintained in larger Clubs. A special feature of the work of this Club is a public meeting held at the town hall just before township meeting, at which questions of importance are discussed.

The North Owosso Club, of Shiawassee county, was represented by two delegates at the state meeting. This Club owns its own dishes, while each family provides two camp chairs. A small collection is taken at each meeting for the purpose of purchasing flowers or fruit for members who are ill. Occasionally the young people take charge of the program. The program and the place of entertainyoung people take charge of the program. The program and the place of entertainment are announced two months ahead. There is a membership of 20 families, the members all being farmers. The attendance varied during the past year from 45 to 145.

SPECIAL FEATURE WORK.

The above synopses of reports given by

CLUB DISCUSSIONS.

to the program for each meeting, the farms of the members are named, and the names of the farms, as well as that of the host and hostess is given. The creder of business is given with each program, the programs being complete in every particular. At the bottom of each program is a quotation suited to the date or occasion. Questions for the ladies, as well as the gentlemen, appear in many of the programs, the questions being largely of a practical nature. The question box is given a place on each program. A novelty at the May meeting is "Garden Seed Exchange." Special feature meetings include a Children's Meeting in July, a basket picnic in August and a Club Fair in October. Altogether, this is a very cmplete program, and the plan has apparently given this Club the best of satisfaction in use.

WHAT THE LOCAL CLUBS ARE DOING.

The Deerfield Club, of Isabella county, which the delegate designated as a Backwoods Club, has a membership of 15 to 20 families, and an average attendance of from 50 to 60. Monthly meetings are held throughout the year, with the exception of July, when the Club joins other organizations in a Fourth of July celebration on the safe and sane order. A program are not used. At the monthly meetings there is generally an agricultural topic for discussion by the gentiemen, while the ladies discuss more ethical subjects. A great benefit is derived from the organization by its members, especially in the development of the social side of farm life and in the increased confidence of its members. Each family contributes to the menu, taking food enough and to spare. A reception committee is appointed to welcome visiting members. The Eckford Club, of Calhoun county, has been organized for 15 years and has 100 adult members, aside from some 20 the feature when the first and beauty and a full blow when the first and the first

rata among said districts." Closed with music.—H. C. Thompson, Cor Sec.

Pass Resolution for Parcels Post.—For their March meeting the Washington Center Farmers' Club went to "Roseland," the pretty farm home of Mr. and Mrs. Lewis Curren. There were over 60 present and all received a cordial welcome. Music by the Club, reading of minutes, and a large amount of miscellaneous business occupied the forenoon session. Roll call was responded to by naming a temperance movement. Mrs. B. S. Gillman then favored the Club with a song, and "Parcels Post," led by Frank Brown, was discussed. At the close of this discussion resolutions to the effect that this Club is unanimously in favor of parcels post, Pass Resolution for Parcels Post.—For her members, saide from some 20 children, and has an average attendance of from 60 to 70. Nine meetings are held during the year, all-day meetings being the Washington Censel of from 60 to 70. Nine meetings are held during the year all-day meetings are held during the year all-day meetings are held for the post of the year. An occasional picnic meeting is designated and the leader of the topic to be discussed. At the close of this discussed at the finance of the third time. There is a flower committee that tooks after the sending of flowers to sick members.

Cambridge Club, of Lenawe county, is one of the older Club soft as tate. The delegate present represented this Club for the third time. The Club has a refreshment committee which serves throughout the year.

North Shade Club, of Gratiot county, is a membership of 80 and an average attendance of 40. Ten meetings are held during the year. All-day meetings are held during the year.

The Norveli Club, of Jackson county, is foliated and report. which as a membership of 80 and an average attendance of 40. Ten meetings are held during the year.

The Norveli Club, of Jackson county, is foliated and report. Which and the leader of the topic of the year.

The Norveli Club, of Jackson county, is foliated by the county of the program. The next meeting the Washington Center of Rosea and to outline the pile gere and not to utility. In the details of the spell ing match, name the captain of the degree team and to outline the pile gere at man to to utility the proposed contest. You know without because the first of the first of the foliation of the year. All-day meetings are held during the year all-day meetings are held during the year. All-day meetings are held of the year all-day meetings are held of the year. All-day meetings are held after the which are the proposed to the proposed to the proposed to the

GRANGE

Our Motto-"The farmer is of more consequence than the farm, and should be

THE APRIL PROGRAMS.

Suggestions for Second Meeting,

Roll call responded to by each naming

country dooryard: 1. Its front.

2. Its back.

EFFECTIVE GRANGE REPORTING.

One cannot fail to recognize that advertising pays, else why do big enterprises persit in it and flourish? Strange that when so much is credited to the press, many a weak Grange neglects to avail itself of this power.

I once sat at the table of a prominent farmer who turned to me and said, "After all, the Grange has never done very much, now has it?" Apparently he asked the question in good faith. Upon injuiry about the neighborhood, I learned that the local Grange was one that "held its charter," it is true, that is, it paid dues to State Grange; but I knew to a certainty, from what I learned, that its hall was dingy, the stairs leading to it unswept, the lamps smoked, the gavel fell late, half the officers were usually absent, the program mostly "picked up" and that business invariably dragged without snap or ginger. Members do not go about talking enthusiastically of such a Grange; wonder an outsider, even though he be an intelligent farmer and eligible to membership, takes it for granted that there is nothing of account being done by the Grange.

Now, the right kind of reports sent to the local paper can do very much to remedy such a state of affairs as the one described. It is not difficult to find Granges that owe a large part of their steady growth to the carefully worded press notices which some member has furnished. These notices were not fake reports that gave misleading or exaggerated records, but they were appreciative accounts which encouraged faithful members and attracted outsiders.

Who would not wish to hold membership in a society that has the reputation for abounding goodfellowship, thoroughly jolly times and gave valuable information to boot? A good system of press reporting can almost create such an organization out of any Grange.

A Grange report which came to my desk recently illustrates what can be It occupied 15 inches of space in done. a local paper and began in this fashion:

"Henry, why the dickens didn't you come down to Grange Saturday night? Surely the weather didn't keep you income

side?"
"No, that wasn't it. I was over helping Andrew all the afternoon and I got home late and —"
"Oh, pshaw! I was working all day, too, and had to hustle some to make it, but I wouldn't have missed that spelling contest for a dollar."
"Quite a time, eh?"
"Yes, we had a nice meeting. The young people succeeded at last in getting a degree team started, etc., etc."
Even though you are a stranger, you

Even though you are a stranger, you read every word of such a report, which goes on to recite the details of the spell-

us a fine talk, and now we have 45 patrons from Sturgis Grange enrolled on the Pomona list. In January, at time of installation of officers, the brothers gave a banquet to about 200. March 29 terminated a series of four socials which brought out an average attendance of about 200. Regular meetings are held every two weeks and it is sometimes necessary to call a special. Interest is increasing as members become better accreasing as members become better acessary to call a special. Interest is increasing as members become better acquainted with the privileges and purposes of the Grange. During the past year our patrons have been financially benefited, through the untiring zeal of the purchasing committee, in securing Paris green, twine, coal, salt, fence posts, etc., and at present we are agitating the question of building a hall. Just now we are renting a commodious, well furnished hall in the city.—Charter Member.

Grange Spelling Ree—About 50 mem-

Grange Spelling Bee.—About 60 members of Galesburg Grange, of Kalamazoo Co., recently held an old-fashioned spelling contest at the home of Mr. and Mrs. John Vosburg. The result seemed to bear out the contention that spelling is not receiving proper attention in the schools of today, since the younger members of the Grange were first to fall by the wayside.

Lenawee Pomona Holds Special Meeting.—A largely attended special meeting of Lenawee County Pomona was held at Onsted in March. State Chaplain, Mrs. O. J. C. Woodman, was present in the capacity of state speaker and delivered a most able address. Resolutions on the passing away of Bro. and Sister Minor T. Cole were presented and spread upon the minutes of this Grangs. Bro. and Sister Cole had long been active, earnest and faithful members of the organization. At the conclusion of the program the membership prizes offered by Pomona last year were awarded. The prizes were for largest increase in membership during the year 1911. First prize of \$12 was awarded to Tipton Grange; second prize of \$8 to Gorman Grange, and third prize of \$5 to Rome Grange.—Sec.

Ottawa County's Second "Big Meeting." Lenawee Pomona Holds Special Meet-

Ottawa County's Second "Big Meeting." On March 29 and 30 occurred the second national meeting of the Ottawa County

Ottawa County's Second "Big Meeting."

On March 29 and 30 occurred the second annual meeting of the Ottawa County Grange, Teachers and Patrons' Association at Nunica. It is officered by Superintendent Vandenburg of the Grand Haven schools as president, and Miss Myrtle Brown, Ottawa Pomona's lecturer, as secretary. Formed somewhat like the "Big Meetings" which have been so successful at Hesperia, Shelby and Hart, this beginning of another such nucleus of influence has been watched with anxious solicitude by its friends. That apprehension, on account of the second meeting, at least, was groundless has been abundantly demonstrated. Bad roads did what they could to prevent success, but sunshine overhead and courageous confidence in their cause brought the promoters of the enterprise out victorious.

The meeting began Friday morning at 10:30 a. m., and continued till 9 p. m. Saturday. Dinners and suppers were served in the building to men, women and children, who came by trolley car, wagons, carriages and on foot. Nunica Grange had generously offered, for the second time, to house the meeting and furnish meals for one day. In addition they provided for the closing address by John C. Ketcham, in order to make sure of a striking finale. "School Knapsacks," with W. F. Taylor to interpret and lead their soul-stirring songs, made of the music a memorable feature, and created a sphere of harmony and cheer throughout. Special quartets, solos, character songs and recitations were added by local Grange members, just in proportion to vary the tension of the soberer numbers on the program. Of the latter, State Deputy W. F. Taylor, Prof. Ernest Burnham, John C. Ketcham and the State Lecturer, from outside the county, furnished of the best they were individually able. From within the county, Mr. Ezra Wightman, teacher in the eighth grade of Coopersville schools, talked to patrons upon their privilege to have whatever of agriculture they desired taught in their schools, and told them some of the difficulties and advantages in hav improved roads, more interest in our schools and other community activities; and Miss Soule, of Grand Haven, presented "Handwork in the elementary school," with exhibits of handwork from her own pupils

Friday afternoon was given over to a conference upon Grange Lecture Work

DETROIT WHOLESALE MARKETS.

MARKETS

April 10, 1912.

Grains and Seeds.

Wheat.—Prices moved up to a higher basis on Thursday of last week when news of crop damage came to the attention of traders. Just how much the new crop has been damaged is a matter that will not be satisfactorily understood for several days, or until the plants have had time to develop injuries. Weaknesses interrupted the advantage gained by the sellers Monday when some of the states, not heard from before, reported that the crop was looking better than had been expected—Michigan, Missouri and Ohio three of these. West of the Mississippi river the condition of the crop is considered better than east of it. Liverpool was closed Monday, it being a holiday in England. Large shipments from the Danube district had a depressing effect upon the trade. Visible supply shows a decrease of one and a quarter million bushels. Chicago is still congested with the grain. The price one year ago for No. 2 red wheat was 87c per bu. Quotations for the week are:

No. 2 No. 1
Red. White. May. July. Thursday ... \$1.00½ .98½ \$1.01% .98½

Red. Thursday \$1.00½ Friday 1.00¾ Saturday 1.00¾ Monday 1.00¾	White98½ .98¾ .98¾ .98¾	$\frac{1.02}{1.01\frac{1}{4}}$	July. .981/4 .981/2 .99 .983/4
Tuesday Wednesday 1.01½	.99½	1.02%	$1.01\frac{1}{4}$

Corn.—The late spring is proving a bullish factor in corn circles. The price advanced nearly 2c above the elevated figures of last week and there is no definite information that the upward trend of quotations will stop. Feeding has had to be continued longer and grass is farther away than usual. The Danube district has aided a little in checking the advance by putting on the world's markets a much larger bulk than had been reported grown in that section. Visible supply of corn decreased over a million bushels. One year ago the price for No. 3 corn was 48½c per bu. Quotations for the past week are:

		No. 3	No. 3
			Yellow.
Thursday		741/2	761/2
Friday		701/2	77 ½ 78 ½
Saturday		10/2	78
Monday		76	
Tuesday		::	701
Wednesday		76 1/2	781/2
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2 12 mla +	l'asses o	of orgin

Oats.—Trading is light, volume of grain in circulation being small. Prices have advanced over the high figures of last week, which change is largely due to the tardiness of conditions that will permit farmers to get on the fields. The visible supply shows a small invrease. Offerings are small. One year ago the price for standard oats was 34½c per bu. Quotations for the week are:

Standard. No.3

		Sta	ndard.	White
Friday Saturday Monday			60	58 58 591/2 591/2
Tuesday	v		$60\frac{1}{2}$	60
Beans.	-Activity in b and pric week. Qu	n the lo	cal ma	irket is steady

with last week. Quotations are:	
with last week. Quotations are.	May
Thursday\$2.42	\$2.4
Friday 2.42	2.4
Saturday 2.42	2.4
Monday 2.42	
Tuesday 2.42	2.4
Wednesday	Gumai

are the week's	qu	Cash.	April.	Alsike
Thursday	5	\$12.60	$$12.10 \\ 12.25$	\$12.3 12.5
Friday Saturday		12.65	12.25	12.5 12.5
Monday Tuesday		12.65	12.25	12.5
Wednesday		12.65	12.25	12.5
- mil-1- and	1 10	auff ared	no che	ngo the

Flour.—Market Tutes seems
fing dull. Straight\$5.25
Straight
Patent Michigan 4.85
Ondingry Patent 4.00
Rye
Fine middlings, cracked corn and
corre corn meal are up; other grades
steady. The carlot prices on track are:
man ego per ton: coarse middlings, \$30;
fine middlings, \$32; cracked corn and

THE MICHIGAN FARMER.

Dairy and Poultry Products.

Butter.—A good demand for butter throughout the country has lifted creamery prices, which on the local market amounted to 2c. The high cost of feed is keeping many dairymen from securing maximum returns from their cows. Dairy butter is steady. The market appears firm at the new figure. Quotations are: Extra creamery, 32c; first creamery, 31c; dairy, 22c; packing stock, 21c per lb.

Eggs.—The influx of eggs, although meeting a rapidly growing demand, was sufficient to put the local price down a fraction of a cent. A large volume of business is being done which is increasing daily. The price for fresh receipts, cases included, is now 20c per dozen.

Poultry.—In this market there is little change, the trade being quiet and steady, except that chickens and hens are not quite as strong as they were. Quotations are: Spring chickens, 14@15c; hens, 14@15c; turkeys, 16@17c; geese, 11@12c; ducks, 14c; young ducks, 15c per lb.

Cheese.—All grades of cheese remain

Poultry.—Alive.—Market is fair. Western chickens, 13c; fowls, 14@14½c; turkeys, 15@26c per lb. Dressed—trade is quiet. Fresh killed fowls, 14½@17c; turkeys, 14@22c per lb.

blood combing, 27@28c; delaine unwashed, 21c. Michigan, Wisconsin and New York fleeces—Fine unwashed, 19c; delaine unwashed, 23c; tle for sale, realizing that before long and Missouri—%-blood, 27@28c; 1/4-blood unwashed, 28c. Kentucky, Indiana and Missouri—%-blood, 27@28c; 1/4-blood 27c. Holos sold at \$8 and a little above that blood, 27c.

Butter.—Market firm at 32c per lb., an advance of 2c over the price of the previous week.

THE LIVE STOCK MARKETS.

Buffalo.

Buffalo.

April 8, 1912.

(Special Report of Dunning & Stevens, New York Central Stock Yards, East Buffalo, New York).

Receipts of stock here today as follows: Cattle, 140 cars; hogs, 50 double decks; sheep and lambs, 70 double decks; calves, 1,400 head.

With 146 leads of the cattle of the cat

Fronting 545 58
Saurray 60 555 68
Saurray 60 555

unusual scarcity of young cattle in feeding districts everywhere, and few farmers are offering any desirable feeder cattle for' sale, realizing that before long there will be an abundance of gress, enabling them to make beef cheaply.

Hogs sold at \$8 and a little above that figure last week, so that predictions made months ago that hogs would advance to \$8 were verified at last. Of course, there were reactions, but sentiment was bullish and it will be strange if more stock feeders are not encouraged to feed their hogs to a finish. Feed is dear, but so are hogs, and they are paying well for their board and promise to for months to come. The eastern shippers continue to compete with local killers for the best droves, and the current receipts are running extremely high in quality. The bulk of the offerings sell within a spread of from 10@15c, and they go very near daily top quotations. Light weights, averaging around 185 to 195 lbs. are good sellers and bring not far from extreme top values. Hog receipts have been much smaller in volume than

verpool of the potential property of the pot

There is a very strong demand in the Chicago horse market for the better class of wagon horses, and these are selling particularly well. Recently a light gray wagoner that was not much over 1,200 lbs. in weight brought \$220, and at about the same time there was a sale of a pair of attractive appearing little 1,200-lb. grays, not very fine in looks, but smart of step and of the right ages, at \$380, as good a price as has been paid for a long period.

"lowa will need a lot of cattle when-

THIS IS THE FIRST EDITION.

In the first edition the Detroit Live stock markets are reports of last week; all other markets are right up to date. Thursday's Detroit Live Stock markets are given in the last edition. The first edition is mailed Thursday, the last edition Friday morning. The first edition is mailed to those who care more to get the paper early than they do for Thursday's Detroit Live Stock market report. You may have any edition desired. Subscribers may change from one edition to another by dropping us a card to that effect.

DETROIT LIVE STOCK MARKETS.

Thursday's Market.

April 4, 1912. Cattle.

Cattle.

Receipts. 1,260. Bulls 25c lower; all other grades steady.

We quote: Extra dry-fed steers and heifers, \$7.07.25; steers, and heifers, 1,400 to 1,200, \$6.06.75; do. 800 to 1,000, \$5.250 (6; do. that are fat, 500 to 700, \$4.25; choice fat cows, \$5.05.25; good do., \$4.25.04.75; common cows, \$3.25.03.50; canners, \$2.03; choice heavy bulls, \$5; fair to good bolognas, bulls, \$4.04.75; stock bulls, \$3.500 4.25; milkers, large, young, medium age, \$400.50; common milkers, \$20.030.

Roe Com. Co. sold Newton B. Co. 18 steers av 1,204 at \$7.3 do av 1,087 at \$7.2 do av 1,045 at \$6.50, 1 cow weighing 740 at \$2.25, 1 do weighing 1,210 at \$4.50, 15 steers av 987 at \$6.25, 15 do av 1,020 at \$6.25, 3 do av 1,150 at \$6.75, 10 do av 720 at \$5.50, 11 butchers av 815 at \$5.50, 2 cows av 810 at \$4. to Sullivan P. Co. 1 canner weighing 780 at \$3; to Thompson Bros. 3 butchers av 767 at \$4.50.

Bishop, B. & H. sold Bresnahan 3 butchers av 666 at \$5.35, 3 do av 647 at \$4.25, 2 do av 635 at \$4.50; to Hammond, S. & Co. 5 cows av 776 at \$3.25, 1 do weighing 830 at \$4.50, 1 bull weighing 890 at \$4.50, 1 cow weighing 740 at \$3, 5 do av 1,044 at \$4.60, 2 steers av 690 at \$5.50, 3 bucks av 900 at \$4.80, 3 cows av 1,10 at \$4.20, 10 butchers av 906 at \$4.50, 3 cows av \$10 at \$4.50, 1 cow weighing 740 at \$3, 5 do av 1,044 at \$4.60, 2 steers av 690 at \$5.50, 2 cows av 810 at \$4.50, 1 bull weighing 800 at \$4.50, 1 do weighing 1,000 at \$5.10 do av 980 at \$6.25, 12 do av 903 at \$6.20, 5 canners av 926 at \$3, 1 cow weighing 1,060 at \$4.50, 1 do weighing 1,000 at \$5.10 do av 975 at \$3.25, 1 do weighing 1,000 at \$5.10 do av 975 at \$3.25, 1 do weighing 1,000 at \$5.10 do av 975 at \$3.25, 1 do av 975 at \$4.25, 5 canners av \$40 at \$3.25, 1 do weighing 1,000 at \$5.10 do av 975 at \$3.25, 1 do av 975 at \$6.25, 5 canners av \$40 at \$3.50, 1 do weighing 1,000 at \$5.10 do av 975 at \$6.25, 12 do av 903 at \$6.25, 12 do av 970 at \$6.25, 12 do av 970 at \$6.25, 12 do av 965 at \$8.50, 2 cows av 1,010 at \$3.50, 1 do weighing 1,000 at \$5.50, 1 do weighing 1,000 a

5 cows av 948 at \$4, 3 bulls av 1,320 at \$4.75, 10 steers av 628 at \$5, 3 butchers av 883 at \$4.

Spicer & R. sold Kamman 2 cows av 1,210 at \$4.75, 1 steer weighing 880 at \$5.75, 1 cow weighing 1,110 at \$4, 7 steers av 831 at \$5.75, 8 butchers av 820 at \$4.75, 1 bull weighing 930 at \$4.75, 4 cows av 1,042 at \$3.65; to Hammond, S. & Co. 1 cow weighing 740 at \$3.10, 4 do av 1,050 at \$4.10, 1 do weighing 790 at \$3.10, 8 do av 1,020 at \$4.10, 6 steers av 986 at \$6.15; to Patterson 1 cow weighing 770 at \$3.60, 1 do weighing 700 at \$3.35, 2 do av 725 at \$3.50; to Fry 2 butchers av 830 at \$5.50, 2 cows av 965 at \$4.25; to Parker, W. & Co. 21 butchers av 856 at \$5.50; to Kull 9 do av 800 at \$5.5 to Nagle P. Co. 22 steers av 1,160 at \$6.55; to Fry 1 cow weighing 1,060 at \$4.50, 3 heifers av 573 at \$5; to Kull 7 butchers av 664 at \$4; to Sullivan P. Co. 1 cow weighing 1,060 at \$3.25; to Mich. B. Co. 10 butchers av 818 at \$4.75; to Newton B. Co. 5 do av 840 at \$5.65, 1 cow weighing 900 at \$4.50.

Haley & M. sold Parker, W. & Co. 5 butchers av 628 at \$5; to Breitenbeck 17 do av 825 at \$5.50, 2 cow and bull av 1,085 at \$4.50; to Kamman 11 steers av 870 at \$6.25, 6 do av 753 at \$5; to Nagle P. Co. 4 do av 1,097 at \$6.65; to Mich. B. Co. 2 cows av 1,000 at \$4.50, 4 do av 952 at \$3.50, 1 do weighing 1,330 at \$5, 1 heifer weighing 710 at \$5, 1 do weighing 600 at \$4.

Adams sold Mich. B. Co. 15 butchers av 756 at \$5.25.

756 at \$5.25.

Merritt sold Parker, W. & Co. 2 cows av 900 at \$3.50, 2 bulls av 1.245 at \$4.75, 4 cows av 822 at \$3.75, 1 steer weighing 1,090 at \$6.50.

Weeks sold Sullivan P. Co. 4 butchers av 882 at \$5.80, 1 cow weighing 830 at \$3.

Veal Calves.

Veal Calves.

Veal Calves.

Receipts, 884. Market active at last week's prices. Best, \$8.75@9.50; others, \$4@8; milch cows and springers, common grades, very dull.

Bishop, B. & H. sold Goose 5 av 125 at \$6, 11 av 120 at \$6; to Hammond, S. & Co. 10 av 146 at \$9, 20 av 120 at \$8.75, 3 av 100 at \$6, 9 av 140 at \$9, 1 weighing 130 at \$9.50; to Parker, W. & Co. 13 av 135 at \$9, 2 av 145 at \$6, 14 av 135 at \$7.75, 5 av 125 at \$9.50, 13 av 130 at \$9, 20 av 145 at \$9, 9 av 150 at \$9, 20 av 145 at \$9, 9 av 150 at \$9, 14 av 155 at \$9; to Newton B. Co. 9 av 140 at \$9; to Goose 5 av 125 at \$8.50; to Goose 13 av 140 at \$7; to Thompson Bros. 26 av 120 at \$6.75; to Burnstine 24 av 135 at \$9; to Hammond, S. & Co. 10 av 133 at \$9, 2 av 140 at \$9; to Parker, W. & Co. 31 av 145 at \$7, 3 av 165 at \$4. Spicer & R. sold Newton B. Co. 3 av 275 at \$5, 14 av 120 at \$6.59; to Mich. B.

Spicer & R. sold Newton B. Co. 3 av 275 at \$5, 14 av 120 at \$6.50; to Mich. B. Co. 3 av 110 at \$8.25, 3 av 110 at \$7, 13 av 140 at \$9, 2 av 105 at \$7, 23 av 130 at \$8.75, 7 av 145 at \$9; to Thompson Bros. 1 weighing 170 at \$6.50, 6 av 155 at \$8.50. Chase sold Parker, W. & Co. 9 av 138 at \$9.25.

Haley & M. sold Parker, W. & Co. 7 av 180 at \$7.50, 11 av 130 at \$8.75.

Sandell & T. sold Mich. B. Co. 23 av 140 at \$7.75.

Lovewell sold Burnstine 8 av 200 at \$6,

Lovewell sold Burnstine 8 av 200 at \$6, 18 av 140 at \$8.

Sheep and Lambs.

Receipts, 3,316. Market slow at Wednesday's prices; about 10c lower than last week. Best lambs, \$8; fair to good lambs \$6.50@7.25; light to common lambs, \$5.50@6; yearlings, \$6.50@6.75; fair to good

sheep, \$5@5.50; culls and common, \$3@4. Spicer & R. sold Thempson Bros. 2 sheep av 195 at \$5; to Kull 30 lambs av 55 at \$6.50; to Newton B. Co. 12 do av 70 at \$7.50. L2 do av 70 at \$7.50. Kalaher sold Mich. B. Co. 42 spring lambs av 62 at \$12.50.

Bishop, B. & H. sold Parker, W. & Co. 69 lambs av 75 at \$7.75; to Thompson Bros. 12 sheep av 85 at \$5, 3 do av 80 at \$3; to Sullivan P. Co. 15 lambs av 55 at \$5.75, 18 do av 50 at \$5.75; to Gauss 438 do av 88 at \$8; to Breitenbeck 76 do av 56 at \$7.50; to Barlage 10 do av 74 at \$7.50, 19 do av 58 at \$7, 8 do av 55 at \$6. 20 do av 60 at \$7, 17 do av 60 at \$6; to Young 25 do av 80 at \$7.75; for Mich. B. Co. 23 do av 75 at \$7.50, 23 do av 77 at \$7.40, 48 sheep av 100 at \$6.55; to Hammond, S. & Co. 31 do av 70 at \$5.75; to Fitzpatrick Bros. 16 sheep av 105 at \$5.25, 21 do av 100 at \$5.40.

Receipts, 3,672. None sold up to noon; look 10c lower than Wednesday or about

Hods.

Receipts, 3,672. None sold up to noon; look 10c lower than Wednesday, or about steady with last week's close.

Range of prices: Light to good butchers, \$7.80@7.85; pigs, \$6.75@7; light yorkers, \$7.60@7.75; stags one-third off.

Bishop, B. & H. sold Parker, W. & Co. 210 av 180 at \$7.85, 35 av 165 at \$7.55, 540 av 170 at \$7.80, 215 av 130 at \$7.50.

Spicer & R. sold Hammond, S. & Co. 245 av 195 at \$7.85, 210 av 150 at \$7.86, 140 av 165 at \$7.55.

Haley & M. sold same 250 av 190 at \$7.85, 254 av 175 at \$7.80, 165 av 160 at \$7.75.

Roe Com. Co. sold Sullivan P. Co. 155 av 190 at \$7.85, 160 av 175 at \$7.80, 85 av 160 at \$7.75.

Friday's Market.
April 5, 1912. Cattle.

Cattle.

Receipts this week, 1,731; last week, 1,522. Good grades steady; common and bulls dull at Thursday's decline.

We quote: Best steers and heifers, \$7,750; steers and heifers, 1,000 to 1,200, \$6@6.75; do. 800 to 1,000, \$5.25@6; do. that are fat, 500 to 700, \$4@5; choice fat cows, \$5; good fat cows, \$4.25@4.75; common do., \$3.25@3.50; canners, \$2@3; choice heavy bulls, \$4.75; fair to good bologna bulls, \$4.75; stock bulls, \$3.50@4; milkers, large, young, medium age, \$40@50; common milkers, \$20@30.

Veal Calves. Veal Calves

Veal Calves.
Receipts this week, 1,640; last week, 1,294. Market 50@75c lower than on Thursday. Best, \$8.50@9; others, \$4@8.
Milch cows and springers dull.
Sheep and Lambs.
Receipts this week, 4,564; last week, 5,792. Market dull, common straw stack lambs without fat very hard to sell and go at very unsatisfactory prices. Best lambs, \$7.75@8; fair to good lambs, \$6.50 (7.25; light to common lambs, \$6.60; yearlings, \$6.50@6.75; fair to good sheep, \$5@5.50; culls and common, \$3@4; spring lambs, \$10@12.

Hogs.

Receipts this week, 6,920; last week, 5,985. Market for best grades 5c higher; others steady at Thursday's prices.
Range of prices: Good butchers, \$7.85
@7.90; pigs, \$6.75@7; light mixed, \$7.70@7.80; roughs, \$7@7.10; stags one-third off.

Lamb wool has been selling in the feed lots near Chicago at 21 to 22 cents per pound, with sales of Merino yearling wether wool at 16 cents, prices ruling from three to five cents higher than a year ago. Constracts have been made in Utah for wool, none selling above 18 cents, and limited amounts have been contracted east of the Cascades in Oregon at 14 to 16 cents. Not much has been done in Montana and Wyoming, flockmasters not caring to accept less than 20 cents.

Sheep and yearlings were scarce articles last week, the daily receipts being made up mostly of lambs. Prices continued to rule very high, being greatly in advance of values seen earlier in the season, when there was a rush to market stock from feed lots in the region tributary to Chicago, and prime lambs sold especially high, as usual. Feeding and shearing lambs were in good demand at very high prices, not many being available, and the percentage of shorn flocks showed further marked gains. Light and handy-weight lambs were prime favorites, these being wanted for the Easter trade. Sheep and lamb receipts at other western and eastern markets were apt to be light in volume, and this tended to strengthen the Chicago market. Wooled lambs sold freely during the week at \$5.50@8.25 for culls to prime, while yearlings advanced to \$6.60@7.40, wethers to \$5.50@6.45 and ewes to \$3.50@6.50, with bucks selling at \$4.50@5.50 and feeding shorn wethers brought \$6.25 and prime and shearing lambs at \$6.07.25. Prime shorn ewes \$6, both advancing sharply.

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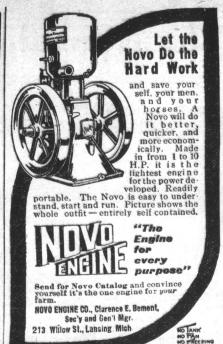
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THE MICHIGAN FARMER.



Women Who Are Doing Things-No. 8.

northern part of Cass county.

wind-break of magnificent Norway colleges and universities. spruces that gave to the farm its name of Greenwood.

Farm people rightfully may claim her, to the youth's department of The Grange for it was on a noble farm in a region of Visitor. Shortly after her return from noble farms that Jennie Buell was born the west, Mr. J. T. Cobb, the editor, ofand spent her childhood and youth, a fered her a position as his assistant, place which embraced in its wide acres which place she has filled for five years. stretches of woodland, and its generous Here she studied the history of the portion of one of those beautiful prairies Grange movement, and learned that with which southern Michigan, as by hearts all about her were hungering for some happy accident of nature, is dotted. the very things she herself longed for. This one was Little Prairie Ronde in the Meanwhile she had joined the C. L. S. C. orthern part of Cass county.

and had become interested in its club My memory holds a fair picture of that work. She thus came to see the compenold home where the Buells lived until sations offered by the great "schools out their removal to Ann Arbor in 1892, with of school" for the disappointments of its fine, spacious grounds and its long those who have lacked the advantages of

Among Miss Buell's many friends, after her own family and a few of her most in-It was a fine home life that was lived timate personal acquaintances, perhaps

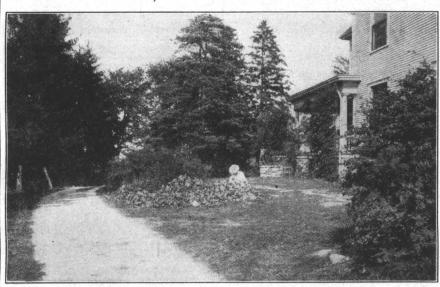
springs. Her work has come to be recognized as not only state-wide but national in its scope.

Although most of Miss Buell's writing has been for newspapers and magazines, she has added to the works on rural sociology a noteworthy little volume, "One Woman's Work for Farm Women," a unique account of the work of Mrs. Mary A. Mayo. It is not written in the style of an ordinary biography, but may better be described as an artistic and fitting presentation of an inspiring life. As she knew Mrs. Mayo intimately and loved her this book has passed on to thousands the inspiration of that rare woman's rare personality. "One Woman's Work for Farm Women" has been called by a reader of unusual intelligence and discernment, "the finest statement of the finer work of the Grange that has yet been prepared."

Owing to the brief compass of this sketch much that seems essential must be omitted. Only passing mention can be made of Miss Buell's long connection with the Sunday School at Little Prairie Ronde, although she considers it one of the most important factors in her life. There began her training in organization and the conduct of group meetings. No account can be given of the close and intimate relations that have always existed between her and the other members of her family; of how they have been her wise counsellors and a constant source of strength; nor of how the coming into this household some 12 years ago of her brother's four little motherless boys, changed her viewpoints and widened her sym-

As to Miss Buell's own personality, it is most pleasing and gracious, but hard to analyze. No one trait of character can be classed as dominant, rather she manifests a number of strong traits in wellbalanced combination. She possesses great tact, yet is truthful and sincere. For an alert, quick-minded person she is very patient and painstaking. She has remarkable persistence and continuity of purpose, and wins out by uniform excellence rather than by an occasional novel or lucky stroke. Despite her quiet and unobtrusive manner, she shows unusual force of character and exerts a strong influence. She has a genuine talent for friendship and a wonderful power of see ing and bringing out what is best in all with whom she comes in contact.

A firm believer in the doctrines of the New Church, the effect of those teachings is plainly to be seen in her attitude toward life and its problems. One of the main tenets of that faith is the great principle of "uses" as the very aim and object of creation. It has been well said that the keynote of her life is service for



Home of Miss Jennie Buell, Showing West Yard.

and flavor all its own.

liest Granges organized in Michigan- few clear-cut life purposes. were persons of strong, fine character and and three pretty, bright-faced girls, a recommendation Miss Buell was elected natural heritage of high ideals and as- to fill the vacancy. She held the position

lasting friendship.

the things of her childhood in order to efficiency. give my readers a correct perspective of Miss Buell has traveled over and over a natural outgrowth.

Since it had been the dream of her uplift. childhood to teach, she went to the State Before she took up what proved to be close to her heart. her life-work, she spent some time in

there, and a gracious hospitality that was to Mr. J. T. Cobb should be given the dispensed within those doors. The Buells credit of having the most constructive inalways were prominent and influential, fluence upon her life. He was industrious, and numbered among their friends and public-spirited, frank, and a thorough-reighbors a group of high-minded, intel- going optimist. Her association with him lectual men and women, who gave to the in editorial and Grange work, coming at society of "The Prairie" an individuality a time when her mind was most susceptible to the influence of a strong person-Both Mr. and Mrs. Buell-both charter ality, served to crystallize the confused members, by the way, of one of the ear- medley of her youthful ambitions into a

When Mr. Cobb resigned his office as to their children, three jolly boys secretary of the State Grange, upon his for 16 consecutive years. Then, after an I well remember that merry troop of interval of two years she was elected in brothers and sisters, and Jennie as a 1908 lecturer of the State Grange, which sunny-dispositioned, rather frail looking office she still retains, filling it with a little girl, for my home was only a few success perhaps even more notable than miles from Greenwood and between the that of her long service as secretary, two families there existed a warm and since it offers tasks more in harmony with her natural tastes. Because of her We must pass swiftly over our little prominent connection with the Grange, a girl's early days in the nearby district number of years ago she was placed upon catur. I should like to dwell longer on this capacity also she has shown unusual

For those who have been ac- again throughout the length and breadth tra fine dinner is the rule. Night usually quainted with Miss Buell only in these of this state, till it really seems as if at finds the mother tired to the point of exlater years, however closely, never can some time or other she has attended a haustion. She has not had a minute to know her quite as do those who knew the Grange picnic or rally or a Farmers' In- rest on this day set aside for merrymakatmosphere in which she grew up, and stitute in every nook and corner from ing, and she mentally, or verbally, thanks always some message of courage and comes but once a year. If she lives in a

Normal at Ypsilanti, but during that year she has thought and written, for the taurants exist, and if she lives far from of study her health gave way so that it Michigan Farmer and a large number of hostelries she wishes fervently that she became evident that she lacked the hardi- other publications, and spoken in behalf lived near enough to take the whole famhood to endure the stress and strain of of the Grange and of rural organization ily out to dinner instead of spending the the school room. Having to give up her and improvement. With all the privations day in cooking and serving. intention of completing a college course and difficulties of farm people everywhere The mother of one family went on a left a wound that was slow in healing, she has the keenest sympathy, and al- strike last Thanksgiving Day. For five which perhaps has never fully healed, ways their welfare and happiness lie long years, she tragically announced, she

About this time she began to contribute Congress of Farm Women at Colorado or take plain boiled potatoes and fried

The Joy of Serving.

TOLIDAYS often seem to the tired housekeeper the hardest days in the calendar. In most households school and her high school course at De- the State Farmers' Institute force. In the rising hour is postponed on such days, breakfast is late, everyone lounges around the house after breakfast instead of getting out to the regular work, and an exher stars that this particular holiday town she vows never again to cook a Mere printed words cannot convey how holiday dinner so long as hotels and res-

had spent three-fourths of the day cook-A number of times she has been called ing a dinner for the family to devour in Kansas and there got into her veins, and into other states to speak upon Grange the other fourth, while she, too tired to it stays yet, the love of the western work for women; last October she pre- eat, sat wearily by and looked on. This sented the topic before the International year the family would eat its turkey out,

meat. No long day of cooking and drudgery this year for mother.

For a wonder, father, who despises hotels and restaurants, fell in with the idea, and on Thanksgiving morning father, mother, Mary and Jack set forth for the restaurant which advertised the biggest Unfortudinner for the least money. nately, there were scores of others who had picked on that restaurant, and when this family arrived the tables were filled. Smells of savory dishes assailed the nostrils, aggravating appetites which the frosty air had aiready made ferocious.

The clock ticked off an hour while the quartet waited. Jack and Mary began to whimper with hunger, mother got nervous and even father began to take out his watch and look at it every three minutes. Finally a waiter approached and waved them to a table, and hope revived. But another wait of ten minutes elapsed before the soup was brought on. It was cold, and the spoons showed traces of having been hastily washed. The soup was well nigh digested before the turkey its accompaniments appeared. It, and too, tasted as though it had been nearer ice box than the range, there was barely enough to go around and not a tiny scrap left for a second helping. The stuffing wasn't well made, the mashed potatoes were lumpy and the squash wet and largely upon the weight when born. The had a dash of cayenne, the plum pudding was hard and cold and the dish of ice cream was melted and scanty in quantity. Mary and Jack missed the atmosphere

half the meal, then fought over a glass of ice water towards the close and horrified mothers alone and not be constantly wortheir anxious mother. The dinner, you will notice, was not a are not doing well.

of home and sat with scared faces through

Jack and Mary were loud in their disapproval on the way home, but GLAD TO HEAR FROM OUR READERS. father only said,

"Never mind, mother is rested and able to enjoy herself. She has had a real Thanksgiving today."

exploded mother. "I never "Rested!" was so tired in my life. I thought I should die waiting there and trying to keep those children quiet. And then after that torture to be put down to such a dinner. If I couldn't cook a better dinner with both eyes shut and one hand tied behind me I'd be ashamed to ask a friend to my table. Christmas is just four weeks off, and when it arrives this family will have a holiday dinner worth

"But it tires you so to cook, and you never have a minute to enjoy the day,' quoted father.

"Tires," sniffed mother, "I never knew the meaning of the word until today. All the enjoyment I want is to get into my own kitchen and fix up a dinner that is ralatable and digestible. Why, I've been onesome all day, just wishing I was home hustling around with the children standing on chairs at my elbow begging for tastes and to help. I actually believe that the only joy of living is the joy of serving, although there are times when I don't seem to appreciate that fact.'

DEBORAH

HUMAN WELFARE QUERIES.

Household Editor:-How is spinach served?-Reader.

Spinach is usually cooked until tender in a very little water, or, if young, with only the water which clings to its leaves from washing. Then chop it fine, reheat in a saucepan with a generous measure of melted butter, heap in a mound on a platter and garnish with slices of hard boiled egg. Many like vinegar served

Editor:-Where is pearl Household Editor:-Whatapioca obtained?-Student.

Cookbooks tell us it is obtained from the root of the cassava plant, but the dictionary asserts that it is manufactured from potato starch.

Household Editor:—Would you consider condensed milk and oatmeal water good food for babies?—Mother.

with the starch in the oatmeal, would be too much for the average child. Plain milk and oatmeal water would be a better combination, but barley water or rice wide. Price, 10 cents. water would either be more easy of di-

Put one cup of milk and the white of an egg in a covered glass fruit jar and shake until thoroughly blended. Strain and serve at once. If it is unpalatable it

No. 5390, Children's Yoke Dress. Cut in sizes 1, 3 and 5 years. The 3-year size requires 2 yards of 36-inch material; 1% yards of insertion, 1% yards of edging. may be salted and flavored.

Because "them" is a pronoun and cannot be used to modify the noun mittens. "I want those mittens" is correct.

Household Editor:—Is it correct to say "You was" in speaking to one person? Our teacher says we should say "You were," when speaking to more than one but "You was" when speaking to one. Is she right?—Eighth Grader.

"You were" is the correct form, no matter whether you address one or many. "You" is the plural form of the pronoun and therefore must take a plural verb. The singular verb was used to some extent a century ago, but is now obsolete.

What should be the temperature of yeast for bread and how long should it be maintained to give best results? Mrs. G.

The government bulletin on "Bread and Breadmaking" gives from 77 to 95 degrees as the best temperature for yeast, while other authorities give from 65 to 75 degrees. Yeast endures cold much better than heat, so it is better to have the temperature low. I do not understand what you mean by "How long should it be maintained?" Bread may be started, made and baked in three hours, or you may prolong the process over night. The longer you give the yeast to ferment the better flavored will be your bread.

Household Editor:—How much should a year-old child weigh? My baby is a year old and weighs only 17 pounds, and everyone says she should be heavier.—Mrs. S.

The weight at one year old depends The pumpkin pie that followed average baby weighs about seven or eight pounds when born, and from 22 to 24 pounds at one year. You can reason from this how much your baby should weigh. However, If she is well and happy I should not worry about what "everyone says." I think "everyone" should leave young rying them by telling them their babies

Several very kind and appreciative letters have recently been received by the editor of this department, for which she herewith expresses heartfelt thanks. many of us only write the editor when we get mad that it is a pleasure to receive a line when something has pleased. We are always glad to hear from our readers, requests for help, suggestions for new articles, frank criticisms of things which do not suit, or outpourings of wrath against any existing evil. But we are doubly and trebly glad when some kindhearted reader snatches a moment from the busy whirl to write, "You have done well."

MICHIGAN FARMER PATTERNS.

These patterns may be obtained from the Michigan Farmer office at the prices named. Be sure to give pattern number and the size wanted.



ondensed milk and oatmeal water good on the babies?—Mother.

No, the sugar in the milk, combined 36 breadth it requires 33 yards, 32 inches wide. Price, 10 cents.

water would either be more easy of digestion than oatmeal water.

Household Editor:—How do you make albuminized milk?—Convalescent.

Mule. Price, 10 cents.

No. 4817, Boys' Suit. Three sizes, 2, 4 and 6 years. For 4 years it requires 3 yards, 36 inches wide, %-yard contrasting goods 27 inches wide. Price, 10 cents.

5111, Children's Rompers. Cut in Household Editor:—Why can I not say, one size. Age 1 year requires 2 yards of "I want them mittens?"—X. Y. Z.

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Margaret-"Oh, I'm so disappointed! Charley Haines asked me to go to a dance tomorrow night, and I've spilled mustard all over the front of my best dress.

Those city boarders will make fun of me."

(Anty Drudge—"Come now, no more moping. Just run down to the store and get a cake of Fels-Naptha soap and let me have the dress. We'll wash it in some cool or lukewarm water, and presto! It'll look just as fine as any French cleaner could make it."

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THE LETTER BOX.

have taken the Michigan Farmer for some and hard work" to the teacher next day. time and I must say I am much interested in its good things about farming. ing up children escapes me. I simply deyour them and swallow them in chunks.

as mothers, appreciate the responsibility that providence has put upon us, as we

We realize that we are in a measure by right example and precept just now?

Let right be your motto in all things always. See that your foundation in with the right written on the face of it.

o you asking your advice, tell them you will have to think the matter over before you decide and in the meanwhile ask them to think seriously themselves and draw them out.

I was very much interested in a letter written by Mrs. Ella E. Rockwood. I do school tasks. not think this little mother will go far wrong in bringing up her little girl. But, mother, I would not spat baby's hands if were you. It always seems cruel to me. I would not have the pretty, attractive things around. I would put them away out of harm's way until the little tot is old enough to understand and then I should bring them out and display them on tables and explain to the little one about them, who they belonged to and are some of baby's own which have been given her in earlier babyhood. These I should let her handle with special care. But give her to understand on no account is she to touch that which belongs to This is one of our hardest lessons to teach.-Mrs. F. A. M.

The System is at Fault.
The article published in the Michigan Farmer about "Home Study for Children," seems to me somewhat wide of the mark. The Golden Age of education for the child may come some day but it certainly has not yet arrived.

Fixed courses are now established by the "powers that be" for the grades, as well as for the advanced work. Students of education-teachers as well as parents, do not always approve of these courses, but if the children enter the never could make a satisfactory meal on grades they must "keep up" and this a spoonful of frozen pudding and a lettuce task is oftentimes something of a problem to both teacher and parent and is in their place. often a tragedy to the child.

teacher, parent or child, but is the fault cook-books and magazines. Partly beof the system. There is certainly too much cramming of unnecessary stuff going on in our schools. But what can the length of time required in the preparation. teacher do? There are just so many Here is one from a popular magazine, pages to be gone over, she must do her telling how to make "star canapes:" "Cut task. It was once said of our county that, although it might not be perfect in every way, it was the very best country in butter, pile one point of the star with we have. So it is with our school system, it may not be perfect and it certainly is very far from perfection, but it the best system we have, and it is only through the co-operation of both boiled eggs forced through a potato-ricer. parent and teacher that the average Garnish the center with a coiled fillet of child can come out of its mysteries with anchovy and arrange on a lace-paper enough education to pay for the money, doily placed on a small plate." Here you time, and energy expended, and in many cases, for the health wasted. In other hour to prepare and after all your fuss words, this problem must be faced by the you have only bread and salad. I am parent and teacher as a condition and particularly fond of salad but I think I not as a theory.

The clever child who absorbs all kinds the points of a star. the really good student. A boy of my let's have some substantials with it. disgrace because of his inability to make Samantha Allen's advice and "be mejum." a recitation in history or geography. A -A. E. H. M., Wheeler. little help from his mother would have been of great assistance to this boy.

principle of square and cube root, be- for any bed. Similar places may be found cause her wise mother, who knew what in any large city so I am told. The next day's lesson was to be, carved the feathers are renovated before the sewing bread at supper in squares and cubes to is done.-E. E. R.

illustrate the lesson. There are mothers who can help the children with such il-Editor Household Department:-We lustrations without "causing confusion

I once heard a mother say to her boy, "I don't want to hear a word about your I am very much interested in Deborah's school. We pay the teacher and she must talks and seriously appreciate her views do the work." I thought how little that and nothing under the heading on bring- mother knew of what she was depriving her child, nor of what she was shutting out of her own life. Our children's school Oh, mothers, do we respect the rights work is more beneficial and many times of our children as we should do? Do we, much more illuminating to us than what We gained from our own school days.

It is certainly a deplorable sight (and we have all seen it innumerable times), for a little child who has already spent esponsible for our children's souls and five or six hours in a schoolroom, to sit what they are in future life. Do we real- at home with a wrinkled brow, poring ze that we can save them much trouble over a book or doing mechanical work, such as map drawing, etc. These ordeals should never be put upon growing children. It is criminal. But this pernicious habit whatever you do is sound and will stand has not the slightest relation to the "help" the wise mother gives to her Let your children do a great deal of child. I believe that many children, esthinking for themselves. When they come pecially boys, fail to gain much from their school work because of slowness of comprehension. A little tact on the part of the reading mother, (and no woman has a right to be a mother who does not read), would prepare the child's mind for a better comprehension of some difficult

A boy who disliked reading but loved out-of-door sports, was introduced to the heroes of Scott's poetry by his mother telling him the stories. When he came to these gallant warriors in his English work he met them as old friends.

A mother must keep in touch with her child's school work. She can never gain his respect so surely in any other way. I am told that there are some parents who do not even know what subjects how sorry they would all be if any harm their children are studying and, strange should come to them. And perhaps there as it might seem, have never even entered the child's schoolroom! This condition certainly does not exist in Michigan!

There are schools where girls receive credit for successfully baking a potato, and a boy for his skill in handling tools, but unfortunately these schools are not vet for the many. This system is solving the problem of what a real education is to the child, and when this system is common much of the mother's responsibility will be lifted. Until then the watchword of the mother must be, "Keep in touch with your child.-L. E. S.

A Plea for Plain Food.

Dear Editor:—When I read your article on "The Danger of Fads," in the Michi-gan Farmer, "I said "me too." I like the juicy steak and vegetables myself. I a spoonful of frozen pudding and a lettuce leaf, although these things are all right

Farmers' wives, and some other busy This trouble of home study for the women, find it impossible to follow the child is not, primarily, the fault of fashionable cookery recipes given in most cause the menus are not sufficiently nourishing and partly because of the great bread in star-shape with a cutter, if you have one, or by a paper pattern, saute capers, the next with chopped white of hard-boiled eggs, the next with chopped pickles, the next with chopped red pepper, and the last with the yolks of hardhave something that will take at least an would as soon have it mixed as served on

of lessons quickly, makes a good showing If one cares to spend a whole afternoon in all branches of school work, recites preparing a fancy dessert for some esvell and never needs help, is very seldom pecial occasion. I have no objection, but acquaintance who proved in time to be Deborah intimates, fads are a good thing a clever mathematician was always in if not carried to extremes. Let us take

We found a new use for the old feather I know a home where the early part beds. We took them to a place where of every evening is devoted to talking they were stitched across in rows on a over school problems. The children are machine and they now make excellent free to talk about what has troubled mattresses. The stitching prevents the them in the day's work. The daughter feathers from shifting about. They are of this family has never forgotten the soft and springy yet substantial enough

THE HAVEN

BY DORA H. STOCKMAN. There's a haven beside Life's ocean Whence clear, pure waters flow; Vines cling to a cozy cottage,
By the threshold sweet violets blow. And upon a well-worn hearthstone
Is kindled a flaming light That gleams in the growing darkness, Streaming out far into the night.

To the strong man battling, fainting,
That beacon light afar
Puts strength in the oar that's lagging,
Brings his boat safe over the bar.
And the lad, whose craft is pointed
Toward the wreckers' yellow fire,
Catching a ray from the fireside
Steers past her's trachbarous mire Steers past lust's treacherous mire.

Outside are dangerous derelicts
At the mercy of wind and wave:
No compass—rudderless—anchorless—

No guiding star to save.
The shore is lined with wreckage;
Splendid ships bleach on the strand
That lacked only the wings of woman's

And the lure of little hands.

Priestess of the sacred hearthstone, Forsake not your holy shrine! May the fires of your vestal virgins With their white lights ever shine; And they who toil on waters deep, Or drifting, widely roam, Shall return for peace and power To the blessed haven—home.

THE GOLD MINE AT HOME.

BY EDGAR WHITE.

"This is the limit, boys; I don't believe agin it another year. country where ye got an even chance."

A Missouri patriarch stood on the brow water that covered the lowlands for hundreds of acres. Near him stood four young men of the sturdy yeoman type. poorly clad, wistful and depressed. the vicious, wiggling stream which seem- risking it on his judgment of mankind. ed to sprawl all over the country like a his crop. Levees, barriers, ditches were victims into their eternal sleep, came the of the situation. burned. Then, like a sleeping sea mon- eyes ster, the river roused, shook itself and boiled all over the face of the earth.

bitter lesson, and, like the sailors on a made a complete drainage system, adesinking ship, it was every man for him- quate to handle any volume of water that Tom, the elder, took his allotment might come down from the north. from the bank and said he would go to the northwest and herd cattle. Bill, the representative of a Chicago syndicate ofnext, decided on Canada, of which coun- fered to pay \$50 an acre for the land em-try he had read wonders in the land- braced in the drainage scheme, and to boomer's richly lettered circulars. said he had heard much of the rich mines in the republic of Mexico, and the big wages paid there. The south for him.
"And ye, Zeke," inquired the old man.

son quietly. "Ye'll starve, lad."

Zeke was the patriarch's favorite son, all the lowlands. The valley of the Nile and the old man's eyes glistened at the was not more fertile. expression of devotion, but then a shade idity. He despised cowardice.

do something," he said.

"I'll take the money and do something,"

here.' The others looked at him in amused

"He means he'll catch fish," said Tom. "Or raise hogs for the hotel," suggested

"Maybe he'll build a boat and take ex-

"I'll certainly do something," said Zeke, who was not angered at the sarcastic allusions

Tom, Bill and Jim took transportation for their respective lands of opportunity. Zeke stayed at home and helped the old man straighten up things around the farm after the flood went down. It was a dreary scene. Half-starved cattle stood on the hills, and water-logged debris was scattered all over the lowlands. river, having done its worst, subsided into its banks and became little more than a creek.

When he had done what he could Zeke went to Winston and had a conference with a bank man there. The financier did not take much stock in the boy's representations.

"You can never do it, Zeke." he said our people are not ready for it by half a century."

"Then, let us buy up the land and do it ourselves," replied the boy; "if they don't want to improve they ought to sell their lands cheap."

"How much have you got?" asked the banker.

"One hundred dollars."

The man of money smiled.

"You don't want to go in?" asked the boy, not at all discouraged.

"No; count me out, Zeke."

The young man took the train and went to the city. There he purchased a new suit of clothes and a good hat. Then he hunted up some investors. One of these, a retired judge, became interested in the Having risen from poverty to story. wealth by his estimate of men and affairs, he saw the possibilities in the proposition. I'd be doing right by ye to make ye buck He authorized the young promoter to re-I'll divide fair turn home and take options on the botwhat's in the bank and let you try some tom land, agreeing to pay five dollars an acre in the event that a tract of 10,000 acres in one body could be secured. The of a hill gloomly surveying the muddy judge had traveled over the state and knew the land in question, and knew it to be the most productive in the west in the event it could be saved from overflows. The boy's scheme was exactly in was the second season in succession the line with his own way of doing things. crops with which they had toiled early He placed his check book at the earnest and late had gone down into the tide of young man's disposal to engineer the deal

Zeke went home, put on his old gar schoolboy's sketch of a volcano's output, ments and in a quiet way began talking The most fertile bottom lands in the with the farmers. He found many so disdate were at the mercy of a shallow couraged that they were almost willing stream which, with almost human spite, to give away their bottom land. He had seemed to burst forth with irrepressible no trouble whatever in securing options malignity just about the time when the on 10,000 acres. The whole deal was confarmer was whetting his scythe to garner summated inside of a week. The money was paid down within a month and the labor thrown away. Sam Humphrey's big deeds made out. Then it became known boys had toiled uncomplainingly year af- that something was in the wind. Bottom ter year against the annual disaster, and land took an upward tendency. It didn't the old man had finally thrown up his rise much, only a few dollars per acre, There was a curse on the land because the rumor was uncertain. The and the unfortunate who tilled it. Like backer of the enterprise made a trip to the dark-winged vampire that fanned its the land he had purchased and approved He advised his young soft warm breezes of spring and seduced friend to acquire an additional 10,000 the farmer into one more effort to realize acres further up stream and allow as the promise on nature's smiling face. The much as \$20 an acre for it, if necessary. birds sang hopefully, the sun came in Most of the land, however, was purchased gentle warmth and the buds gave off at half that figure. The next spring a their luxuriant perfume. The husband- big steam dredger was put to work at the man put his hand to the plow and toiled head of what was known as the drainage with might and main while the light estate, and then the farmers opened their

The dredger excavated two canals, one on each side of the stream, and laterals Experience had at last burned in its were made leading to these canals. This

While construction was under way a braced in the drainage scheme, and to Jim take up the dredging contract.

Zeke and his judicial partner refused the terms. They foresaw that the land when saved, would be worth from \$125 to \$150 an acre, and keep on advancing. It "I'll stay with you," said the youngest had been enriched by the floods of years, which carried all manner of fertilizing material and distributed it evenly over

Their dredging complete, the owners crossed his wrinkled face as he thought platted their land. The tract was too the resolution was perhaps born of tim- large to operate all of it themselves, and they undertook to rent portions to small "Better take your money and try to farmers under a guarantee against damage from overflows. The first season but few contracts of this sort were made, as returned the younger son, "but I'll do it the reputation of the valley was bad. But the spring floods of the next year made the test. The water was higher than had been known in a quarter of a century From end to end the great valley was flooded like an inland sea. Even the drainage estate was under water, but there it soon went down, and the growcursion parties over the farm," put in ing crops were not damaged. The gar-(Continued on page 463).

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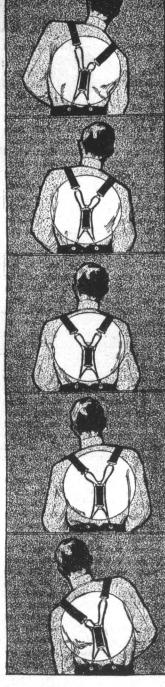
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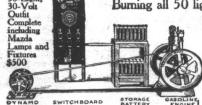
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THE BACHELOR UNC

BY EVERITT McNEIL.

Chapter XXVI.-The Woman in the Carriage.

Murdock's? Why had Elsie called out my name? What had Doctor Anderson meant by his enigmatic smile and hint of deceived; and I—I—" her voice choked. meant by his enigmatic smile and hint of I to do? What could I do? Should I go to Harry Rodney, and, backed by Red Murdock's confession, demand that he give up Elsie as the price of my silence? Should I wait until the hour of the wedding, and then and there denounce him? Should I go to Elsie Lamont herself, and force her to listen to me? Should I wait and depend on Belle Murdock's confession to save Elsie from that fatal marriage?-

I was lost in a cloud of uncertainties. I knew not what to do. If I went to Harry Rodney, it would only serve to the resolution of my imbecile perversity. warn him that I had escaped from the men he had sent to detain me; and he would defy me. If I waited until the wedding, that would mean a public had been a plaything of fate long enough. did not doubt for a moment, but what it I glanced at the clock on the mantel. It six hours left! and opened the door to go to the barn open the door I saw Jake driving into broke my heart, it broke my heart, the yard, and on the seat beside him sat John, a woman.

I stood stock-still where I was and stared at the woman. Jake drove on into the yard and stopped. Still I made no struck her a blow in the face; then her buggy. Jake jumped out and helped her a jerk, and I heard her foot come down to alight. I saw her hesitate an instant, her eyes turned in my direction, and then, with a slight squaring of her shoulders, she walked straight toward me.

Still I did not move, did not even take off my hat, or speak, or nod my head; but, standing in the middle of the doorway, I continued to stare at the woman until she stopped not six feet in front of

"John-Mr. Delvin-" Her voice broke. I—I—I beg "Elsie!-Miss Lamont! your pardon. Come in," and I stepped back into the house. I could hardly credit the evidence of my own eyes. Elsie Lamont, she who had had only scorn for me for two long dreary years, had sought me in my own house! What could it mean?

She stepped into the kitchen hesitatingly, with her eyes cast down, as if she feared to look me in the face. I stood stiffly and awkwardly by the door, still staring at her, tongue-tied and thought-

"Mr. Delvin, I must see you alone—at and drove you from my home as if you love of any good woman. falteringly.

"Come into the library, Miss Lamont," into the sitting-room, and on into the perversity still held me back. She had absolutely false and so basely vile. side of her, I did not even pause at the library door to wait for her to enter first, but strong on in allead, stopping, arter I compe with what if she had seen me telling it to you exactly as it then seemed had entered, to close the door behind us. treated me. What if she had seen me telling it to you exactly as it then seemed she had scorned and humiliated me often with Belle Murdock? Was there any to me; for it was your form that I saw, She had scorned and numinated me often with Bene Mardock. Was there any the was your form that I saw, enough; and now a mad boorish perverse- crime in that? Was the love of a man the very clothes were yours, it was your ness took possession of me and determined such a light thing that it could be thrown me to pay her back in manners of her off like a cloak and trampled in the dirt I heard; and I heard Belle Murdock call own coining; and yet, even while I stood beneath a woman's heel, without cause you over and over her 'dear, dear John,' thus stiffly and coldly before her, my love and without explanation? was singing joyously in my heart.

her cheeks glowing red, and her breath coming fast.

hardly above a whisper, but tense with feeling. "John Delvin, two long years you my most devoted love, and had yours hear every word, that I would have

ago I was made to believe that I saw you beneath the contempt of any good woman; and, now, this night, I have learned

I wondered if she were recalling the gagement and banished me from her home and heart; if she were thinking how she had refused to give me even a chance to vindicate myself; if she were considering the shame her scorn had heaped upon me before the eyes of friends and neighbors, even in the house of God; I wondered if the thought of these things came to her now, standing chokingly and penitently before me, as they did to me, biting, and stinging, and rankling like so many poisoned arrows, and hardening

"I could have told you all that two years ago, Miss Lamont, had you been willing to listen to me," I said coldly.

"I know-I know-I have treated you scandal of the most unsavory kind. If I shamefully, disgracefully, abominably. But went to Elsie Lamont—but Elsie was now I thought I knew. I had to believe my with Belle Murdock! Why not face her own eyes, my own ears. I thought I saw there, in the presence of Belle Murdock? you and Belle Murdock-Oh, how cruelly, That would be a mighty blow struck shamefully I was deceived! and how bitstraight at the baffling knot of the mys- terly I have wronged you! John Delvin, tery! I determined to strike that blow. I as God is my judge, I did not question, was you I saw on that night with Belle was four o'clock in the morning; and the Murdock. I-I would not have believed wedding was to take place at ten! But it, I could not have believed it, if I had There was no time to not seen with my own eyes, heard with waste. I would go at once. I hurried my own ears. In no other way could I into the kitchen, put on my coat and hat, have been made to believe you so unspeakably false and base; you whom I to get the horse I was to ride. As I swung had thought so noble and true; and it

"Soon to be mended again by Harry Rodney," I said cruelly.

She winced at the name, as if I had move, not even to assist her from the eyes flamed, and she straightened up with violently on the floor.
"Don't ever speak that man's name

again in my presence!" she exclaimed indignantly. "The cur! the coward! the dignantly. villain! the scoundrel! the-the-Oh, how I hate him! The arch-fiend. How I hate him! Hate him!" and down came her foot again on the floor, with a violence that made the bric-a-brac rattle.

"And yet you are to marry him at ten o'clock this morning!"

For a moment she stood like one stunned by a sudden blow or shock, and her face grew ashy white, and the strength went quickly from her body. "Merciful heaven it can not be. But it is true! It is true! What shall I do? Oh, what shall I do?" and she sank down limply into a chair. "Everything is all prepared! The guests will come! what shall I do? What shall I do?"

"Marry him, of course," I answered ruthlessly.

"Marry him!" She was on her feet again, her eyes flashing. "Marry him! the treacherous, lying, deceitful scoun-Never! Never! Oh, I—I—I—" she drel! I—I—" her face flushed, her head paused, searching in vain for words to I—I—" her face flushed, her head paused, searching in vain for words to I—I—" and she spoke hardly above voice her outraged feelings. "God forsank lower, and she spoke hardly above voice her outraged feelings. "God fora whisper. "I have come to tell you why give me, I did not know I could hate a I gave you back your ring and presents, man as I do him! He—he—it was he who made me think you vile, who robbed were unworthy of my love, unworthy the me of your love, who brought my wo-Will you lis- manhood to this scorn-Marry him! Nevten to me, Mr. Delvin?" and, for the first er!—Oh, what shall I do? John Delvin, time her eyes looked up into mine, but what shall I do?" and she sank back and I heard the words of love yousobbing into the chair.

I felt the words of that appeal go and I led the way through the kitchen, straight to my heart; but my obstinate all control of myself by an accusation so I did not offer to walk by the not yet given me any sufficint reasons never—" tempt with which she had ever after know now that it was not you; but I am

Strange how sensitive I had suddenly her again and again, and-" become? An hour ago and I would have What a perverse 1001 love will sometimes make of a man! The moment I been ready to have fallen on my knees Belle Murdock in my arms! I never need times make of a man! The moment I been ready to have fallen on my knees belle Murdock in my arms! I never need to be and begged Elsie to tell me why she had kissed her in my life! I shouted, again stood tremblingly before me, with the treated me so cruelly; and now, that she losing all control of myself. "I-" pride and scorn all gone out of her eyes, was here sobbing and penitent before me, it was I who was cruel and scornful, nursing my ungenerous wrath like an

given to me in return; and then, without cause known to me, I had that love flung back into my face, as if it were a vile thing that would soil a clean woman's hands. For two years I have sought for some explanation of that unwomanly and contemptuously cruel discarding of the do a thing so base and unworthy that most precious thing that an honest man What had been happening at Belle from that moment I looked on you as can give to any woman-his true love, and now-

So far Elsie had listened to me, her eyes fixed on my face and her breath coming in quick, sobbing gasps; but here, before I could have prevented her had manner in which she had broken our en- I been so minded, she flung herself down on her knees at my feet.

"Forgive me, John!" she cried. how I humble myself before you! I, only I, have been to blame! I should have known that you, a true man, could never have done so base a deed. I should have-

"Elsie!" and I bent quickly and caught her by her two arms, lifted her suddenly to her feet, and sat her down in the chair. "I want no kneeling to me; but I do want you to tell me what base thing you fancied you saw me doing, and what Belle Murdock and Harry Rodney had to do with it, and what Belle Murdock has told you this night. I have waited long; and now I must know. It is my and I stood before her, grimly demanding explanations, when I might have found an all sufficient explanation for the time being in Elsie's sweet presence, if I had but the sense to have looked for it there.

"I will tell you. I will tell you all," Elsie answered trembling, but her eyes looked bravely into mine. "All, John; and then you can drive me from your home, even as I drove you from mine, and scorn me, even as I scorned you; but wait, wait until you have learned how wickedly I was deceived and how humbly I seek your pardon for having so basely wronged your love. Oh, believe me, John, I did believe it was you, beyond a possibility of a doubt I believed it was you whom I saw pawning his love for the favor of-" She stopped for a moment, as if to gather courage, and I saw her grip her hands tightly together in front of her, and the red came surging back into her cheeks, but her eyes never once left my face, though they faltered and wavered many a time before the tale was told.

Chapter XXVII.-Belle Murdock's Confession,

"It is not an easy tale for a maiden's lips to tell, John," Elsie began, "and therefore, I will word it shortly and say it quickly. On a Saturday night, two years ago this very night, you told me of your love and asked me to be your wife; and I—I—" Her voice trembled, her face grew as red as twin roses, and she spoke so low that it was with difficulty my straining ears could catch her words. "And I, loving you very dearly, gave you my promise; and when I went from you that night, John, I was a very, very happy woman, for I wore in my heart womanhood's most precious jewelthe love of the man she loves. On the following night, in the early evening, only twenty-four hours later, I wandered down to the river bank, to the very spot beneath the great oak tree, where but twenty-four hours before you had told me of your love, to sit in the self-same place and dream of you, as a fond woman ever dreams of the man she loves; and-and there, beneath the same tree, on the same green mound of grass where we had sat I saw you, John Delvin, and held lovingly in your arms I saw Belle Murdock,

"That is a lie! An infernal lie!" I broke in for the moment stirred beyond

her 'dearest John,' and I saw you kiss

"That is a lie, a lie! I never held

"Hush! Do hush!" and again she raised her hands appealingly. "I now know that it was not you; but then, so ming fast.

"John Delvin!" she cried, her voice angry schoolboy.

"John Delvin!" she cried, her voice angry schoolboy.

"Miss Lamont," I said, "I once gave did I see their every act, so clearly did I near was I to the two lovers, so plainly



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sworn, John, that it was you, you whom I, too, began to get angry. If she and showered kisses on my lips!

"John Delvin, do you wonder that, when I stole away from that spot, all but I did not then know it. the might of my womanhood rose in arms against your baseness. Do you wonder knob. now at the manner of my breaking our engagement and returning to you your said coldly. presents? At my refusal to listen to you? At the contempt and scorn I have heaped ran into the arms of Ellen so violently upon you?

"For two long dreary miserable years I have honestly believed that it was you, John, beyond the smallest possible shadow of a doubt I have believed it was you; and, oh, how unhappy I have been, how nering time showed a yield unprecedented. desperately unhappy I have been!" There Wheat, hay, oats and corn thrived beyond was no mistaking the note of utter anguish in her voice. "Now, listen, John. Tonight, when Belle Murdock's message came it set my soul on fire. The moment I read it I thought of you, and of from the drainage estate in an overflow that scene on the river's bank I had witnessed two long years ago. What else could Belle Murdock have to tell me that concerned my life's happiness?

"When I entered her room her hollow black eyes lit up as with fire. "Thank God you have come!" she cried joyously. The nurse sat by the side of the bed. Doctor Anderson was standing near a little table. 'Go out of the room, both of you, at once,' she ordered. 'I must be alone with Miss Lamont, do you hear?' The nurse glanced at the doctor, he nodded, and both left the room. Then she 'Shut the door.' I closed the bedroom door. 'Come here.' I went and stood by the bedside. For a moment the black eyes flamed up into mine. 'You have been kind to me, you and John Del-Her eyes were burning into my soul. 'And I have wronged you both.' She struggled to a half-sitting posture. 'I am dying. Elsie, I am dying; but, before I die, I am going to right a great wrong and pull the mask off the biggest villain that walks the earth unhung. Elsie, and she caught hold of my hand and pulled me down close, until I could feel her hot breath in my face. *Elsie Lamont, that was not John Delvin who held me in his arms, who told me of his love, who kissed my lips on that night two years ago. It She stopped. Her whole frame ed. The hand that gripped mine quivered. burned. She drew her lips back from her teeth, like the lips of a snarling dog. 'It was that devil, Harry Rodney; and to murder me-murder me while I lay here 'I'll square accounts with him before I job to turn you from John Delvin. Harry Rodney, dressed in clothes like John Delvin's, face made up to look like John Delvin's, imitated John Delvin's voice-Oh. he would make a fine actor-and made love to me; and'-

"The cur!" I cried wrathfully, my and clenching and unclenching. "The hands clenching and unclenching. inferna! cur!" I saw it all, understood it all now. Harry Rodney had taken advantage of the close likeness his form and features bore to mine, and the wonderful skill of mimicry he was known to of their money with the banker who had making love to Belle Murdock for the esrecial benefit of Elsie Lamont. I have raise every time they came in with a roll full power of deadly murderous hate.

'John, need I-I say more?" and for the first time her eyes sank beneath my him the thrill that others did. "Only I would tell you again now you so greatly. I had to tell you this. that I have wronged you too deeply for there.

have him drive you home in the buggy," and I started for the door.

by me, her chin held high in the air.

in her demeanor to say a word; and then, elbow."

I saw with arms around Belle Murdock, going to begin to hand out chunks of ice pouring words of love into her willing again-well, she would not find me in a ears, and showering kisses on her respon- melting mood. I had played Mr. Humility sive lips; and only the night before you to her Miss Scornfulness for the last time. held me in your arms, and whis- If she rushed away from me now in a fit pered words of love in my ears, and of temper, heaven only knows for what! she could stay away for good.

Of course, I was acting like a fool,

Elsie paused with her hand on the door

"Very well, if you prefer to walk," 1

She flung the door open angrily-and that she knocked the child to the floor. (To be continued).

THE GOLD MINE AT HOME.

(Continued from page 461).

Wheat, hay, oats and corn thrived beyond all expectation. Zeke, on the judge's suggestion, rented a small store building in Clover Dale, a town in the valley, and there displayed specimens of the products There was the finest corn ever seen, large compact ears, white and yel-The other grain was shown in bins low. It was just like a country and trays. fair, and it attracted no end of talk. The farmers of the valley looked at these wonderful exhibits and then drove out to the drainage district to see how they were made possible on such land.

Photographs of the display were made and printed in folders. Next season the application for leases covered every foot of the drainage estate the owners cared to rent. Before that the farmers from up the valley became excited over drainage matters. They had observed the test and were satisfied. Zeke and the judge purchased the dredger that had saved their lands, hired its crew and took contracts for drainage work up the valley. Numerous drainage districts were organized and the dredger was contracted for five years

Meanwhile the revenue from the drainage estate was coming in bountifully. Zeke had written to his three wandering brothers, and the terms he offered were such as to bring them back on the first train. All of them had hard luck stories and were glad to get work back in the land they had discarded. It was the surprise of their lives to witness the general activity in the valley-the valley of desolation, they used to call it. There was plenty for them to do. The demand for mechanics, farm hands and laborers was far above the supply. The small tenants had to have houses. There was urgent keep me from telling you he has tried to call for men and teams for hauling and construction work. It was like a new dying in bed. But I have outwitted him country just thrown open to settlement. at last!' Her eyes flamed vindictively. The valley towns built up fast. Good roads and bridges were constructed, fine That love scene was all a put up homes dotted the hills, prosperity was in the very air

And all this was right at home! It was wonderful, this transformation,

The judge built a fine summer cottage overlooking this pleasant valley, where he entertained friends from the city. He had a motor car for land travel, and a gasoline launch to travel through the river and canals. Before land values had gone out of sight he had made additions to his holdings which placed him in the millionaire class. He and Zeke kept much possess, to play the part of John Delvin mistrusted the enterprise. It did them good to watch that banker's eyebrows been a very angry man many times, but of bills or a large draft to place in his never until that moment did I know the keeping. It pleased the banker to see his deposits increase, but somehow those made by the judge and Zeke didn't give

"The trouble with most of us is," said how deeply sorry I am that I wronged Zeke one day in explaining his philosophy, "that we think the farther the game the could not rest until you knew how I had bigger the bird, and rely too much upon come to treat you so-so shamefully, and what others tell us, rather than working how sorry I now am. I felt that it was along the lines of our individual judgdue your manhood and my womanhood ment. When we read big type announcefor you to know this at once; and I came ments of a happy country sixteen miles straight from Belle Murdock's sick bed the other side of Land's End we believe to you. Now, that I have told you all it's so because somebody we don't know that I came to tell, I will go; for I fear says so, and because it's hard to get Alaska and her gold mines are you ever to forgive me. Goodby," and very alluring for the reason that there's she arose hesitatingly to her feet.

"Wait, I—I— will call Jake, and get there, and when you are there you a long and arduous journey before you are likely to freeze to death while finding your gold mine. We become so enthused "Stop!" and Elsie drew herself up over those things, and the mystery of stiffly and haughtily. "I prefer to walk, them, that we can't see the bigger and Mr. Delvin. I will walk. I would not better paying gold mine right here at trouble you for the world," and she swept home. I never thought that opportunity was something that had to be chased For a moment I was too astounded by around the world. To the fellow with this sudden and unaccountable change eyes to see, it's generally standing at his



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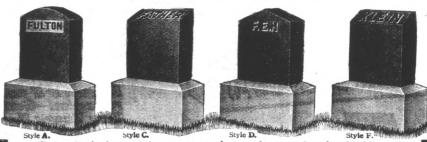
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