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\$1.00 A YEAR. \$2.75 5 YEARS.

SELECTING SEED GRAIN ON THE F

on twenty-five Minnesota farms, is, inplowing and preparing the seed bed. These two items, seed and soil preparain crop failure, or a very poor crop; is but little more than one-fourth of the total cost of the crop, yet in these two operations man's greatest influence and practically his only influence is exerted.

The two operations are charged with great potentialities in regulating the prospective crop and on this account are worthy of the most careful study

What Is Good Seed?

subject of this article, "Good Seed," is one of especial timeliness between now and seeding time. The term "good seed" may convey different ideas to different people. To the practical farmer, however, good seed means clean, pure, strong seed capable of germinating and producing a maximum crop of good quality. Plant breeders and seedsmen have done much to develop strains or varieties of seeds, of good quality and large productive power; and these seeds have done much to improve the yield and quality of the common field crops.

Seed Adapted to Conditions.

Experiments in getting seed from one locality, to sow in another locality, have very often proven unsatisfactory at the outset. This seems to be due to the fact that plants become adapted to the conditions under which they are grown; and that, other things being equal, they do and of good quality. better after they have become acclimated than when first introduced.

The law of the "Survival of the Fittest" is well known to all, and it is but natural to expect that when a great many indlvidual kernels of grain are sown in a field, some of them will prove better adapted to the peculiar conditions of soil and climate than will others. This being true, the kernels adapted to the local will have a more perfect growth and will mature better seed than

average cost of producing a the other kernels. It is likewise reason- as in the individual animals in a bunch tion some Turkey Red winter wheat was Plant Breeding.

seed or poor soil preparation may result he is trying to improve, in soil as nearly uniform as he can make it, then at harwhile good seed and good soil preparation vest time he selects such plants as have make possible the very best kind of a actually been able to produce the largest The total cost of these two items yields of the best quality and in this way

carefully gathered for six years and planted each year from plants that customed to selecting the best animals sown separately on adjoining plots. The above is exactly what the plant This is but natural, since the animals are heavy seed. which make up bushels or bins of grain.

Results From Selecting Seed Grain. Extensive experiments have been made

grain crop, as shown by statistics able to expect that if kernels are selected of cattle or hogs. We have become ac- graded and the heavy and light seed have shown their adaptability to local produced on the farm, and keeping them average yields in two years were 29.4 cluding land rent, \$8.10 per acre. Of this conditions by producing perfect plants for breeding purposes, while very little bushels per acre from heavy seed, and 93 cents was for seed and 1,36 for and seeds, some improvement will result, attention has been given to selecting the 24.8 bushels per acre from the light seed; best kernels of grain grown for seed. a gain of 4.6 bushels in favor of the A similar experiment with tion, are the two operations which have breeder does. He plants a large number large and noticeable, while kernels of heavy and light-weight oats of the same most to do with the yields. Either poor of kernels of some variety of grain that cereal crops are small and are seldom variety, gave an increase of 91/2 bushels considered as having any individuality per acre in favor of the heavy seed. but rather as the insignificant units Similar experiments conducted for a long series of years at the Ontario experiment station, at Guelph, show very marked increases in yield from heavy-weight seed of oats, barley and wheat,

Cleaning and Grading Grain.

It is manifestly impracticable to select, on the farm, either individual plants or individual kernels of grain, unless some rapid, easy way is provided to do it by machinery. The modern fanning mill, or seed cleaner and grader, if properly operated at the right time, will make a very satisfactory selection of grain. The practice of waiting until near seeding time to clean and grade grain is not usually advisable, because it generally results in so reducing the available stock of grain that there is but little to select from. On the other hand, if the selecting of seed grain is done earlier in the season, or while there is still plenty of grain available, a much more thorough selection is possible. Select Only a Small Per Cent for Seed.

If a grower producing 1,000 bushels of grain needs 100 bushels for seed and can select the best 100 bushels out of the 1,000 bushels it is evident that he will get pretty choice seed. By using a modern fanning mill or seed cleaner and grader, 100 bushels of the heaviest and plumpest seed may be selected from either 200 bushels or 1,000 bushels and good seed relative yielding power of heavy and light- as to make the use of poor seed seem What the plant-breeder does by his weight kernels; and the universal result ridiculous. But the advantage in quality will undoubtedly be with the lot selected plants, the farmer may do to a limited where the heavy, plump seed is sown. frm the 1,000 bushels. With a good mill, extent, by carefully selecting the best A cow in good condition will give birth two men can run through, by this process. kernels of seed from any crop produced to a stronger calf, and will give more at least 300 bushels of grain per day. If milk to nourish it, than will a cow in ten per cent of the best of this is graded a poor and weak condition. Correspond- out for seed, 30 bushels of seed will be A few moments study of a handful of ingly a plump, heavy kernel of grain will secured for the day's work. If their time grain, spread on a sheet of white paper, produce a stronger plant and nourish it is worth \$1.50 per day, each, the 30 bushwill convince the most skeptical that better than will a shrunken, light kernel els will cost for additional labor in cleanthere is quite as much variation in the The following results attest the above ing and grading, 10 cents per bushel. At the Nebraska experiment sta- Few people familiar with crop-growing



Light Oats (7.5 lbs.), Chaff (7.5 lbs.), Seed (5.5 lbs.), Market Grain (34.8 lbs.), Graded from 50 lbs.

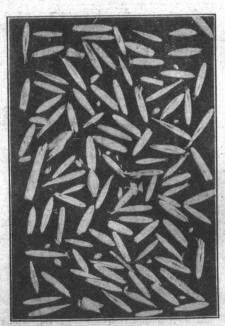
he is able to breed varieties of high yield at experiment stations to determine the secured, and secured at a cost so low,

on his farm.

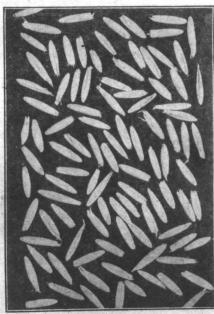
Individuality of Kernels of Grain.

individual kernels composing the handful

careful, painstaking study of individual has been a decided increase in yield fact:



Run of Oat Crop, Weighing 30 lbs. per bu.



Seed Oats, Weighing 38 lbs. per bu.



Market Oats, Weighing 34 lbs. per bu.



Tail Oats, Weighing 27 lbs. per bu.

Chatham

Grain Grader,

Cleaner, Separator

10 cents per bushel or from 12 to 20 and special crops. It is the part of wiscents per acre for this better seed is not dom for the practical farmer to try these a very good investment.

grader can separate grain; namely, by suited to the local conditions which obsize of kernel and by difference in weight. The mills best adapted to do the work of grading seed-grain use both principles. Big, plump kernels are desirable for seed, as they will give the young plants a more vigorous start in life, but the weight of the kernel in relation to its size is of equal, or perhaps even greater importance. There is absolutely nothing wasted by the process of close selection to get the choicest seed grain. The chaff and screenings are as valuable as when mixed with the grain. The seed includes the best seeds from the whole body of grain. The balance is as good for market or feed as before.

As illustrated in one of the cuts herewith, 50 pounds of grain were run thrugh a good mill, 51/2 pounds taken out for seed, 2.2 pounds of screenings and chaff removed, and the balance left in good condition for feed or for market. The original sample weighed 30 pounds per bushel; the selected seed, 38 pounds; and the market grain 34 pounds.

By selecting a small per cent of the grain grown, seed adapted to local soil conditions-also seed capable of producing and feeding strong plants-is secured and all ordinary weed-seeds and dirt removed. There is no better or safer way of securing good seed for the great bulk of the crops grown on the farm than by selecting it from the grain grown thereon. By this method and by experimenting with new or promising varieties on a smaller scale for a comparison of yield and quality, our grain crops may be bettered and the profit from our farms increased to a maximum degree.

BREEDERS.

Very much has been done in recent realized the painstaking effort which has seed itself. been put into the development of these productive strains of ordinary crops to ONE METHOD OF KEEPING SHRED. secure these results. A very good illustration of this kind of work can be seen at our own experiment station where large plats of alfalfa and timothy are growing for the purpose of selecting the best producing individual plants for fupropagation. Something of this work has been mentioned in these columns in recent years, but one must see the work itself to appreciate its importance.

A person who has not seen a plat of any kind of ordinary plants grown in check rows with a single plant in a place cannot realize the difference between the individual plants, which is manifest to the In alfalfa, for inordinary observer. stance, it has been found that there is a vast difference in the amount of both forage and seed produced by certain strains propagated from individual plants ding, thus securing their value as maselected for their adaptability to these purposes. Some of these plants are also found to be much more hardy than others, especially in their ability to survive the adverse weather conditions of winter, such as a covering of ice, or an exposure to severe winter without the protection of snow, and by work of this kind strains be especially adaptable to Michigan conditions

In like manner the work which is being done with timothy shows equally surprising results. Some individual plants grown in separate hills reach twice the height and have twice the foliage of other plants grown under exactly similar conditions. Even the casual observer can at once appreciate the fact that if seed were sown in an entire field which was equal or similar in quality to that which would be produced on the best of these would be secured.

What is there exemplified in the breeding of productive strains of these two plant breeders have been doing all along you can use it any time. the line in the way of producing high

will claim that this additional charge of yields and hardy strains of many staple new varieties or strains on a small scale at least, in order that he may profit by There are two principles by which a the work of these expert plant breeders modern fanning mill or seed cleaner and in every case where their product is well tain upon his farm.

Another example of what can be done in the way of such improvement is afforded by our sugar beet crop. For very many years the plant breeders of Germany have been working toward the improvement of sugar beets by the development of strains containing a high percentage of sugar. In carrying on this work the scientists go to the field and select individual beets of apparently exceptional characteristics. They take from the beet by a special instrument a small amount of juice for analysis. Those beets having the highest percentage of sugar and having other desirable characteristics are kept for the production of seed the following year. In this manner the average percentage of sugar in these best strains of sugar beets has been very materially increased in recent years, and our sugar beet industry has largely profited from this work because of the fact that improved seed is imported by the factories for planting in Michigan beet fields.

Many other examples could be cited to show what has been done along this line in the improvement of our common grains, particularly oats, in the improvement of which an English firm of plant breeders made an enviable name and a well earned fortune. Our American seedsmen have not been idle, in the meantime, but have by similar methods developed many improved varieties of seeds and plants which are available at a reasonable cost and with which every farmer should experiment on a large enough scale to enable him to compare the results obtained from these improved varieties of seeds and plants with those ob-IMPROVEMENT OF SEED BY PLANT tained from the ordinary varieties grown upon the farm or in the community for many years.

In this way the average yield of our years in the way of improving the yield farm crops may be largely increased from of staple crops by seed breeding and se- year to year by keeping pace with the lection on a scientific basis and an exten- advancement which has been made in the sive scale. Every farmer is well aware development of new varieties and strains of the fact that occasionally a new va- which can better endure hardships to riety of grain or potatoes is developed which they may be subjected, which are which gives a very much better yield more resistant of diseases which attack under identical conditions that the varie- so many of our crops and which, under ties which have been commonly grown favorable conditions, will produce largely upon the farms of the community. A increased yields at no greater cost of good many people, however, have not production, save in the small item of the

DED FODDER.

At this stage of advanced methods of farming can we afford to spend the extra days necessary to husk any large amount of corn by hand? Of course, if we can hire it husked by this method it makes matters somewhat different, but stillcauses much extra work, such as measuring and drawing corn, and time spent with the stalks.

Now as to the fodder question, why not handle the shredded stalks in the following manner: After shredding, if not convenient at the time, one can in a short time, mix the fodder with straw and you have as nice a mow of feed as it is possible to get outside of the silo, you also may use the waste stalks and straw to the best possible advantage as bednure, which can be handled much easier than when mixed with those long stalks found laying in the yards of the hand huskers. Again, your stock will eat all but the largest portion of the stalk.

The best way to mix, if not attended to at time of shredding, is by pitching fodder to sides, or in an adjoining mow, of alfalfa are being produced which will and use slings, dropping a sling load of fodder thrown down from the sides, or other mow, as the case may be, following this up until mow is made up of alternate layers of stalks and straw

This feed can be handled far easier and takes up but a small amount of barn room, as compared with stalks in the

Let some of our hand-huskers try this method. Next year when the corn is ready to husk, secure a machine and in a day or two you have a fine crib of plants, a much heavier yield of hay corn ready to use then and there, a mow of good roughage, also shelled corn for use until the ears in the crib are dry enough to shell, and, last but not least, forage plants is typical of the work which the knowledge that you have either where

Macomb Co.

Clean and Grade Your Seed Grain Free!

You just pick out, from my catalogue, whichever size of Chatham Grain Grader, Cleaner and Separator you want me to loan you and I'll promptly ship it, freight prepaid—free, I don't want any money! It's a real free trial. Clean and grade all your seed grain. Keep the machine a month, if you please. Then return machine at my expense or buy it

Manson Campbell, Father of the Chath-am System of Breed-ing Big Crops and Inventor of the Chatham Mill.

Low-Price Credit Offer My price is positively the lowest ever made on a reliable grain grader

and cleaner. Plenty of time to pay. Don't pay cash unless you want to. Wonderful Machine

The Chatham handles over 70 seed mixtures—wheat, oats, corn, barley, flax, clover, timothy, etc. Takes cockle, wild oats, tame oats, smut, etc., from seed wheat; any clover; sorts corn for drop planter. Removes foul weed seed and all shrunken, cracked or sickly grains. Takes out all dust, dirt and chaff. Handles up to 80 bushels per hour. Gas power or hand power. Easiest running mill on earth. Over 250,000 in use in U. S. and Canada.

Read These Letters
By Mark Havenhill, Pox. III.
"With my Chatham Mill I
found, saved and sold \$197.08
worth of timothy seed thrown
in my oats by the threshing
machine. What do you think
of that clean-up of good money!" of that clean-up of good money!

By H.O. Gilgore, Swayzee, Ind.

"Separated 162 bushels of wheat from 294 bushels of oats. Am not half done yet. Have already made enough to pay for the mill and am \$38.16 to the cood, besides."

A Wonderful Seed Corn Grader

Hundreds of farmers are buying the "Chatham" for its corn grading feature alone. At State agricultural colleges it has broken all records in sorting corn for drop planters. 98 hills out of every 100 received right number of grains. Where grains were sorted by other means, only 60 out of 100 hills were right.

Oet my famous low-price-buy-on-time proposition and my hig book, "The Chatham System of Breed-ing Big Crops." All comes free. Then, say which Chatham Mill and Bagger you want and I'll loan it to you. I pledge my word that your only expense attached to this loan is the 2c stamp which carries me your letter. Now is the time to clean and grade seed grain, so write me today.

Write Me Today

Manson Campbell Co.



If it is a binder that performs every duty in the correct manner, and at the right time, and does not have one unnecessary piece on it, then the JOHNSTON "CONTI-NENTAL" BINDER is your ideal.

This name-JOHNSTON-on farm machines has stood for Quality throughout the entire development of modern implements. It carries with it a guarantee of strength, endurance, capacity, simplicity, service—all summed up in the one word-Efficiency.



constitute a complete line of farm implements every one of which is built from the farmer's point of view. We sacrifice nothing to maintain our present supreme position among farm machine builders, but we are strong on simplicity.

In the JOHNSTON "CONTINENTAL" BINDER are more

the farmer than in any other make. It is a common thing to see a user of a "Continental" "preaching" its virtues to his neighbors. The one piece steel frame, dust-proof steel roller bearings, steel angle cutter-bar, easy control of all parts, extra quality canvas, the tying mechanism and trip in the "Continental" make up the binder that surpasses all others. NOT Get acquainted with a "Johnston." Write today for free catalog. A postal will do.

The question of the most profitable fertilizer for potatoes has been the subject of very extended investigations.

The conclusion is that 1000 lbs. per acre of ammonia, 8% phosphoric acid and 10%

for early potatoes and 800 lbs. of 3-6-8 for most profitable under average conditions. The Potash should be in the form of Sulfate.

Many growers use double these amounts. Such brands can be had if you insist upon them. Do not accept so-called potato fertilizers of low grade.

Write us for Potash prices and for Free books with formulas and directions.

GERMAN KALI WORKS, Inc. Continental Bldg., Baltimore Monadnock Block, Chicago Whitney Central Bank Building, New Orleans



FARM NOTES.

Alfalfa on Heavy Land.

I am thinking of seeding an acre to alfalfa this spring. My land is rough and heavy, and I understand alfalfa will not thrive where there is a stiff clay or hardpan sub-soil. Will you kindly answer this question through The Farmer?

Allegan Co.

A. A. K.

It has been thoroughly demonstrated that alfalfa will grow on a heavy clay soil, or one with a heavy clay or hardpan subsoil, providing the land is properly tile drained. The one thing that it will not endure is a soil that is filled with water for any considerable length of time. The writer knows of one piece of alfalfa that was sown on a soil having a hardpan subsoil about twenty inches below the surface. This was so hard that a pick had to be used in digging the trenches for tile draining. There is, however, a perfect stand of alfalfa on this field, which produced three crops last year, although it was so wet that the last crop which was probably the best one of the three, could not be harvested and the hogs were turned in to pasture it down. Alfalfa has demonstrated its adaptability to a great variety of soils, but good drainage, either natural or artificial, is one essential to success with the crop.

Potato Scab.

Will potatoes planted on open ground that has been covered with manure, be any more liable to be scabby than if planted on sod ground that has been covered with manure?

Charlevoix Co. Subscriber.

The cause of potato scab is a fungus, spores of which are either upon the seed planted or in the ground in which they are planted. Thus, if potatoes are planted after potatoes in the crop rotation, scab is more likely to be prevalent. The application of stable manure is thought to increase the likelihood of scab, although if it is applied early in the season, during the winter or in early spring, this is not apt to promote scab to any great extent. There would probably be no difference in this respect between sod and other ground, providing the other ground had been in potatoes more recently than the sod. A good clover sod is, however, the best possible place for potatoes, and when available will give better results than will soil which has been cropped one or more years after plowing down sod. Sod also makes the better place to apply stable manure as the plant nutrients contained therein are held in an available condition by the grass roots as these nutrients are washed into the soil by the spring rans.

The Fertilizing Value of Wood Ashes.

Will you kindly advise me through your paper what I should pay for leached and unleached wood ashes? Also kindly give me the relative value of each, (chemically). I expect to haul them from a place which is about ten minutes drive from my farm, so if you can give me an idea of what they should be worth at the plant, I will thank you very kindly. Ohio.

E. C. R.

Wood ashes, when unleached, contain from four to seven per cent potash in one of the most available forms for the use of plants. Leached ashes contain but cne to two per cent of potash. Softwood ashes are also much lower in their content of potash than hardwood ashes. Hardwood ashes also contain about two per cent phosphoric acid and 32 per cent lime. At the Illinois Station the value of the fertilizing ingredient in unleached wood ashes has been computed at \$7.20 per ton. This, however, does not take into account the full value of the lime contained in the ashes, and in case the soil is in an acid condition or low in its content of lime they will be still more valuable as a fertilizer.

Fertilizing Value of Coal Ashes.

I would like to know if there is any value in hard coal ashes, on sandy land or around currant bushes; also the value of soft coal ashes.

Cheboygan Co.

G. R. H.

Coal ashes contain very little available plant food, so small an amount that it is of no consequence as a fertilizer. only value that they could have would be

oduced on heavy

Plowing Under Refuse Beets.

Will it injure a heavy clay loam soil to plow under beets next spring which have been rejected by the factories? E. J. S. Gratiot Co.

There would probably be no injury at all to a clay loam soil in plowing under even a heavy crop of beets. The only possible danger would be in producing an acid condition, which would not be likely in a loamy soil with reasonably good drainage and aeration. Even if such an effect were produced, a light application of lime would remedy it. But this will be adding considerable vegetable matter to the soil which will be conGrow BIG Crops of Corn!

> It is as easy to grow big money making crops of good corn

with AACCo. Fertilizers

as it is to grow ordinary crops of small ears with inferior fertilizers. It costs no more for seed, planting or cultivation. Farmers should take no chances as to the fertilizers they apply. The aim should be to get out of the soil all that it can yield. Every bushel raised in excess of the usual production means that much gained, and gives the farmer a great advantage.

IJ. S. Department of Agriculture

Farmers' Bulletin No. 308, among other things, says that the best farmers have a better understanding of the value and use of commercial fertilizers in growing large crops of superior quality. Also that the importance of taking into consideration all the factors which influence the use of fertilizers can hardly be overestimated. A plant must have all the essential fertilizer constituents present in available form or its growth will be hindered in proportion to the deficiency of the lacking constituent.

The above statement shows the importance of using commercial fertilizers, which are one of the chief needs of modern farming.

How to Fight Drought with Fertility.

Write us for booklet on fertilizers. We will also send you pamphlet "How to Fight Drought with Fertility and Why the Richness of Soil makes up for Lack of Moisture" by John A. Widtsoe, Ph. D. Every farmer will be interested in this article.

Where we have no agents will sell direct a bag, a ton or a carload. Write for our agency proposition.

THE AMERICAN AGRICULTURAL CHEMICAL CO. Detroit Sales Department, Detroit, Michigan

From a Photograph showing ears taken from a crop of corn estimated to yield 80 bush, per acre

Largest manufacturers of high grade fertilizers in the world.

Everybody can have one if they desire—and why not? A FURNACE THAT IS A FURNACE goes farther toward making a Country Home really ideal than anything else. Our "NE FURNACE" is the most practical, convenient and economical of any heater ever built.

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simply as a part of our advertising plan to get them thoroughly introduced—on our "co-operative selling plan." This applies to the first purchaser who likes it and will recommend it to others. You have the opportunity—now. Write us at once for full particulars, plans and catalogue, mentioning this Paper and your Dealer's name and address. All our Furnaces, Ranges, Stoves and Heaters are sold on our positive guarantee.

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power Cyclone Tile Ditching Machine cuts tile ditch, 10 in ches wide, 24 inches deep, at rate of 300 rods a day. Finished ditch cut, tile laid and covered, for 3 or 4 cents a rod in average soll. Read our free book giving information, rom U.S. Govt. authorities on Drainage

Cyclone Tile Ditching Machine

pays for itself in first 20 to 40 acres you drain, according to specify of latery of pays for itself in first 20 to 40 acres you drain, according to spacing of laterals. Increased crops all profit. Make hundreds of dollars on your own ditching, and cutting ditches for neighbors. Anyone who can plow can opererate successfully. Write for free book showing, The Money Making Way of Draining Land.

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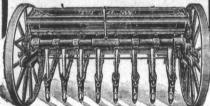
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You'll be a delighted customer if you buy this Greencastle Grain Drill, or we'll have to take machine back and pay freight both ways. There's no other way out of it—we've put up a \$10,000.00 legal bond with our bankers to refund all your money it this Drill isn't exactly what we say it is—we would not—dare not—dispute your word after you've tried the Greencastle. Tryit 30 days free atour risk—sow all your seed—and if the

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does not more than satisfy you, ship it back and we'll return your money in full—or forfeit \$10.000.00. We know that this Drill is perfect—will sow grain, seed or fertilizer accurately and stand up to its work in any soll—that's why we guarantee it one year and let you try it one full month free. We sell direct from factory—save you \$20 to \$30 dealer's profits. Write for booklet, copy of guarantee and \$10,000.00 bond. If you answer this right away we will make you special price offer to introduce this drill in your locality.

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Are You Robbing Your Children? If your method of farming is such that you will leave to your children an impoverished soil you

have failed in your duty to them.

Leave Them a Fertile Farm.

Deep plowing will make available the abundant potash in the subsoil.

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You Must Buy Phosphorus In some form and the only economical way is to buy it in the form of finely ground phosphate rock. The best is the cheapest, and can be had from us Ourgoods pulverized to fineness 95% passes 100

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Cute faster and better. The only cutter with ball-bearings. Easiest running; cuts crisp and fine; knives of the best tool steel; every part interchangeable; pays for itself in 3 months. Hens fed green bone lay twice of many eggs, are healthier. SEMS FOR FREE BOOK about Adam Bone Cutterse (hand or power.) Porfect Poultry Leg Bands, and other specialities. Wm. E. Pratt Mig. Co., Roem 145, 35 W. Lake St., Chicago, Ill.

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SPORICIDE Sure cure for in oats. Guar. SMUT of 4,402.5 pounds per a treated check plot pro SPORICIDE CHEMICAL CO., Atlanta, N. Y \$2.215.5 pounds of hay.

verted into humus to its benefit which would be of sufficient advantage to more than overcome any possible danger of producing acidity.

- ANOTHER VIEW OF THE ROAD QUESTION.

The good roads question seems to have taken its place as an important issue, especially at this time, when the county road system has been placed before the people, to be accepted, as the step required to place the road system on a satisfactory basis. But it is not evident to me where we are going to be any better off. I fail to see where the county road system proposes to correct any of the evils, which we have borne under the township system.

In the township of Chester, Eaton county, we were under the latter system two years, with a highway commissioner and one overseer. Complaint and dissatisfaction were everywhere evident, with a result that the township was divided into 31 road districts, with an overseer each, at the "town meeting" last spring, and I think I am safe in saying that a very large majority are well satisfied with the work done the following summer.

But what was wrong with the township road system? The road work was applied mostly on the main roads, the by-roads receiving very little, if any, attention; too many miles of road for a highway commissioner and one overseer to look after; difficulty in securing help when needed; the impossibility of doing the road work at the time of year when it should be done. The work must cover the whole summer season, where under the district system the work was done all over the township at about the same time, and during a time when those who wished to work out their road tax were not too busy to respond.

Is there one objection named which the county road system proposes to correct? Let us see what is being done where the county system is now in effect. Trunk roads are being laid out connecting cities and towns. These roads in some cases traverse two or more counties, one county taking up the road at the intersection of the adjoining county. These roads are to be built and maintained in a high state of efficiency by the county taxpayers.

I wish to ask you, Mr. Farmer, if these

special roads are being built for the best interest of the people whose money goes into their construction, where only a comparative few can hope to see them once a year?

Who are the promotors of an enterprise pushing a system of roads, state-wide, from town to town? Not the average farmer, whose business seldom carries him beyond his nearby trading point.

A majority would have to haul produce, o market, at least part of the way, over roads considered as by-ways under the proposed system, and the poorest roads would have to be considered in loading for market.

How about the rural mail service, while these proposed routes are being construct-The cross roads would soon become next to impassable, as some are already becoming, and something would have to be done.

There are objections to the district system, I will admit, but our roads were steadily improving under it, and were in as good a state of repair as the average of our farms.

I believe in raising sufficient tax money for the extension of permanent improvement on our highways at large, but I am not in favor of applying it on a few selected miles, which the rest of the system runs down. We need home control of our home interests, and should think carefully before voting it away to a county road system, thereby placing our interests into someone elses keeping.

Eaton Co. E. J. LOVELAND.

GRASS EXPERIMENTS.

The Department of Agriculture has received a report from the Virginia Experiment Station of some tests with grasses It was found that orchard grass and clover mixed averaged 2,460 pounds per acre in yield of hay as compared with 1,575 from orchard grass alone. Timothy redtop and clover mixed yielded 5,440 pounds as compared with 4,460 pounds of timothy and redtop, 3,307 pounds of redtop alone, and 3,857 pounds of timothy alone.

An application of one ton of burnt lime and 300 pounds of nitrate of soda per acre was followed by an average hay yield of 4,402.5 pounds per acre, while an untreated check plot produced a yield of



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SUCCEEDING WITH SPRING PIGS.

by practice, providing one has the correct ideas in mind as to what is necessary to insure success. The experienced Ones," the dear experiences in the past when the losses were heavy.

One of the first things to do is to pre-The time can be correctly figured from feed is put into it. . the service record book. A man who does not keep a record of his transactions in the breeding line, is not deserving of success, for he is doing business in a slipshod manner. If the date of service is known, one can confidently expect the pigs in just sixteen weeks, or 112 days.

crevices through which cold air can come into the nest. However much pure air liked the appointment. I made it my may be considered essential for the health business in the summer to see that they of animals generally, this is a time when no draughts of cold air should be allowed to come into the pen where young pigs are expected during cold weather.

If there is considerable space above the nest, put in a false covering just above where the sow's back will reach when she is standing, to prevent cold air from coming down from above. Here is where many miscalculate and do not seem to know why they lose their pigs. If the days. pen is large some false partitions should be set up beside the nest toward the inner part of the pen to exclude the cold A little extra trouble will be well repaid by success in saving the pigs.

When the sow is first put in the farrowing pen, a liberal amount of dry straw can be put in to make the nest. After she has packed the nest well, the wet and coarse straw should be removed just before the pigs are expected, as they will get entangled in coarse straw and might get stepped on. There should not be anything to hinder the pigs from getsoon after they arrive. If the nest is warm and there is no obstruction in their way they usually get around and take time after they arrive.

by some, is not required.

at a time. A large feeding of either grain come them and attend to their welfare. or sloppy feed is likely to bring on sick- No farmer in England or Scotlan ness and stupidity which may cause the would think of raising sheep withou loss of some of the pigs. The amount raising every year a field of turnips for of feed can be increased gradually, but part of their winter food. Some of the she should not be given full feedings for turnips are "lifted" or pulled, and stored, at least a week or ten days.

appreciate the importance of being cau- as they want. It is said that the sheep throwing to a sow after pigs were three clean. It should be remembered, howdition which followed caused the loss of states of America. In Pennsylvania the a part of the litter. To a breeder of turnips left in the ground would get pure-bred hogs such experiments are too frozen so hard before they were all in costly to be repeated very often.

When the sow has farrowed, and the gnawing for the "woolies." life of a majority of the pigs saved, the

battle is not wholly won; there are many difficulties to avoid during the first month or six weeks. The pens should be cleaned often and all soiled bedding removed at least once a day, as filth is poison to the young pigs. While the pigs should have an abundance of pure air they should not One cannot meet with success in the be exposed to draughts of damp, or cold pig breeding business, unless they know air. They should be given a chance for how to manage with the sow at farrowing exercise. Do not let them get the habit time, and how to save a large percentage of getting under the bedding and remain. of the pigs. Proficiency can be attained ing there much of the time during the day. If the bed is coarse straw, take it out and use the fine straw. By the time the pigs are three weeks old begin to feed breeder will keep in mind the first words them by themselves on some dainty feeds, of the old song, "Never Forget the Dear given warm, in which there is a little wheat bran and a little molasses. Such feeds will be a mild laxative and prevent the conditions which produce thumps. See pare the pen for the sow at least a week that the little trough in which the pigs or ten days before the pigs are expected, are fed is clean each time before any

N. A. CLAPP. Wayne Co.

EARLY EXPERIENCE IN RAISING SHEEP.

My father usually kept about 100 sheep, which was considered to be as many as There is rarely but little variation from could be safely kept in one flock without creating disease. It is well known that Care should be taken that the sides of sheep can be kept in too large flocks to the pen are tight, and that there are no preserve good health. As soon as old enough I was installed as shepherd, and were in the pasture every morning, salt them, and count them. When the ewes had lambs, I fed them potatoes, turnips, and oats to increase their milk. If the feeding was done regularly, at the same hour, the sheep were sure to be on hand at the feeding place at that time. It is surprising how well animals can measure time without clocks or watches. stabled our sheep nights, and stormy

In the morning, when their appetites were keen, they were fed some kind of straw, which they ate as well as if it had been hay. They would eat buckwheat straw, the poorest of all straws. After they had eaten straw, we gave them hay. Like all other animals, they like a change of food. All animals kept on dry fodder in the winter have a craving for succulent, or moist food, and sheep especially need it to do their best. In the winter we fed our sheep potatoes and turnips and a little grain. Fed in this manner, the ewes were strong and yeaned, or ting around to the mother's udder very gave birth to strong lambs that did not have to be helped up to such, or be carried into the house to be warmed.

By keeping the ram shut up until the a stomach full of milk in a very short fore part of December, we formerly had our lambs yeaned in the fore part of May. By making the pen low, and small, and after the weather had become mild and fixing the nest in proper condition, the pleasant, and the sheep had been turned necessity for farther attention is pre- cut to pasture. The lambs came strong, vented. While it is a good plan to keep active, and happy as larks, and were watch to see if everything is progressing quite sure to live without trouble. That properly, the cases are few and far be- was before the urgent demand came for tween where the attendant's help is spring lambs to supply the butcher. Now, needed. Interfering, except in cases where in the eastern and middle states it is the sow is unable to deliver, usually does advisable to have them come earlier, so more harm than good. And farther, the that they may obtain greater size by the small and low pen is warmed by the time they are wanted most, and bring breath of the sow, the natural way, and the highest price. If a lamb at six the use of artificial heat, as recommended months old will bring twice as much as if a year old, it is the height of folly to Care should be exercised in feeding the keep it longer than six months, and the sow before farrowing the pigs. The part of wisdom to have it dropped in the amount of feed should be very moderate early spring. Of course, it is more trouand of such a kind as will put her in ble to have lambs come so early, as the very best condition. The ration ewes must have a warm stable and genshould contain a moderate percentage of erous feed, but it is trouble that supplies wheat bran, and a little old process oil a big remuneration. When the ram is meal can also be added to prevent con- placed with the ewes, his breast should be stipation and a fevered condition that "ruddled" (as the Scotch call it), or often leads a sow to eat her pigs. The smeared with red paint, so that it can be sow should not be called from the nest told where his attentions have been beto eat for several hours after the pigs stowed and a record kept so that the arrive, and when she is fed, only a small shepherd may know when the lambs are quantity of sloppy feed should be given to be expected, and be on hand to wel-

No farmer in England or Scotland to be fed in the stable, but most of them Mistakes are often made by increasing are left in the ground where they grew, the amount of grain feed too fast. I and the sheep turned in every day and have had hired men who did not seem to allowed to help themselves to as many tious about the amount of grain given, eat both the tops and bottoms, quite or four days old, six or eight ears of ever, that it does not freeze so hard in corn at one feeding, and the fevered con- England as in the northern and middle the field were eaten, it would make hard

The cost of pulling and storing turnips

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need not be great, as they can be pulled with great rapidity by a large springtooth harrow. Some farmers do not pick up their small potatoes at digging time, thinking it does not pay; ours are all picked up to be fed to sheep or cows.

My father had to quit raising sheep on account of the deer hunters and their hounds. There were two hunters in our vicinity, and one of them kept five hounds. At that time there was no law against driving deer into the river with hounds, and in the fall of the year nearly every day the hounds would be started on the hill south of my father's farm, and deer and hounds would come down through his fields and scare his sheep. The deer would purposely go out of its way to run through the sheep, thinking thereby to bother the dogs by making them lose the scent, which they did, but soon found it again. The sheep, half scared to death, would jump out of the field into the woods and divide up into small flocks and become quite wild. One time it took three of us nearly the whole day to hunt them up and get them back. These scares were so numerous and troublesome that my father had to sell his sheep.

Sheep raising was more profitable than dairying or poultry raising, wool was a cash article at 50 cents per pound, and quick sale. Butter was only 121/2 cents per pound, and eggs 10 cents per dozen, store trade.

Pennsylvania. J. W. INGHAM.

THE FALL COLT.

With the revival of horse breeding in Michigan, the question of the practicability of raising fall colts becomes an important one. There are, in the writer's opinion, some well defined advantages in raising fall colts. One of these is that the brood mare can be more easily laid off and given a rest during the winter season than during the rush of summer work, under which circumstances she will raise her colt more satisfactorily. Then, in the spring, soon after the foal is weaned, there will be the best of pasture to keep him growing from the start and, with some supplementary feeding as the pasture shortens, the first year of the colt's life will be a more prosperous one and he will be better started toward the maturing of a valuable animal.

Too often the spring colt is improperly fed during the first winter and does not make as good a growth during the first year of its life as is desirable. There is, however, a critical period in the first year's life of fall colts and that occurs between the time the colt is weaned and the peroid when pasture grass is available. At this period great care should be taken in the feeding of the colt in order that its growth be not stopped even temporarily as that will require time to overcome when the grass becomes available. Clover hay or alfalfa should be used as forage and a fairly liberal amount fed in connection with two to three pounds of oats per day and some bran, with a small allowance of roots, if possible, to add a little succulency to the ration, although these should be fed sparingly and with judgment, if at all. If a small portion of skim-milk is fed after the colt is weaned it will furnish a desirable amount of bone and muscle building material. It will also be palatable and will serve an excellent purpose in keeping the colt growing nicely during and after the weaning period. Care should be exercised, however, in feeding, to keep the pail from which it is fed sweet and clean and to remove same as soon as the milk has been drank.

Some authorities contend that the feeding of colts in this manner tends to induce the habit of "windsucking." which reason care should be taken in following the above advice implicitly. However, while it is possible to lay down general rules in the feeding of colts, no set rule can be followed, as there is such a difference in the individuality of difsense tience and alertness should be used and the best of feed should be supplied in sufficient quantities to keep the colt growing thriftily without overfeeding.

If the colt has trouble from teething, which makes it difficult for it to masticate the dry hard forage and grain, some steamed oats thickened with bran will prove appetizing and nourishing. Liberal feeding must be counterbalanced by an abundance of outdoor exercise regularly afforded, according to conditions of the weather and other circumstances. In fact, good "horse" sense is very essential in the feeding of celts. Oakland Co.

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we are talking of good horses, not the mediocre kind, and we are in position to sell this good kind at lesser figures than are demanded by some 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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FEEDING YOUNG CALVES.

the cow or the steer and stunt them side of the ledger. when they are only calves. I always try to give the calves a good start. For the first two or three weeks the young calf are two young tenant farmers close by should have nothing but new milk. It that I have been contrasting and who should be as warm as when it comes from the cow and it is very essential to feed the calf as many as four times a day. After the calf is as much as three weeks old they may be fed milk that is twelve or more hours old from which the cream has been taken, adding to this about four ounces of corn meal made into a thoroughly cooked mush at each meal, for strong hearty calves. Thus they may be fed two weeks more, changing to oat meal or wheat flour if the calf is inclined to the chores morning, noon and night, the scour. Some feeders add a few spoonfuls of linseed meal, which is a very is never a willing worker, being dissatgood plan.

heated to 90 or 95 degrees, this being the mush, or its equivalent, may be added as the calf increases in size and strength. At ten weeks old the calf should eat freely and at three months of age it may be gradually weaned from milk, and taught even up. to subsist on grass or hay and oats or other suitable grain.

During the summer it should be sheltered from the hot sun and rain by providing a shelter to which it may retire, and why it paid him to hire an extra well ventilated, and dry and clean and dark enough to keep out green head and other biting flies. When the autumn and grade of farm tools, mostly furnished comes on its rations should be increased with the farm. Both men are sober, and, as the grass fails good meadow hay upright citizens, yet one gains by mixing should be substituted, giving all it will a little brains with his work, and plans eat up clean. And when it is weaned see ahead. that it never suffers from the lack of

"If the calf is to be kept through the winter it should be kept in the warmest quarters possible and fed liberally with hay and grain and the best profits can be realized in the spring. Upon comparing debit and credit with your neighbor who has fed skim-milk alone and poor hay, you will find that the loss on his calf has gone in the shape of profit in yours.

Common sense must be used in rearing the cow or the steer just the same as it must be used in making a crop. Two or three months before the calf, or steer, as it might be called now, is put on the market it cannot be fed too liberally to attain the highest prices as beef.

This rule can be applied to the development of the cow. To make a good cow she must be fed well to bring early development of the cow. To make a good cow she must be fed well to bring early development and maturity. With this rule she will bring a perfect calf at the age of two years, which otherwise she will not.

Illinois. COY C. MCCUAN.

IT PAYS TO COUNT THE COST.

Western Wisconsin is discarding the light-weight horse for a more heavy draft

A good grade animal is worth about \$150, especially if a mare. Extra good teams are selling for \$500.

Three hundred dollars at six per cent, our legal rate, amounts to \$18 per year; \$30 may be added as depreciation, as our machinery is getting larger and larger

and a horse has to furnish more power than it did a few years ago and seldom any team now lasts more than ten years, if intensive farming is the aim. If horses are kept much longer it is for lighter work or for brood purposes.

I have kept a card system of accounts in addition to regular day book and ledger work.

Any animal on my hands for years past had its own card, and the notebooks tell me that all work teams have averaged \$178.62½ per annum for food. Some years much more, and several years less. Thus the total expense of keeping at the Billings sugar beet people are pulp feeding comprise. Montana's vine feeding operations."

There has been great irregularity this winter in the way steers of a middling class have sold, this being true of lots going between \$6 and \$7 per 100 lbs., and sales of "split" consignments as much as 25c apart. Country shippers frequently divide up their consignments, sending them to different commission firms.

Dealers in provisions report a poor southern demand for bacon, while the western demand for bacon, while the north and west butchers have been killing pigs for several weeks, and supplies from such sources have been cutting into the regular packers' trade to a serious extent.

226. apart.** Country shippers frequently divide up their consignments, sending them to different commission firms.

Dealers in provisions report a poor southern demand for hams and bacon is nothing to boast about. All over the north and west butchers have been cutting into the regular packers' trade to a serious extent.

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Dealers in provisions report a poor southern demand for hams and bacon is nothing to boast about. All over the north and west butchers have been killing pigs for several weeks, and supplies from such sources have been cutting into the regular packers' trade to a serious extent.

A large part of our new machinery now being paid.

requires either three or four horses, so every hour lost or every day the horses Many farmers make the mistake with are not used counts up fast on the wrong

My attention has been called to this matter at times in many ways, but there make another example to be used as an illustration. No. 2 is on an adjoining farm. Both use mares; both have large horses that have to be fed liberally. Both use four horses most of the time. No. 1 gets his team out by 7:00 a. m. on an average, and that, too, without extra time, work or fuss. He hires extra help to be with him in doing the chores, the teamster takes care of his own team only No. 2 keeps his teamster to help about horses awaiting a driver. His teamster isfied about the before and after work When the calf is four weeks old it need No. 1 often finds he is ahead of his work be fed but twice a day, giving warm milk and thus avoids those common rushes one sees on a farm. No. 2 now and then natural animal heat. From this on more lays off his team to use the help elsewhere and then it is a rush to catch up. No. 1, after paying his rent and running expenses, put \$200 in the bank. No. 2 has had to sell an extra brood sow to

Both milk ten cows, cultivate the same number of acres and in the spring of 1911 had the same number of head of stock. No. 1 can tell you what each product cost hand. No. 2 never kept any books that I know of. Both have the same number

Wisconsin. OLD AGRICULTURIST.

LIVE STOCK NOTES.

Such purchases of feeding lambs as have been made in recent weeks at the Chicago stock yards have been as a general rule for shipment to Michigan sheep districts. Little demand has existed, and most of the lambs on the feeder order have gone to slaughterers, with much too large a representation of half-fat stock. Without any doubt whatever, the consumption of mutton in this country is discouraged seriously by the inferior quality of much of the stock sent to market, and this applies to lambs and sheep alike. The demand has never centered so decidedly on lambs in the past as now, and where sheepmen are so fortunate as to be the owners of well-bred lambs that are growing well, they cannot make money any faster or more surely than by finishing them off in prime condition, taking care not to make them extremely heavy, for the demand is strongly for fat lambs of medium weight. These command all the time a big premium, being first to advance and last to sell off. The ewes coming to market are, as a rule, unusually poor in quality and sell so low as to make poor returns for their owners. In a recent interview, William Rea, the prominent sheepman and wool dealer of Montana, made the following statements:

as to make poor returns for their owners, In a recent interview, William Rea, the prominent sheepman and wool dealer of Montana, made the following statements: "An evidence of coming prosperity lies in the fact that Idaho and Utah sheepmen have been visiting us attempting to contract yearling ewes for delivery after shearing. The buyers whom I have met want 25,000 to 30,000 head, and wanted them enough to place a bid of \$3.75. Montana is winter feeding few sheep. Our firm is hay feeding about 27,000 head, but there is no assurity that they will come to market. Indeed, the market will have to show more hunger for supplies than at present if we don't hold them to shear and throw them on the range, with the rest of our flocks on the Montana ranges, which now number around 65,000 head. The sheep we are hay feeding and 10,000 head that the Billings sugar beet people are pulp feeding comprise Montana's ovine feeding operations."

less. Thus the total expense of keeping a team of grade draft horses is at least \$226.62.

The double harness, etc., is an investment of enough more to make the interest on total investment fully \$3.38 more so the annual cost is \$230, or 75 cents for each working day and at least that amount is lost when not at work.

My neighbor gets out his team about \$300 a. m. for field work when the teamster has to help about the chores. Most of the field work is more than one-half mile from the barn, making the actual field work not over eight hours any day, although the driver is up early and to bed late.

The total expense of keeping extent.

The regular packers' trade to a serious extent.

The regular packers' trade to a serious extent.

The regular packers' trade to a serious extent.

The double harness, etc., is an invest-work will stockmaters because of severe droughts. Wyoming stockmen have not fared so. Wyoming stockmen

Give Your Horses a Hair Cut



efore you put them at the spring work, ake off the winter coat that holds the et sweat and dirt. Clipped horses look etter, get more good from their feed, at better, feel better and do better work.

STEWART BALL BEARING MACHINE It turns easy, clips fast and stays sharp. Gears are all file hard and cut from the solid steel bar. They are enclosed, protected and run in oil; little friction, little wear. Has 6 feet of new style easy running flexible shaft and the celebrated Stewart sin-\$7.50 gle tension clipping head, highest grade. Price Get one from your dealer or send \$2 and we will shio C.O.D. for balance.

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And Mr. Wm. Booth, of Gravette, Ark., writes:

"And Mr. Wm. Booth, of Gravette, ark., writes."

"And Mr. with Booth, of Gravette, ark., writes."

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Biggest jack offering ever made. 90-day sale on 55 head of extra big registered Mammoth jacks at 60% of their value. Prices \$20, to \$1,200 each. I am importing 200 Percheron and Belgian mares and 80 stallions and must close out a lot of jacks to get money and make room. Write for catalog, photograph, description and price list.

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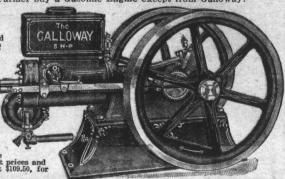
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Herd, consisting of Trojan Ericas, Blackbirds and cides, only, is headed by Egerton W. a Trojan Erica, Black Woodlawn, sire of the Grand Champion steer developed the Literational in Chicago, Dec., 1910. few choicely bred young bulls for sale.

WOODCOTE STOCK FARM, Ionia, Mich.

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

Quernsey Bull, 14 months old, Reg., F. C. Sackrider & Son, R. No. 5, Jackson, Mich.

For Sale—3 Registered Guernsey Bulls; 5 regis-tered large Yorkshire sows, bred. For prices write John Ebels, R. No. 10, Holland, Mich.

GUERNSEYS FOR SALE—Cows and the ifer calves. GEORGE MORLOCK, 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.

For Sale, Registered Guernsey Bull, six months old-GEO. W. REEVES, R. R. No. 2, Grand Rapids, Mich. HOLSTEIN BULL calf, sired by Grand Rapids, Mich. Butter Boy and from equally good dam. C. D. WOODBURY, Lansing, Mich.

HOLSTEINS-10 head choice high grade and pure bred heifers, all fresh in spring for \$650, 3 regis, bull calves at a bargain. B. B. Reavey, Akron, Mich.

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BULL CALVES—De Kol, Hengerveld and Korndyke strains. None better at the price. Few better at any price. Tabulated pedigrees and prices on request. COLE BROTHERS, Ypsiland Farms, Ypsilanti, Mich.

Two \$50 Bulls Two \$60 Bulls

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"Top-Notch" Holsteins.

A fine young bull from an Advanced Registry dam. Cornucopia Pietertje Prince No. 78954. Born Jan. 12, 1911.

SIRE—Willowbridge Bos "who is a grandson of Beauty Pietertie, who has an official record of 30.51 lbs. butter in 7 days and was the first 30-lb_cow of the breed to produce a 30-lb, daughter.

DAM—Abbie Wayne Cornucopia De Kol 2d, who has an official record as follows: Mik 1 day, 73.7 lbs.; milk, 7 days, 496.7 lbs.; butter, 7 days 19.85 lbs. She gave 11167 lbs. milk in 277 days at 4 years old and he calves were born just 11 months apart. Her dam has an official record of 16.23 lbs. butter in 7 days. He comes from large producers on both sides, is a good individual, of good size, nicely marked with more black than white. Price \$100.

MOPHERSON FARMS CO., Howell, Michigan.

Did Not Sell 20 Holstein Bulls in Nev. I Want to Finish the Job in December.

Send for my Dec. Announcement. Select a bull from it, order him QUICK. Several from A. R. O. dams, and sired by Johanna Concordia Champion, the only bull in service whose grand dams average 34.06 lbs. butter in 7 days. Also yearling heifers bred to him.

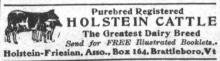
L. E. CONNELL, - Fayette, Ohio.

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.

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

FOR SALE

Young bull out of a 20-lb. A R. O. cow. Sire Ontario De Kol Burke—every entry in his pedi-gree has an official record. He is a grandson of De Kol Burke. This is a finely bred youngster. BIGELOW'S HOLSTEIN FARMS, Breedsville, Mich.



Holstein Herd Bull Vale Concordia De Kol Cornucopia on application. One yearling bull, 3 bull calves and 4 good cowe, bred to one of the best bulls in the State, T. H. JACKSON, IR. No. 3, SOUTH BEND, IND.

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A few high class boars from such champion boars as Orion Chief, Instructor, and King of Illinois. Also a few bred sows, Jersey bulls, cows and helfers.

BROOKWATER FARM, ANN ARBOR, MICH., R. F. D. 7.

Note the Dam Four generations in Register of Merit With Yearly Records.

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G. Sire—Golden Interest, sire of 8,
G. Sire—Marston's Interested Prince, sire of 5,
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G. G. Sire—Imported Interested Prince, sire of 18,
G. G. Sire—Rioter's Jersey Lad, sire of 22,
G. G. Sire—Thedas' Duke of Portage, sire of 12,
G. G. G. Sire—Tormento of Kawkawlin, sire of 16,

FEMALES

Dam-Marston's Farm 555-P, 590 lbs. 19 ozs. Est. Butter. (Highest semi-official record for a cow beginning her test under 2 years old.)
G. G. Dam-Martha Altama, 495 lbs. 14 ozs. butter. Dam of 2 in the R. of M. G. Dam-Jersey Lad's Myra, 506 lbs. 11 ozs. Est. Butter.
G. G. Dam-Impt. Grace Darling. Dam of one in the R. of M.

T. F. MARSTON, Bay City, Mich.

REGISTERED JERSEYS For Sale—Some combin, ing the blood of St Louis and Chicago World's Fair Champions by HERMAN HARMS, Reese, Mich.

JERSEY BULL CALF from a R. of M. cow. Cheap, considering the quality. C. A. TAGGETT, R. No. 1, Caro, Mich.

JERSEY BULL CALF for sale, born Feb. II, 1911.

Dam—and granddam also grandsire Register of Merit animals. A high class individual.

WATERMAN & WATERMAN, An Arbor, Mich.

Crystaf Springs Jerseys for Sale from testing cows. C. A. BRISTOL, R. No. 2, Featon, Mich.

FOR SALE—3 yearling Holstein-Friesian bulls, also F bred heifers \$150 to \$200 each. Bull calves \$40 to \$60 33 years a breeder. Photos and pedigrees on appli-cation. W. C. Jackson, South Bend, Ind., 719 Rex St

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

Lillie Farmstead JERSEYS

Cows all in yearly test. Several splendid Bull Calves. A few Heifers and Heifer Calves. I guar-antee satisfaction or money refunded. COLON C, LILLIE, Coopersville, Michigan

JERSEYS of the best breeding.

A few bull calves from cows making splendid records,

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RED POLLED—Choice lot of females any age, also some bull calves J, M. CHASE & SONS, Ionia, Michigan.

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A few young cows and heifers, bred for beef and
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Durocs and Victorias Elegant spring pigs, either sex, as good as the breed produces at living prices. M. T. STORY, R.F.D.48, Lowell, Mich.

Berkshires Weaned pigs \$15, two for \$25. Boars to Handsome Lee Jr., a Mich. State Fair Prize Winner \$25. Registered and transf tred. Express prepaid in lower Michigan. C. C. COREY, New Haven, Mich.

FOR SALE, BERKSHIRES—2 boars & 3 gilts farrowed in June Prince 3d & Marion King. A. A. PATTULLO, Deckerville, Mich.

MAKE the boy a stock breeder and keep him on the farm by giving him a Berkshire gilt bred for spring farrow. Buy one now, cheap. C. S. Bartlett, Pontiac, Mich.

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0. l. C. SWINE-Males weighing from 175 to 250 GEO. P. ANDREWS, Dansville, Ingham Co., Mich.

O. 1. C's A few tried sows to farrow in March, and cock birds. FRED NIOKEL Monroe, Mich.

DO YOU WANT A GOOD JERSEY BULL?

O. I. C. SWINE—My herd is chiefly descent of the Royal strain both males and females. Write for Live and Let Live price on pairs and trios, not akin.

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O. I. C'S -30 bred sows, headed by 3 herd boars. Some fine gilts of last March and April farrow, 300 to 350 bs. each. Also last fall pigs. Stock registered. OTTO B. SCHULZE, Nashville, Mich.

O. I. C.—Bred gilts by Champion boar, \$25 each, for January shipment C. J. THOMPSON, Rockford, Michigan.

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, Mariette, Mich.

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OUB Imp. Chester Whites and Tamworth swine won defer spring farrow of either breed that will please you in quality and price, Adams Bros., Litchfield, Mich.

Improved Chesters—Young breeders of March, April April

Duroc Jerseys for Sale Service Boars, Bred eithersex. Pairs not akin. M. A. BRAY, Okemos, Mich.

Duroc Jerseys for Sale—Boars and Gilts, also bred from State Fair winners. Prices reasonable. Write or call and see. R. G. Vivian, R.4. Monroe, Mich. DUROC JERSEY sows for sale, bred for March and April farrow. Have a fine lot of fall pigs either sex. Call or write Jno. McNicoll, R.1, North Star, Mich

FOR SALE-DUROC-JERSEY bred sows pigs and Shepherd Pups. Express prepaid. J. H. BANGHART, Lansing, Mich

DUROCS 40 high class bred 80WS at AUCTION, March 6, 1912.

Arrange to attend. Send for catalog.
J. C. BARNEY, Coldwater, Michigan.

ARGE TYPE P. C.—Largest in Michigan. Pigs sows. Weigh 160 to 175 lbs, at 4 months. My motto—"Not how cheap but how good." Will pay expenses of those who come and do not find what advertise. W. E. LIVINGSTON, Parma, Mich.

POLAND CHINAS—Either sex, all ages. Something good at a low price.
P. D. LONG, B. No, 8, Grand Rapids, Mich.

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

Butler's Big Type Poland-Chinas size, bone, quality, for everything in Poland Chinas. If you want a nice boar to head your herd, a brood sow or fall pig. Pairs not akin, or a reg. Jersey bull of any age write us. Our prices are very low. J. C. Butler, Portland, Mich. SPECIAL SALE on Poland China Boars, Sows' Bred and fall pigs. Also Dairy bred Shorthorn Bull Calves. ROBERT NEVE, Pierson, Mich.

Poland Chinas Bred from large type. Stock all ages, both sexes, at Farmer prices. W. J. HAGELSHAW, Augusta, Michigan

15 Poland China Sows bred for spring litters. Will ship c.o.d priced to sell. WM. WAFFLE, Coldwater, Mich.

POLAND CHINAS—Young sows bred for April farrow Extra good fall pigs, either sex L. W. BARNES & SON, Byron, Shiawassee Co., Mich

Poland Chinas—Gilts bred to a \$75 pig for April farrow. Also choice fall pigs. E. D. BISHOP, Route 38, Lake Odessa, Mich. Big Type P. C. Sows Bone Junior. A. WOOD & SON, Saline, Michigan.

For Sale—Mule Footed Hogs. Mr. Farmer get the mule footed hog and get rid of the cholera. I have a fine lot of them, all registered stock. Write me. R. J. GROVES, Davison, Mich.

M ULEFOOT HOGS FOR SALE. I am making list of all mule foot owners in U.S. Send your name now and get free printed matter. G. C. Kreglow, Ada, Ohio.

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

Lillie Farmstead YORKSHIRES.

Boars for spring service. A fewbred sows. Also sows bred for August and September farrow. Pairs and trios not akin. Satisfaction guaranteed.

COLON C. LILLIE, Coopersville, Mich.

CONDUCTED BY COLON C. LILLIE. HOW TO BUY DAIRY FOODS.

adoption of commercial by-product feed- as 500 pounds of ground cob in each ton, stuffs as a source of protein has greatly no knowledge of feeding stuffs whatever, because it is cheap in preference to a grain prices are making large profits. high-class product. It is not always ton price, which would be bad enough, but. nutrient that guides in the purchase. A much larger quantity of the ready mixed ulators are doing to assist in working out feeds, guaranteed to meet all conditions of feeding, are bought rather than those standard by-products which result for the always in harmony with the teaching of and which are much richer in digestible protein than the original grains, and serve to directly supplement the home-grown feeds. Not only is this much so, but the situation in many dairying communities shows that buyers are paying nearly as much for a ton of feedstuff that carries from 10 to 15 per cent of protein and much more of crude fiber, as they do for feeding materials containing 20 to 40 per cent of protein and a low percentage of crude fiber.

Feedstuffs of low protein and high fiber content are not always unwholesome, nor are they always unprofitable where winter roughage is scarce or high in price; however, they are sure to be made up, in large measure, from bulky by-products which could not be sold under thei: true names, but when skilfully mixed with more or less of the highly concentrated protein feeds, make mixtures that are both palatable and digestible. point is, however, that in buying such feeds, even when free from dangerous substances, the buyer obtains large quantities of substances, which he does not need to enable him to derive the maximum profit from his home-grown feeds. We make a mistake when we invest in these high-priced mixed feedstuffs when we already have on our farms an excess of a large proportion of the food nutrients which they contain.

The dairyman who wishes to buy a feeding material to supplement his home supply should first of all understand the general character of any material to which his attention is called and not depend upon the manufacturer or dealer for this information. A good dairy feed depends as much upon the quality of the grains and by-products as it does upon the amount of food nutrients it contains. All materials in a mixed feed should be of the best quality.

Owing to the high prices of oats and corn, together with the advice from the chemists of experiment stations, farmers have wasted a vast amount of money by much higher price per ton for manufaconly safe plan is to buy no feeds whose be correctly ascertained. Honest manufacturers are glad to impart this information and your experiment station will be glad to assist you in determining its accuracy.

of feedstuffs should have a knowledge her milking powers. of the percentages of protein and fat in information does an excess of highly indigestible fiber. It be looked for in grain feeds. is for this reason that buyers of dairy ingredient in order that it may be sold ents, chiefly consisting of starch and sug-

at grain prices when otherwise it would be unmarketable.

The surest way of detecting inferior ingredients in feedstuffs is by a microscopic study of the various mixtures. In this way an excess of oat-hulls, the presence of corn cobs, weed seeds and other ingredients may easily be ascertained Special examinations made of various On the farm where winter milk produc- feedstuffs in New York showed ten brands tion is given special attention, the buying of wheat by-products adulterated with of supplemental grain foods is one of the ground corn cob. Ground cob is not easmost important factors in determining ily detected by an untrained eye and in the profits from the business. It is the this way many buyers are paying grain largest item of expense. The general prices for a mixture that contains as high

Ground alfalfa is a prominent constitucomplicated the feeding problem, and ent of many mixed feeds. In some cases increased the danger of injuring the it is accompanied by cracked corn, ground animals by imporper methods of feed- oats and other feeding materials. In some ing. There are many brands of dairy brands nothing else but molasses and feeds on the market, varying in price common salt is present. Ground alfalfa common salt is present. Ground alfalfa from \$25 to \$40 per ton. Some are good is a valuable feedstuff; however, it canand some are bad. Many dairymen have not properly be classed as a grain food and sold at grain prices. Dealers who and are likely to buy an inferior brand buy alfalfa at hay prices and sell it at

From a study of the chemical composition of some of our popular brands of rather than kind or quality of mixed feeds one is greatly impressed with the grand work a few of the feed manipthe problem of conserving our natura resources; however, their efforts are not manufacture of oils, sugar and starch the good book. Because farmers waste large quantities of straw, cornstalks and weed seeds it does not necessarily follow that these philosophic gentlemen should be licensed to add such harmful substances as rice hulls, peanut and coffee shucks, corn cobs and weed seeds to their grain mixtures and sell them for sound grain prices. If the presence of such materials were clearly stated no charge of dishonesty could be made to hold against the manufacturer. In such cases the buy er would be to blame, because if he were willing to pay grain prices for such materials he himself would be responsible However, the bulk of these feeds are purchased by unsuspecting dairymen who are really least able to stand the financial

losses frequently entailed by their use.
Some of the molasses feeds now prominent in our markets would be excellent dairy feedstuffs if the materials were al ways of the best grade, but the writer lives within a few miles of several firms who buy elevator sweepings and by-products from breakfast food plants for from \$10 to \$14 per ton; after manipulating these waste feeds and giving them some high-sounding name they are sold to the consumer at prices approaching \$25 to \$30 Buckwheat hulls, a worthless feeding material, are now appearing in molasses feeds. The presence of a little sweetening to add palatability does not add any unusual or superlative propernor does it make up for the presence of inferior materials.

There are so many feeds of varying value on the market that the prudent buyer must now purchase them only on the basis of their real feeding value, always keeping in mind that a high-priced feed that is rich in digestible substances is a better investment than a cheaper feed that is made up of woody, indigestible, fibrous hulls and trash.

New York. W. MILTON KELLY.

WINTER FEEDING OF THE DAIRY cow.

In the winter season when grass, the selling their good grains and paying a natural food of the cow, is not available, she has greater difficulty in extracting a tured feeds that were less valuable. The full quantity of the different nourishing constituents of food, than when in pas chemical composition and origin cannot ture. Her digestive system is constructed to deal with bulky food, and she can get enough nourishment for maintenance on good hay alone, but the quantity to be consumed to supply her wants for the production of milk imposes such extra While it is very important that buyers work upon her as to tell seriously against

The dairy cow of today is to some extent an artificial animal, or milking manot always show their real character and chine, so to speak. Her lacteal system value. It is possible to make up a feed- is developed to a far greater extent than stuff by the use of hominy, oat-hulis, is natural, and if this extraordinary powcorn and cottonseed meal that appears er of long-continued milk production is to be of high value as measured by the to be encouraged and made the most of, percentages of protein and fat, that is food which is rich and easy of digestion really of inferior value because it contains must be given. Such food or foods has to

The importance of a sufficiency of alfoods should not rely entirely upon the buminoids or flesh-forming matter in the guarantees of protein and fat. One of the food of the milking cow cannot be overmost significant facts in this connection estimated. In the digestible portion of the is that a large number of feedstuffs now ration they ought to constitute about on the market are compounded for the cne-sixth of the whole, the other digestipurpose of mixing some cheap and bulky ble substance being carbohydrate ingredi-

What Salt Goes Into Your Butter?

THE better-flavored your butter is, the more you can get for it.

It takes good salt to bring out the flavor of butter and make it tasty.

So the salt you use is just as important to the quality of your butter as the cream

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(11)

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good separator is cheap; not because of a low first cost, but because it will last for years and save enough butterfat from the milk of four or five cows every year to pay for itself.

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You will find that they have phosphor bronze busnings—that the gears are spiral cut—are entirely protected from grit and milk, and at the same time are easily accessible.

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M. T. PHILLIPS, Pomeroy, Pa.

ar, the rest being oils or fat. When there is a sufficiency of albuminoids they can provide a surplus over the quantity re quired for building up the body, which goes towards milk-production. there is no surplus over the imperative wants of the system, then the milk secretion will diminish, and extra food that is not albuminoids will only result in the animal laying on fat.

Deficiency of albuminoids in the food of a milch cow may either result in the animal splitting up its own tissues to supply it, and thus become poor in condition, or the milk secretion falls off. A cow of any of the beef breeds, running at grass with her calf, gives only enough milk for her offspring, and is dry in a few months, and a milch cow will tend to the same end if the milk organs are not stimulated and sustained by suitable foods,

As to the necesary moisture, a quantity which hay will not provide, silage or roots should be fed to give succulence to the winter ration. In the judicious blending of the home-grown foods of the farm with purchased foods, lies the chief factor in the economical feeding of dairy

The diet should not be monotonous; occasional changes of food during the long winter are advantageous, but these changes must be affected gradually.

Mixtures of two or more concentrated foods are more serviceable and more economical than one alone. The amount of concentrated food should bear some relation to the quantity of milk yielded. Cows that are in full milk will receive, say 10 lbs. or 12 lbs. of properly compounded grain per day, while cows that are nearly dry will have their allowance proportionately reduced. The water supply should be adequate and of good qual-Feeding should be done regularly and quietly, and the animals should be fed in the same order at each meal, and they should have access to salt.

The food requirements are influenced by the temperature of the air. Dairy stables should be kept at a temperature of about 55 or 60 degrees F. Efficient ventilation, but with the avoidance of cold draughts, should be carefully attended to.

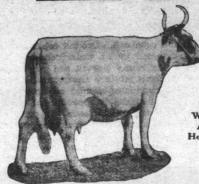
The palatability of the diet should be considered. Upon this largely depends the amount of food consumed, and with all ruminant animals those that eat most usually thrive best.

Both the quantity and quality of the cow's milk are dependent more upon her breeding or natural capacity than upon the food which she consumes, but liberal potential capacity will enhance her useful functions. The feeding, however, affects the quantity of her milk rather than the percentage of solids in it, and in this way good feeding increases the total

amount of butter or cheese produced. W. R. GILBERT.

MICHIGAN DAIRYMEN'S ASSOCIA-TION.

A fairly good attendance was present at the dairy meeting held at Kalamazoo last week, notwithstanding the snow storm which delayed train service throughout the state. A report of the meeting will appear in the columns of this department in the issue of next week



Netherhall Brownie IX. World's Record Ayrshire Cow Her Owner Uses a Tubular



Dairymen making the most money realize that it pays them well to use only high producing cows and the highest producing cream separator. That is why Mr. J. W. Clise, successful business dairyman of Redmond, Wash., who owns Netherhall Brownie IX., the world's record Ayrshire cow shown above, uses and recommends the

SHARPLES

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Mr. Clise is but one of many who are equally businesslike and use Tubulars exclusively. Tubulars are prize winners. Have twice the skimming force of other separators. Skim faster and twice as clean. Dairy Tubulars contain no disks to chop or "taint" the cream or give it a metallic flavor.

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This big broad offer is made to every farmer in the land, I don't care where you live or what Separator you compare mine with. If it doesn't prove equal to the best of the other makes, if it doesn't prove that it has special advantages not found in any other separator, if it doesn't skim as closely, as easily and give as perfect all around service as any other cream separator—if I don't save you from \$21.25 to \$45 on the deal—there will be no deal.

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WM. GALLOWAY, President, William Galloway Co., 643- KS Galloway Statles Waterloo, Iowa

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or more in every township, I believe, is the most liberal offer ever made on a Cream Separator in the history of the industry. If you are one of these ten or more men who answer this promptly my offer will save you \$21,25 to \$45.00. You can run one of my Bath-in-Oil Machines 30 to 90 days at my risk in competition with any other Separator. If you say "no" return Separator at my expense—you will not be out a penny.

Why Pay the Dealer \$21.25 To \$45 More? Of course the Dealer in your town may be a nice fellow, and it may be pleasant to have him greet you with a cheery "how-dy-do", when you go in his store. But how much are you really willing to pay him in cold, hard eash for his conversation? Is it worth \$21.25 to \$45 to you? Now you know full well that if I sold my Bath-in-Oil Separator through Dealers, you would have to pay much more for it, because you know the dealer is not in business for his health. He must have his fat profit, besides paying rent, clerk hire and all store expenses. Yet he wouldn't add one penny to the value of my Separator—not one single penny! Now, no Dealer can sell you a Galloway Separator, because I sell only direct from my factory at one small profit. By doing this and manufacturing in enormous quantities at lowest possible cost, isn't it just as plain as day why I can save you \$21.25 to \$45? Is there any reason on earth why you should not save money by buying direct from the Manufacturer?

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For pig feeding, it has been shown that 327 lbs. of milk are ed shown that 327 lbs. of milk are ed company, when the company the company, we have a company, which is the company, which is the company, which is the company of the company, which is the company of the company of

in regard to churning winter cream. will give my plan, which has proven very satisfactory with myself. Scalding milk is not necessary, only see that your cream is well ripened by setting it near the stove for at least two days before churning. Never try to churn cream less than two days old in winter.

When cream is thoroughly ripened add one teaspoonful of baking soda to each gallon of cream, then if you use dash churn set churn on stove over hot fire and proceed to churn. Never fill churn over one-half full of cream. When the cream is thoroughly mixed by churning and reaches the proper temperature it will turn to butter, usually in five to 15 minutes, then remove churn to cool place and finish gathering butter with dasher and leave stand for a while until cool enough to work.

If barrel, or any churn is used that cannot be set on stove, then regulate with thermometer to 72 degrees, stirring occasionally. Always add soda just as you begin churning.

Newaygo Co.

SELLING MILK VS. CREAM.

When a farmer is deciding whether to sell milk or cream he should always take into consideration his own special aim in farming; the transportation necessary in either case; any by-product, such as milk from the separator or whey from the factory; the fertility of his land, etc.

The uses for, and worth of, the separator milk should be compared with the whey he could bring home from a cheese factory; or the skim-milk should be added to the value of the cream when cream is compared to selling milk at a railroad station for city use.

Another farmer, to satisfy himself, weighed a day's milk, credited it with what he received for it at the factory and the whey he brought home, while he charged it with its extra labor, not common in any cream test, together with the cost of transportation. He then run the same quantity of milk through a separator, gave the cream credit for its cash product, and charged it with all labor extra, besides what was common to both tests and the same cost of transportation as in the milk test.

The difference was eight cents in favor of the milk but he had to wait for his money, while the cream was paid for on delivery.

Generally, not one farmer in twenty can tell you the truth in the matter. He will sell milk or cream because of certain conditions that may best suit him.

In the case I referred to the fertility of the land was not taken into consideration and the by-product, separator milk, was nto allowed its full worth a food in my opinion. The fertility the soil is a very important factor in the continuation of whichever way is taken to sell the milk. The debt to the soil contracted each year by the farmer must be paid Which selling method will allow the farmer to pay that debt? Who knows? Wisconsin. OLD AGRICULTURIST.

The value of skim-milk is greatly underestimated by the average farmer. It has a correspondingly increased value in a season like the present, when both grain feeds and forage are abnormally high. For pig feeding, it has been clearly shown that 327 lbs. of milk are equal to

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Furthermore, we will positively ship you the Economy Chief Cream Separator on sixty days' trial. Give it a good hard test on your farm for sixty days before you decide to keep it. Then if you don't think it the BEST EVER, simply send it back to us and it won't cost you a cent.

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Be sure to send your name and address at once-today—for the Economy Chief Booklet No. 75M75 and the full particulars of our great exchange offer and bargain prices. Postal card will do.

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The Lawrence Publishing Co.,

Detroit, Mich.

DETROIT, MACH 2, 1912.

CURRENT COMMENT.

manifested in the following lines: the United States. matter of building

permanent roads, and the system under which road improvement shall be carried on, some statistics recently made public the United States Office of Public Roads will be of at least passing interest to the reader. After an investigation covering several months, Director Page, of the above named office, has ascertained that there are now 2,199,645 miles of public roads in the United States. Of this total mileage of roads 8.66 per cent have been permanently improved in 1909, as compared with 7.14 per cent in 1904. Of such permanently improved roads, Indiana is given credit for the greatest mileage, or 24,955 miles. Ohio is second with 24,106 miles, while New York and Wisconsin follow with about half as much, with Kentucky, Illinois, California and Massachusetts next in the order named, the last named state having a total of 8,463 miles of improved roads.

The statistics given show movement for improved roads has been on the increase in the country in recent years, which fact reflects an increased sentiment in favor of building permanent roads throughout the country. When one man of 20, he would be 85 years old before the task would be completed.

It is, of course, obvious that all these roads could not be permanently improved in many generations, and all the farmers in the country could not be at once benefited by having the road adjacent to their farms improved. There is undoubtedly some justice in the contention that the large percentage of farmers who would not be so benefited should not be compelled to pay taxes for the improvement of such a percentage of roads as may be permanently improved within their lifetime. Still this is one of the public questions which must be decided from the standpoint of the greatest good taxpayers in the cities and villages whose of agricultural products are now pending erably by the nature of the seasons, the

will receive no direct benefit from the ex- Texas, the purpose of which is to prevent marks are periodically reached in the penditure. Yet what benefits a com- the dealing in "futures" of any farm pro- varying seasons. THE LAWRENCE PUBLISHING CO. munity or section as a whole is undoubt- duct. This bill is said to be drawn along edly an indirect benefit to all of the cit- the lines of the French law for this pur- of Michigan are vitally interested in the izens of that community or section of pose, and seeks to control the dealings in control of the soil water in the upper country, and good roads undoubtedly in- futures by making it a misdemeanor to strata of soil, and should use the means all contiguous to them.

> ingly burdensome, since the amount that can be levied in any one year is placed within reasonable limits by the law. Notwithstanding the apparent injustice to some property owners in this method of acceptance or delivery of such farm probuilding permanent roads it seems to be duct without specifying the grades to be the only practicable way of getting them delivered and without being obliged to within a reasonable time. It is, however, accept or deliver such product. Penalties a matter for the majority to decide when the proposition is referred to the people visions of the bill either by the sender of any county for approval, and whatever of the message or the transmitter of our personal views on the question, they same, whether by telegraph or telephone, must be subordinated to the will of the majority in accordance with the principles of our republican form of govern-known as House Resolution 19799. ment.

> system should in no case be allowed to Senator Hoke Smith, of Georgia, which interfere with the improvement of all provides for the establishment of a dithe roads of the townships within such vision in the bureau of statistics to be county in accordance with the ability of known as the Bureau of Markets. The the property owners who pay the local purpose of this division as proposed by taxes to so improve them. Without ques- the bill is to investigate the systems of tion, the neglect or indifference of the marketing farm products, co-operative people of many localities to notoriously and otherwise, in practice in various secbad road conditions has done much to tions of the United States and in foreign develop sentiment for the adoption of a countries. The information thus collected system under which there would be some is intended to be disseminated by means semblance of system to road improve- of bulletins, special agents of the bureau ment. For this reason, if for no other, or other means. In addition to this line the townships in which they live.

Agriculture.

country, the Illinois Bankers' Association has instituted a campaign having for its

primary object the stimulation of the agricultural industry of that sate and of the country. As a result of the suggestion of President Harris of that association Now that so much and the approval of the association, that Road improvement in interest is being body is working to this end along the First, to secure better agricultural or

farming methods. In addition to direct many practical problems with which they work through the office of the association, are confronted. a bill has been drawn and presented to congress providing for field demonstrations under the auspices of the Department of Agriculture, to be conducted throughout the country. In addition a conference of all bankers' associations of other states was called and the resolution prepared providing for a committee on agriculture which was adopted by the American Bankers' Association.

Second, to secure agricultural instruction in all country schools of the state. Prominent educators have been invited to meet with a committee of the association to draft a bill along this line for presentation to the legislature.

Third. To secure better roads in the state. In this matter the co-operation of United States, was undertaken, to deterhas been enlisted to secure better road that the laws for the state.

In aditdion to these lines of work having a direct relation to agriculture, this association has enlisted in an attempt to secure better banking laws for the state and secure state supervision for all banks. takes into consideration, however, the They have also enlisted in the promotion vast mileage of the public roads of the of sentiment for the enactment of legiscountry, the proposition becomes bewil- lation similar to the "blue sky" law of As illustrating this point, the Kansas, as a means of protecting innopress bulletin above referred to states cent investors from "get rick quick" that if a man were capable of covering schemers and their worthless securities, 90 miles per day continually, and started and last, but not least, among the objects out to traverse all these roads when a sought by this body is by publicity to ulcate among the citizens the state the desirability and necessity for habits of thrift and saving and sane investments.

This is mentioned, not alone because of the commendable nature of the work undertaken, but as well to illustrate the growing importance of agriculture in the business of the country, and the general recognition of the fact that it is the basic industry on which the prosperity of the country must rest by up-to-date business men and financiers.

Agriculture in Congress.

contract for the purchase or sale of cot- needed to rid the surface soil of an exton, grain or any other farm product for cess of moisture in wet seasons; and by acquires the right to demand the future varying seasons.

Another bill affecting the marketing of But the adoption of the county road farm products has been introduced by those who are opposed to the adoption of of work it is intended under the bill that the county system of road improve- this division will investigate the demand ment should take an active interest in the for farm products in the various centers, reasonable improvement of the roads in together with the normal supply and the price for same, with a view of furnishing reliable information regarding the best Realizing the im- available markets for such products. This Bankers Would Aid portant relation of is known as Senate Bill 5294.

agriculture to the The significant importance of these prosperity of the measures will be appreciated by every reader, and the propositions involved may well be made the subject of discussion and consideration at farmers' meetings throughout the state. The last mentioned bill in particular should be of far-reaching importance in furnishing accurate information which would be helpful to the quate solution of the marketing problem. which is one of the most important of the

> A press notice States United

Department of Agriculture treats of the relation between the ground water level and agriculture. After a discussion of the sources of water available to growing crops, in which that falling in the form of rain and that stored in the soil which is available through capillary attraction are mentioned, this document takes up the matter of the level of soil water in several states, among which is Michigan. It appears that through correspondence the various commercial clubs of the state mine the relative level of the ground

It appears that through correspondence a census of representative wells and springs, including every county in the United States, was undertaken, to determine the relative level of the ground water. In this manner it was ascertained that the mean water level in 794 Michigan wells lowered 2.2 feet during an average period of 18 years.

The rather remarkable conclusion reached from this investigation, as announced in the press report above referred to is that in country which has been settled for a quarter of a century or more there has been a decided lowering of the ground water level, "with, of course, a corresponding increase in the danger of crop loss through drought."

Many Michigan Farmer readers will doubtless be of the opinion that had these investigations been continued during the fall of 1911, these investigators would fall of 1911, these investigators would have found that the level of the "ground water" in Michigan was raised nearly as much during the wet period of two much during the storm had enabled the railroad companies to move considerable of the freight collected in yards during the long cold spell and to greatly relieve the demands being made upon coal dealers for fuel. months as it was lowered during the much longer period which is assumed to be covered by this investigation. Also, many will be in doubt as to the reliability of data touching the depth of the ground water as indicated by Michigan springs and wells for the period indicated. The many spring lakes in Michigan are, perhaps, as accurate an indication of the Two bills which have an haps, as accurate an indication of the important bearing on aglevel of the ground water in our state as riculture through their could be secured, and while the level of the marketing these bodies of water is affected considerable. The row pending erably by the nature of the seasons, the is the seventil week several we important bearing on ag- level of the ground water in our state as

taxes are increased by the improvement in congress. One of these is a bill intro- limits of such fluctuations are fairly con-

Be that as it may, however, the farmers crease the value of property which is at send or transmit any message offering to at hand to this end by tile drainage where the tax for this purpose to be exceed- future delivery without intending that incorporation of vegetable matter in the such product shall be actually delivered soil to make it more retentive of moisture or received, or offering to enter into any in dry seasons, to the end that better avsuch contract whereby any party thereto erage crop yields may be secured in our

S. B. HARTMAN.

B. Hartman, of Athens, Calhoun S. county, Mich., for some years a regular contributor to the columns of the Michigan Farmer, died suddenly of hearl failure in the city of Ann Arbor, on February 20, 1912. Mr. Hartman had been suffering for some time from a nervous breakdown, and had gone to Ann Arbor for treatment a few days before his sudden and untimely death. Mr. Hartman owned and operated the modern farm known as "Nottawa Valley Fruit Farm,"



Simon B. Hartman.

farmers of the country in finding an ade- and was one of the most noted and successful young horticulturists of the state. He was also vice-president of the Athens State Bank, a member of the local school board and an active Grange worker. Mr. Hartman was one of the first graduates The Ground Water Level and Agriculture.

A press notice recently circulated by the lated by the United States States dren. His loss will be felt in agricultural circles throughout Michigan, as well as by his large circle of personal friends.

HAPPENINGS OF THE WEEK.

National.

A nurse in a Brooklyn hospital confesses to killing eight infants. Twelve died at the institution from poisoning. It is believed that the nurse is insane.

warm weather preceding the storm had

Magazine Section

LITERATURE POETRY HISTORY and INFORMATION



The FARM BCY and GIRL SCIENTIFIC and MECHANICAL

This Magazine Section forms a part of our paper twice a month. Every article is written especially for it, and does not appear elsewhere

STATE-WIDE SPELLING

BY EDGAR WHITE.

dawning political campaign in pils of the commonwealth. The question uppermost is, will he or she be from the country or the city schools? It has been asserted that teachers in the towns and cities do not attach the importance to schools. In Macon county, where three ion was that there are fewer good spell- nal school in Middle Fork township, Ma- ful emergency has been a source of grat-matches have been held to select a chamer's in the public schools of Missouri to- con county, said to a meeting of teachers: ification to him through all the years. pion to attend the county match, every winner has been a pupil in a district school, although in the line were contestants from the towns of Macon, the county seat; from La Plata, a large railroad town, and from New Cambria. In Macon five of the contestants were from the large central school, but the winner was Miss Ruby Daniels, a ten-year-old girl who goes to a little one-room school in the back country.

It cannot be said that there is a growing demand in the business world for good spellers. That demand has always existed. It is rather a growl from the men who have cause to employ clerks and amanuenses at the laxity in the teaching of spelling that has led to a crusade for improvement in that branch.

A very busy man who had occasion to seek a new stenographer, was confronted by a pretty, blue-eyed applicant, with be-ribboned diploma from some business college under her arm.

"And how about your-er-spelling, Miss?" he asked.

"Oh, I'm never bothered about my

spelling," she frankly replied. In truth_she wasn't. It was the boss who suffered.

The Friday night literary and spelling match at the oil-lighted country schoolhouse is turning out a class of students who are having an important bearing in the world's work. Many a man who has will wear the proud title of the "Cham- him.

pion Speller of Missouri." Way back yonder, when Missouri was feated much younger, they had spelling bees in rules, the little log schoolhouse in the village of Twain," a rattling good speller, they say,



Prof. O. L. Cross, one of the county superintendents who is giving support to the spelling "revival."

but he was defeated by a comrade, a few years older, "Buck" Brown, now Dr. J. B. Brown, who yet lives at Hannibal. Hannibal not long since, of course he saw

pion speller among the public school pu- evening when he was "cock of the walk" at that school.

The object of the state spelling bee is al to spell down. to revive interest in the art of spelling. day than ever before in the state's history. old-fashioned method of oral spelling.

Boss Speller," worked single-handed and ly.

In telling how these matters were The county superintendents, at their last handled in the log-schoolhouse days, meeting in Jefferson City, discussed the Prof. J. K. Cox, who for a long time atgood spelling that prevails in the district question of spelling, and the general opin- tended and afterwards taught the origi-

> "On the first day of school it was the Several reasons were assigned for custom of the teacher to read before the dence as great as Jennie's. Of course, the decadence in the art of spelling, the scholars a long list of written rules which that put me out of the running, and when principal one being the absence of the were to govern during the term. There were as many articles and subdivisions For a great many years a district school in these rules as in the Revised Statutes, teacher, known as "Prof. D. Jones, the and they were broken about as frequent-I remember one severe law decreed

We were then getting 13-inch down. Missouri, is the state-wide spell- Brown, with a quiet gleam of exultation, indicate that the girls are giving more words from the pedagogue's battery, and ing match inaugurated by Superintendent told about that match in which he had attention to the subject than their broth- the excitement was running as high as William P. Evans to discover the cham- defeated "Sam," and of that glorious ers. It used to be the boys who held the head in the spelling matches, unless they Giants. Finally the word 'plebeian' came had sweethearts whom they were too loy- thundering across the breastworks to Miss Jennie, who spelled it with serene confidence, but left out the 'i.'
"'Next,' said the inexorable master.

though a score of good spellers had gone

"Well, the next was your humble servant, and his quick decision in that aw-

"'P-le-e-b-e-i-a-n', said I, with confithe word had traveled to Bob he grabbed it exultantly and landed it all right. But when school was out there was one thing he didn't land, and that was Miss Jennie. She knew that I could have spelled the word, and, as she walked home with me, what she said made me forget the cold and the numerous heavy chores awaiting me at home. I don't recollect of her ever deigning to notice Bob after that."

The state spelling match will occur during the annual meeting of county superintendents in May. By that time each county will have selected its champion by township or district matches, and that champion will accompany his or her county superintendent to the state match. At the conclusion of the contest to decide the championship of the state there will be an old-fashioned spelling bee, at which the teachers and general public will be

invited to take a hand. Missouri intends to make her spellers wake up and get Editor's Note.—It is gratifying to note that the teachers, principals, superintendents and school boards, not only of Missouri but of other states, and especially of some of our large cities, are giving heed to the persistent cry of business and professional men to the effect that the boys and girls of the rising generation "can't spell." A few years ago this apparent decline in the attention given to spelling by the schools of one of our larger cities was made the subject of in-

vestigation by a voluntary educational commission composed of prominent citizens. This inquiry revealed the justness of the "can't spell" criticism and resulted in a marked revival of interest in this most important branch, through the inauguration of contests; followed, natu-



Dr. J. B. Brown, who defeated Mark Twain in a youthful spelling match. He is 85 and yet lives at Hannibal.

John Scott, Jr., reputed to have beaten Prof. D. Jones, the "Boss Speller" in a match held at Lancaster, Mo.

America received there his inspiration interest in spelling. Every year, during to play together; the boys must play on and his self-confidence. And from there the fall sometime, he would issue a one side of the house and the girls on the will come, in all probability, the one who challenge to the world to spell against other.' This went on for 30 years, and Prof. Jones declares he was never defeated in a match that conformed to his long stay after school travailing with four hours, each receiving the the teacher. In the line-up was "Mark same words and writing them down, the "Penmanship and spelling were treated one missing the most words being, of course, the loser. However, on March 2, he followed all sorts of schemes to inter-1902, there was a spelling match for the benefit of the Baptist Church, at Lan-caster public school. Prof. Jones was there and several others. In the line was John Scott, Jr., a small, quiet man, and when "reconnoiter" flew off the bat Prof. Jones reached for it but muffed, and the modest Mr. Scott caught it before it struck the ground. He was given the medal. The professor claimed, though, that he spelled more words correctly at that match than did his rival.

Defeated or no, Prof. Jones' long and earnest campaign for better spelling is bearing fruit. He is still teaching a district school up in Schuyler county, and he hammers into all his pupils the absolute necessity of good spelling, and it is a pretty good guess that some of them will be represented in the state match.

The winner in the state match will receive, beside the honored title of champion speller, \$100 in gold. The second best speller will get \$50 in gold and the third \$25 in the same metal. Then each and so did Miss Jennie in a mild way. county champion will receive a handsome will get a gold medal costing \$10.

Brown, and of course "Doc" sexes pretty evenly divided. This would Jennie and I were still on the firing line, surely meets general approval.



helped largely in shaping the destiny of alone in keeping alive, or trying to, the that 'boys and girls shall not be allowed

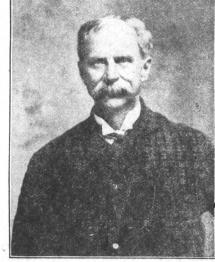
"A crossing of the dead line by either sex might mean a severe flogging or a which were that the contestants arithmetic, according to the method of

as arts by the pioneer school teacher, and est the scholars--there were no pupils then-in them.

"It was while the spelling fever was at the boiling height in our school that I contracted my first distressing case of love. Her name was Jennie somethingso many came after that I have really forgotten her last name-and I thought her corn-colored hair pure gold and that the stars had to go to her eyes for inspiration to illuminate the earth. Of course, I had a rival, a slim, smooth-talking fellow who had been reared over about Hannibal and who had about him the fascinating air of having seen a real city. We thought 'Mark Twain's' village on the Mississippi a wonderful place then, something like we regard Chicago and New York now. My rival's name was Bob Latham, and he not only made me lose sleep about Jennie, but he was some pumpkins as a speller. prided myself on my ability in that line,

"Bob had been beating my time fiercely county county champion will receive a handsome valiant valiant the school furnishing the champion will the school furnishing the champion will receive a \$10 library, and the champion will the champion will spelling match as the "Boss Speller" of Missouri.

The school furnishing the champion will receive a \$10 library, and the champion will spelling match as the "Boss Speller" of Missouri.



and give the winner a medal. Glory be efficiency of the spelling contest, prop-In all the matches held in Macon coun- to youth! Never did we work so hard to erly conducted, as a means of stimulat-B. Brown, who yet lives at Hannibal. In all the matches need in Match Country and the Work so hard to erry conducted, as a means of stimulat-When a "Mark Twain" historian visited ty the girls greatly outnumbered the prepare ourselves with the old blue book, ing pupils and schools to their highest boys, although the enrollment shows the At noon on the day of the combat, Bob, efforts cannot be questioned. Its revival

THE BACHELOR UNCLE

BY EVERITT McNEIL.

Locket.

dock's to find out how Belle was.

Watson, gently pressing her soft warm room, she acted queer and left the house hand on the pallid forehead. "She has in a great hurry, not even stopping to not had a sensible moment since I came. speak to little Joey. Last night—" It will be terrible if she has to go this way, without a goodby to anyone. Poor "Wait! wait, man! I'm not through girl," and, wetting a soft cloth in cool yet!" and with both hands on my shoulwater, she laid it on the sick woman's ders he pressed me back. "Wait! Last forehead.

"Is there no hope, Doctor? Is there that Elsie Lamont had bought some Tues-nothing that can be done? It is terrible day afternoon!" to see her lying thus, the blank look of

stood for a moment tightly gripping his that he turned pale and winced. hands in front of him. "Yes," he said, as innocent of any thought of such a "there is a hope; but I'll be frank with crime as the angels in Heaven. Curse the you. Delvin, it is a very faint hope. We locket! Curse the druggist! They prove believe that this prolonged coma is nothing. I know she is innocent. Now caused by a clot of blood on the brain, see here, Doctor Goldthorp, there are few coming from a blow on the head, which men that I love and respect more than I she must have received when she fell. do you; but, by heavens! if you breathe An operation might save her life, it the faintest hint of this foul suspicion to probably would restore her to conscious- another human being I'll thrash you, you, ness; but neither Doctor Goldthorp nor I Doctor Goldthorp, within an inch of your have the skill to undertake so delicate an life," and, in my excitement and wrath operation. If we could get the brain specialist, Doctor Raison of New York City, here in time, he might do the trephining Chapter XIX.—Bears! Tigers! Wolves! successfully."

"Give me Doctor Raison's address. I It is of the utmost importance that Belle ted the gravest of crimes to preserve the but a chance we must take it."

and with it in my pocket I drove to Plumto come at once. In two hours the answer his came back:

o'clock train Friday night.

Doctor Goldthorp and Doctor Anderson terest Harry Rodney and Elsie Lamont were holding a consultation. I handed have shown in Belle Murdock since her patch.

suffer, no matter who or what they are," she must suffer for her crime, Delvin." and he looked me straight in the eyes. member, Delvin."

"Doctor Goldthorp-"

mine, he pulled me out of the sick room, most convincing. It made me shudder to There was no one in the kitchen, and think of them. What would have haphere we stopped.

someone whom I can trust; and I know I probability of Elsie having had anything can trust you in this matter, Delvin. See

Chapter XVIII.—The Finding of the Gold here," and he thrust one hand in his Locket. trousers' pocket. "Yesterday, when I The next morning, as soon as I had came, I found Belle's right hand tightly my breakfast, I drove over to Red Murclenched; and, when I opened it, this is dock's to find out how Belle was.

what I found," and he held out on the It was very still in the sick room when palm of his hand a small gold locket, I entered. The rays of the morning sun with a piece of broken chain attached shone through a rose-linted curtain, and to it. He touched the spring and the softened and subdued, rested on the quiet covers of the locket flew apart; and I saw form in the bed. Ann Watson had neatly the pictured faces of Elsie Lamont's fathcombed back the black hair from the er and mother. He turned the locket over white face, which lay with closed eyes on its side, and showed the monogram, and slightly-parted lips on the snowy pil- E. L., engraved on its cover. "Listen: low. As I stood by the bedside the eyes I am not through yet," and he laid his slowly opened and stared dully around, hand on my shoulder. "I found out from and the thin white hands moved aimless- little Joey that Elsie Lamont had called ly over the bedclothes; but there was no to see Belle a short time before the chillook of recognition in the black, glassy dren came, that she was in the room a stare of the eyes, and the weak faltering little while with her alone, the nurse movement of the hands was pitiful to see. having gone to the well to draw a pail of "Poor girl, poor girl," murmured Ann water, and that when she came out of the speak to little Joey. Last night-"Good God, Doctor Goldthorp-"

night, after my return I went to all the At the first movement of the girl Doc- drug stores in Plumville, and asked the tor Anderson had come quickly to the druggists for the names of those who had bedside, and stood watching her closely. bought opium from them within the past He now felt her pulse, placed his ear few days. Only one druggist had sold over her heart, and listened for a few any of the drug during the week; andand, my God, Delvin, that druggist said

"Great Heavens, man! You don't mean worse than idiocy on her face and in her to accuse Elsie Lamont of an attempt to eyes. Can't I send for a specialist?" murder Belle Murdock?" and I caught Doctor Anderson straightened up, and him by the shoulders with so fierce a grip I shook my clenched fist in his face.

Lions! Murder!

Doctor Goldthorp's steadfast eyes did will telegraph for him to come at once, not flinch. "Women have often commitshould recover consciousness. If there is honor of the men they loved," he said; and I am sure that Belle Murdock knows Doctor Anderson wrote the address; something that would harm Harry Rodney very much, if it were known; and ville as fast as I could make the horses Elsie Lamont is to wed Rodney next Sungo, and sent a telegram to Doctor Raison day; and what might she not do to save name from dishonor-himself from disgrace? It is terrible! terrible! I could "Will be at Plumville on the nine- not sleep a wink last night from thinking of it; and the more I thought of it the "Raison." blacker the evidence appeared, when tak-When I returned to Red Murdock's en in connection with the remarkable inthem Doctor Raison's telegram. Both men accident, and the fact that I know Belle nodded approvingly as they read the dis- has a confession of some kind to make. But, I'll promise you that my suspicions "Doctor Anderson and I have gone stop right where they are, unless they over the case carefully," Doctor Gold- receive verification. Now, Delvin, I have thorp said, "and we both agree that an thought that you know more about this operation offers the only hope. I will matter than you have told. For God's meet Doctor Raison at the station and sake, if you can, do something to drive will bring him here at once. Now, Delvin, the foul suspicion out of my mind! I we will do everything that we can to get can't explain away that locket, the pur-Belle in shape for the operation; but you chased opium, and Elsie's presence at must not build too much on the results. Belle's bedside; and I can't think of Elsie Frankly, we do not believe it will save Lamont as a murderess. I have known her life, her vitality is too low; but we do and liked her ever since the day of her hope it will restore her to consciousness birth. Help me, Delvin, help me! I long enough to give us a little informa- don't know what to do! Only," and he tion we are very anxious to get." He straightened up and his lips tightened, lowered his voice so that my ears alone "if Elsie Lamont committed that hideous could hear. "If murder has been at- act I will not let my regard for her stand Delvin, the guilty ones must between her and her just punishment

By this time I had recovered from the "No matter who or what they are, re- terrible shock that Doctor Goldthorp's accusation and the attendant proofs had given me, and I could think clearly "Wait! Not another word just now! I again. I did not blame him for his have something to show you, Delvin. doubts of Elsie. He did not know her as Come with me," and, linking his arm in I knew her, and the proofs he had were pened if they had fallen into less kindly "Delvin," he said, his voice trembling, and considerate hands? What if they I had never seen the good doctor so deep: should become known? I quickly saw that ly and so sorely moved before. "I hope the wisest thing for me to do would be to God that I am on the wrong track! I to tell Doctor Goldthorp a part of what I can't see through it! I must consult knew, enough to convince him of the im-(Continued on page 257).



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THE SOUTHERN LEXINGTON-LAST close of the war Gen. Lee found himself HOME OF GENERAL LEE.

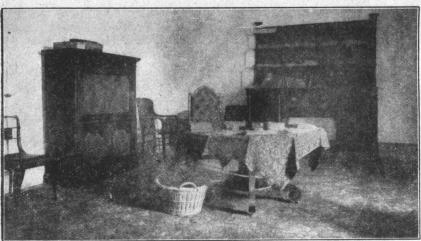
BY HOPE DARING.

calls to the mind of the average Ameri- that time, as a result of the war, Washcan the earliest days of the Revolution, ington College was in straightened cir-But there are other Lexingtons, and the cumstances. The buildings were in need one which is made the subject of this of repairs, while students and teachers sketch is famed as the seat of Washing- were scattered. ton and Lee University. It is situated The college had descended from a among the Blue Ridge mountains in the classical school founded in 1740. Changwest-central part of the state of Vir- ing its name and abode several times, ginia. Among its nearly 5,000 inhabit- this school at last was located at Lexants, nearly half of whom are Negroes, ington. It received a generous gift from are included about 300 students of the George Washington, and became first University and nearly as many more in Washington Academy, and, in 1813, Washattendance at the Virginia Military Insti- ington College. During the Civil War the tute, an institution said to be modeled work of the college was discontinued, and after West Point. Naturally, the intro- much of the endowment became non-duction of 600 young men, for the Uni- productive. When the Federal troops enversity is not a co-educational institu- tered Lexington, in 1864, the school buildtion, into the social and business life of ings were used as barracks and a hos-this little town, has a quickening influ-pital. In 1871, after General Lee's death "the schools." The University students to Washington and Lee University, are scattered throughout the boarding Robert E. Lee entered upon his

a poor man. Refusing many offers o positions where his name would be used for advertising purposes, he accepted the The mention of Lexington naturally re- presidency of Washington College.

ence. Everything seems to hinge upon the name of the institution was changed

Robert E. Lee entered upon his duties



The Modest Office Occupied by General Lee while a College President.

tions for the day are then over.

Life moves leisurely. place is charming. The site of the town the town. is an uneven valley. Around it stretch a The buildings of Washington and Lee few cultivated fields, and all are shut in University face a gently sloping grassy

streets. There are no crosswalks. How- wide veranda across the front has, up-

houses and homes of the village, and all there in the autumn of 1865. He died in Lexington dines at 2 p. m., as the recita- October, 1870. In the five years of his administration he did much to put the Lexington is old, dignified, and a little school upon a sound footing and enlarged The the scope of its work. He also greatly stranger is greeted with gracious kindli- endeared himself not only to the faculty ness, and the social atmosphere of the and students, but also to the people of

by the low, wooded mountain peaks which lawn on which are groups of fine native are always crowned with soft blue haze. trees. The situation is a beautiful one, The streets are narrow. The scarcity and the campus is well kept. The oldest of sidewalks seems strange to northern and the largest one of the college edifices eyes. Excepting for a few blocks in the is known as the Central building. This business part of the town, walks are to was erected in 1824. It is red brick, is be found only upon one side of the 250 feet long, and is colonial in style. The



General Lee and his Favorite "Traveler" as they Appeared Late in Life.

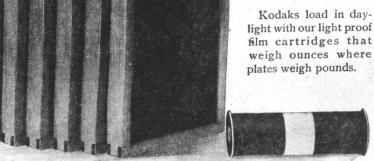
ever, several places in a block, one finds holding its roof, square pillars at each a row of stepping stones extending across end. In the center the veranda is wider and has immense round pillars, the pro-An impartial record of the associations jection forming a sort of portico. which make this little town of more than other structures are more modern. Tucklocal interest must necessarily include er Hall, the home of the law school, was the tender regard of its people for the built in 1900 and is a handsome structure memory of Gen. Robert E. Lee, who spent of gray limestone. Facing the central his last days among them, and his con-building and standing half way down the nection with the institution of learning slope is Lee Chapel. Its somewhat anguof which they are justly proud. At the lar outlines are softened by a veil of

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ing the lit contains remedies, appliances and instructions for treating many minor ailments and injuries, all selected by a prominent physician, who has had a successful practice for 40 yets. A successful practice for 40 yets.

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Wanted 1000 Railway Mail Students immediately. Ex-amination May 4. \$1600 yearly. Write today for free trial lesson. OZMENT,17 R, St. Louis.

beautiful ivy. lege chapel in 1867, while General Lee was president.

The General had his office in the chapel's basement. The room has never been used since his death, everything in it being left just as it was when he occupied it. The plain furniture tells of the president's simple, self-denying life. The big table in the center of the room holds books, papers, and writing materials. Here is seen a half-finished class report and a newspaper now yellow with age. The room was warmed by a stove; there is a couch, a large secretary and bookcase containing a single row of books, and a curiously carved cabinet which resembles a modern wardrobe.

General Lee is buried here. Behind the platform of the church, on which stands the pulpit, is a small apartment. This is occupied by Valentine's famous recumbent statue of Lee. The figure is of Italian marble and is life size. Upon a camp bed lies the famous soldier covered with a blanket. Those who knew Lee say that the resemblance is marked, and the statue thrills the heart of even the most casual observer with a sense of rest and Directly below this space, conpeace. nected with the chapel's basement, is a vault. In it are interred the bodies of General Lee, his wife, and two daughters, Mildred and Agnes.

The most noteworthy feature of the University, aside from its connection with Lee, is the picture gallery. Many really fine things are collected there. A part of these were loaned the college by G. W. Custis Lee, son of Robert, who succeeded his father as president, remaining in that position from 1871 to 1897. It will be remembered that Mrs. Robert E. Lee was a descendant of Martha Washington, and those family portraits were heirlooms in the Washington and Custis families. There are fine pictures of Martha Washington and her first husband, Daniel Parke Custis, of the famous beauty, Nellie Custis, and of Mrs. Robert E. Lee and her children, and of many others whose names are inscribed on the pages of history. The collection contains a genuine Rubens, "The Virgin, and Chi'd on her knees," dated 1623, and an "Ecce Homo" of the seventeenth century.

High up on the slope and just at the entrance to the college grounds, stands the president's house. This was built for General Lee. It is a plain, home-like brick building surrounded on three sides by a wide porch.

In the yard back of this house, then a flower garden, was taken the wellknown photograph of General Lee mounted upon his good gray horse, Traveler. One of the most interesting persons of Lexington is Mr. Miley, the old photographer who took this picture. He knew Lee personally and tells many charming anecdotes of the brave old man who faced the last few years of his life with such esolute courage.

On being asked for permission to reproduce, for a cut, the copy of the Lee and Traveler photograph purchased from nim, Mr. Miley said, with a wistful smile 'The picture is not copyrighted; I could not forbid your using it. I am sure it has been reproduced at least a hundred times, and you are the first person who ever asked my permission."

Mr. Miley spoke of Lee's love for the horse which had carried him through so many battles. He said that in summer, after lessons were over for the day, the General would mount Traveler and go for a long ride through the forest that stretched up the mountain side.

"He accepted his defeat in the Civil war with christian fortitude," the old man went on. "I can best describe General Lee to you by saying that if 10,000 persons were assembled in one place and he should pass through the crowd, all eyes would be turned to him."

Lee's love for the spirited Traveler is often spoken of by the old residents of Lexington. The horse lived two years after his master's death, cared for and petted by the family.

Lexington was also the home of Stonewall Jackson. At the time of the war's outbreak he was an instructor in the Military Institute. His old home has now been converted into the Stonewall Jackson Memorial Hospital. Jackson died in Richmond, a few days after being wounded at the battle of Chancellorsville. His body was brought back to Lexington. There it lies in the village cemetery, the grave being marked by a fine bronze statue of this dashing leader.

The fortunes of many of the old families of Lexington were ruined by the war. Still there is about the little mount-

Money in the Farmer's Pocket

OO MUCH of the farmer's grain goes into his straw pile. Too many years the stack is green. Too many incompetent, worn-out and out-of-date threshing machines are after

You cannot afford to have your grain wasted in that way. You are interested in a thresher which will save all of your grain and waste none of your time. In doing this it will put the amount of your thresh bill into your pocket.

You don't want your money thrown into a straw pile. There is one thresher which will save all your grain and waste none of your time. It uses the only correct method for separating the grain from the straw. It is the only machine that does. It beats the grain out just as you would do by hand with a pitchfork.

All other kinds depend upon the grain dropping out. THE RED RIVER SPECIAL is the only one which beats it out.

You should insist upon your threshing being done by a RED RIVER SPECIAL. Its big cylinder throws the straw, chaff and grain against the "Man Behind the Gun," taking out 90% of the grain right there. The grain goes through, the straw goes over.

The separating shakers beat out the remaining grain. All other threshers try to run the straw out of the machine fast and much grain goes out with it. The RED RIVER SPECIAL beats it all out. Hire a RED RIVER SPECIAL this year and save your thresh bill. Your thresherman wants to please you. He will buy a RED RIVER SPECIAL if you want him to.

It will cost him no more than other less competent machines

You have the right to insist upon a RED RIVER SPECIAL being employed to do your work. It is your duty to insist upon the best machine.

You have worked hard to grow and harvest a crop. Let no incompetent thresher waste it. Simply insist that your thresherman brings a RED RIVER SPECIAL to do your threshing. It will save you from loss by waste. It will beat out the grain like you would by hand with a pitchfork.

It will save your thresh bill. Write us for the proof.

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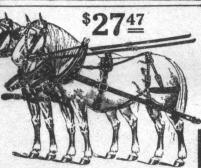
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Stackers, Self Feeders, etc.

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Great Spring Introductory Sale of Williams' Guaranteed Quality Harness

Act quickly! For a short time only we are offering the most amazingly low prices ever quoted on Williams' Guaranteed Quality Harness, made from bark tanned leather, so write for full particulars at once. We have always given the greatest harness bargains of any concern in the world, but never before have we quoted such low prices as these.

Remember, these special prices are not quoted in our catalogs. We simply couldn't afford to make such prices regularly. We have prepared some special circulars describing these amazing bargains in complete detail. Rush your request for these particulars at once or order direct from this advertisement if you wish.

Now look at this bargain. We show just this one to prove what we actually are doing. And bear in mind, this is Williams' Quality Harness, protected by Sears, Roebuck and Co.'s

34-inch bridles; 1-inch by 18-foot lines; oiled Concord bolt hames; flat harness leather pads; 1½-inch breast straps and martingales; 1½ or 134-inch traces and hame tugs; folded breeching body with layer; 1-inch side straps; 1-inch double back straps; 1-inch double hip straps.

Weight, boxed for shipment, about 75 pounds.

No. 10X1146 With 1½-inch traces, without collars. Will be ed in our Fall Catalog at \$29.85.
SPECIAL MARCH AND APRIL SALE PRICE TO YOU.....\$27.47 No. 10X1147 With 1%-inch traces, without collars. Will be SPECIAL MARCH AND APRIL SALE PRICE TO YOU.....

Write a letter or simply send postal card saying you want full particulars of all of these bargains, and we will send them to you, free and postpaid, by return mail. We will also include our big Special Harness Catalog. Write today.

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Sell like wild fire, make from \$5 to \$15 daily.
Write today Territory going fast. Beware of mittations. Sample post paid \$56 stamps or coin,
3 for \$1.09 Money back if not satisfactory.



OAKWOOD MAIL CARRIER

ain-girt town, with its traditions of the past and its sincere hero-worship, an air of dignity and gracious culture. To the average tourist, wearied by the bustle and rush of modern life, the town typifies peace, the world's unrest seeming to be shut away by the low peaks of the Blue Ridge mountains.

THE BACHELOR UNCLE. (Continued from page 254).

to do with the drugging of Belle Murdock,

"Yes, Doctor Goldthorp," I answered "I have something to tell you; slowly. but it must be under the seal of absolute secrecy now and forever afterwards. Come with me," and I led the way out doors. Under a great oak tree, which stood a rod or so from the house, was a large flat stone, and here we seated ourselves; and I told him how I had overheard Harry Dodney offer Red Murdock one thousand dollars if he would hasten the death of Belle Murdock; but I said nothing about the letter Belle had attempted to write to Elsie, nor what I believed to be the cause of Rodney's desperate anxiety to keep Belle from holding conscious communication with anyone. My love for Elsie was too holy a thing to be profaned by revealing its connection with this dastardly crime, even to help clear her name from what I felt must be an unjust suspicion.

The moment I finished Doctor Goldthorp exclaimed, indignantly: "The coward! the villain! the inhuman brute! to buy a father to murder a daughter, and she helpless on a bed of sickness! Delvin, that cur must never wed Elsie La-It would be a sacrilege!" and, in mont! his vehemence, the good man jumped to his feet; but, in a moment, a look of horror came over his face, and he sat down. "My God, she might have done it to save him! to save her future husband from disgrace! She might have thought, she might have been told that the drug would only keep Belle insensible until the inevitable end came, and not be the cause of that end. A woman will do much, will risk much to save the man she loves from being dishonored. Why did she buy the opium? How came her locket in Belle's clenched hand? God forgive me, but I can not get away from those terrible suspicions! Delvin, if Belle Murdock dies, this thing must be probed to the bottom." He hesitated a moment, then he took me by the hand and continued: "I thank you for your confidence, I will consider it sacred. But, pardon me, if I can not look at this thing through your eyes. I am an older man than you are. I know women better, and I fear, I very much fear, that you will not find Elsie Lamont guiltless. But all is in the dark now. We can see nothing clearly. We must wait until Belle is restored to consciousness. Her confession may change the whole story. Pray God that Doctor Raison's operation proves successful. I must go in now," and, with a warm pressure, he released my hand and went back into the house. I at once got into my buggy and started for home.

The revelations that Doctor Goldthorp had made troubled me more than I cared to show. How came Elsie's locket in Belle Murdock's clenched hand? had she bought the opium? And then, when I added to these two things the further fact that she was known to have been alone with the sick woman a short time before the overdose of opium was given to her. I shuddered at the thought of what the world would think should these facts be made public. I could not believe Elsie guilty; but the world was not in love with her, and would be only too glad to cry "wolf in sheep's clothing," if given the chance; for human beings are like wolves in their delight to fall upon a companion's wounded reputation and tear it to shreds.

(To be continued).

"IF I WERE RICH."

BY DORA H. STOCKMAN.

"If I were rich," said the father,

"A splendid house I would build,
Clothed with costlest carpetings
And pictures of rare old guild;
Servants and a splendid equipage
Should be my family's heritage."

"And if I were rich," said the mother,
"I would keep an open door.

A blazing hearth, and well spread board,
Should welcome the rich and poor,
And my children would bring their
friends to see
'Mother's matchless hospitality'."

"If I were rich," mused Little Boy,
(The blue eyes grew sober and gray,
Then the sunbeams over the dimples
rolled),
"I would buy a flower-farm gay,
And every little bit o' chile
Could have one just for a teeny smile."

Tons of Money Saved by Steel Shoe Wearers!



N. M. RUTHSTEIN The Steel Shoe Man "I want every reader of this pa-per to write for my FREE book today."

What Steel Shoes Will Do For You

They will easily save you \$10 to \$20 per year in shoe bills alone. But—best of all—they'll save your health, which is worth more than all the money in the world. Steel Shoes, undoubtedly, have actually saved many lives by keeping men free from colds, which are forerunners of the deadly pneumonia.

Warm, Dry, "Comfy" Feet in Cold, Wet Weather

These steel-clad shoes with their soft, thick, pliable leather uppers, keep your feet warm and dry, even when you work all day in the mud, slush or snow — in damp plowed ground—anywhere. No more rubber boots or clumsy felt boots to heat and sweat the feet.

The adjustable steel rivets with which the soles are studded give firm, sure footing when walking on ice or slippery mud.

No Colds or Rheumatism or Doctors' Bills!

Steel Shoes will save several times their cost by preventing colds, rheumatism, sciatica, lumbago and other ills that result from wet, chilled feet.

They save doctor bills and medicine bills. You can do a full day's work on the worst days and not pay the penalty of sickness and lost time.

Corns, Callouses, Bunions Prevented by "Steels"

My 1912 Model STEEL SHOES are marvels of comfort. They prevent corns, bunions, chilblains, tenderness and soreness because they have absolute foot-form. The arched instep and the upward curve of the sole are scientifically correct, And the thick hair-cushion insole, topped with extra inner-sole gives elasticity and "spring" that makes walking a positive pleasure.

It Now Takes Three Great Factories to Supply the Tremendous Demand. Write for Free Book

I'm turning out Steel Shoes by the million. Three factories running full blast. Orders coming in from all over the world. A veritable landslide of demand—a remarkable triumph for the big idea that took shape in these wonderful Work Shoes. Why wait longer before you get the benefit of the economy, the comfort, the health-protection and the freedom from controubles which a pair of Steel Shoes guarantees? I gladly send Steel Shoes out on FREE EXAMINATION, at my own risk. The shoes must prove themselves and actually sell themselves—if they fail, I'll stand the loss.

My 1912 Models are now ready. They are even more comfortable; more durable, better and finer in every way than my last year's styles.

The coupon at the bottom, or just a postal, will bring my famous book, "The Sole of Steel," which shows my complete line of 1912 Model Steel Shoes and tells just how to order and get a perfect fit.

Every Pair Saves \$10 to \$20 in Shoe Money Outlasts Three to Six Pairs All-Leather Shoes or Rubber Boots



The uppers are made of best quality soft, pliable, waterproof leather and are firmly riveted to the soles.

The bottoms are stamped out of light thinks are stamped out of light.

light, thin, rust-resisting steel.

Arched instep, all-steel heel, soles and sides are all one piece of seamless steel. The steel soles are studded with Adjustable

Are Protected by Steel Rivets, which give perfect traction and firm These Wonderful Shoes 20 footing and protect With Soles of Steel!
the soles from wear. All the wear comes on the rivets, which can be quickly replaced when partly worn. Fifty adjustable Steel Rivets cost 30 cents and should keep the shoes in good repair for at least two years. Note the three corrugations in the sole. These add immensely to the Strength of With Soles of Steel!

the sole.

The Hair Cushion Insoles are thick and springy. They give elasticity to the tread and absorb the jar when you walk on hard, stony ground; concrete floors, etc. They absorb perspiration and odors. Easily removed for cleansing and airing.

1912 Models in All Sizes--for Men and Boys 6 inches high; 9 inches high; 12 inches high; 16 inches high. Choice of Black or Tan Color.



Which ? Just look at these pictures—from actual showing a pair of Steel Shoes practically as good as new after three years of rough usage — the other, a pair of all-leather work shoes completely "down and out" after two months of wear. Which kind of shoes for you?



Throat

No

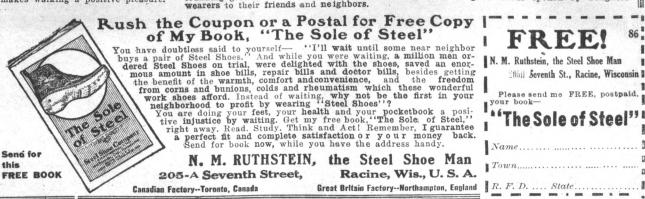
Rheu-

matism

-- If Your Feet

Free Examination and "Money-Back" Offer Puts All the Risk on RUTHSTEIN!

Do you think I would be making and selling Steel Shoes by the million, shipping them out, anywhere and everywhere on Free Examination—taking all the risk myself—if I didn't absolutely know that the shoes would make good on all my claims? Certainly not! The astounding growth of the Steel Shoe business is the result of good words spoken by delighted wearers to their friends and neighbors.



aised by one of my customers the GILBERTSON WAY. You can do this just as well as he. If will write for my FREE Book TODAY, I will

will write for my FREE BOOK TODAY, I will tell you how. I will tell you how I have averaged, for ten years, \$15,480 net profit per year from 40 acres! On ordinary Iowa land. I will tell you how I also raised the value of this land, at the same time, from \$40 per acre to \$1,200 per acre! I will pay all your expenses to Mason City and return, no matter where you live, if I don't prove to your satisfaction every claim I make!

Per Acre From My

Grandpa's Pride Globe Onions

Write for My FREE Book.

Tells how you can make a fortune with only a few acres raising ONIONS the Gilbertson way. Write me A. O. GILBERTSON, Krop Krank

Here's the point—there is no good reason why you can't clear \$400 to \$600 per acre, every year, instead of only \$40 to \$50 per acre, no matter where you live! I will prove to you that you can! I will tell you how you or your boy can take only 5 acres, if you don't want to try more, and make \$2,000 net profit this year! No matter what you know about onions, I will tell you how you can do just what I say you can, with GRANDPA'S PRIDE GLOBE ONIONS, raised the Gilbertson Way! And I won't charge you one cent for this information. Don't turn over this page before making a note to Write Today!

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today.,



What Kind of Old Lady Will You Be?

Two old ladies are neighbors, and as \$500 she lost has assumed the proporthough for vastly different reasons.

the certainty that her days are num- to be as different as possible.
bered. But she is the most cheerful There are two young women in the or asks for help. Always her thought is made to enjoy. for others. No one must be incommoded trying to overcome lesser troubles.

than the ordinary run of mortals. Her fold. husband died recently and her children have married and gone away. A business leave her in want, and she had a boil on was ever called upon to see such re- agone. fined, cultured, highly educated children married to such common, ordinary mor- be? It is for you to decide now. tals as her children picked out. That

sometimes happens, they furnish a topic tions of the national debt, to her mind, for conversation to all their friends, and she is trying to save it all back out of her interest money. When she had One suffers from that terrible disease, the boil on her neck she had every daughcancer. There is absolutely no hope for ter and daughter-in-law by her side and her, many physicians and surgeons have kept them all on the jump in an effort to told her that. She suffers all the pain keep her quiet. Everyone marvels at which goes with her trouble, added to this woman, too, and she inspires many

woman you would want to meet. Always same neighborhood, who are types in their when you see her she is smiling. There way. One is jolly, calm, self-controlled is never a sigh, a moan of pain, a com- and interested in others. If it rains toplaint, a murmuring against God, a hint day she is sure it will shine tomorrow. If or suspicion of trouble. She never talks the work is not done today, there is anabout herself, never feels for sympathy, other day coming, and anyway, life was

The other young woman goes around because she suffers. Her grip on life is with a small line between her eyes and still firm, her interest in the big world her mouth drawn tightly down. If it and her little individual world as keen rains on wash day she knows there is as before trouble came home to her. She going to be a second flood. If the chilis the marvel of everyone who knows her, dren have a cough she gets ready for a constant inspiration to many who are whooping cough. If her husband wants to spend five dollars to give the family The other old lay suffers from a still a good time, she sees herself ending her more terrible disease, "self." She really days by the poorhouse fire. Every litt'e hasn't much to bother her, nothing more trial that comes to her is magnified ten-

Can you see which sort of old woman the young women are to make? The selventure turned out badly, but did not fish habits of the young woman are overlooked in part now because she is still her neck last week. But to hear her talk young and able to take care of herself. you would think God had singled her out But the habits she is forming now are to pour upon her all the vials of his making the character she will have to wrath. She talks of nothing but her endure as an old lady. The cantankerous troubles, which she declares are greater old woman of today was the quick temthan any other mortal was ever called pered young woman of yesterday, just as No one else ever lost the cheerful, even tempered old lady was such a noble husband, no other mother the jolly, companionable lass of the days

What sort of old lady do you want to

DEBORAH.

Floral Work for March—By Eva Ryman-Gaillard.

March is the month when many things a considerable income if the plants are and February should be done at once.

is done the better it will be done, as the by the plant. When doing this work the it is a wise precaution to stake the plants flowers is right now. until well established, and prevent the loose in the soil.

tilizer go over the lawn with a man-pow- them to the outfit and see if the everer roller to firm the roots after the spring ready basket does not result in more heaving, as well as to get a smooth sur- work being done, with less expenditure of face for mowing. If the season advances time and strength, and a finer garden all rapidly enough that weeds can be recog- the season through. nized, let their removal be a part of the work of the month and be sure to put a snow melts enough to give opportunity, pinch of grass seed where every weed is taken out

ing those who have a market stall), look snugly and, if necessary, place more soil to the flower garden for pin money, yet, over them. Mark those needing such

will indicate that the busy, outdoor sea- selected with that object in view. A few son is at hand and give warning that any branches of forsythia (golden bells); of the things left undone during January spirea; lilac, or any other early flowering shrub will find ready purchasers. The If it seems desirable to divide or trans- golden daffies will bring returns as golplant heavy shrubs or vines because they den as their color; sweet peas, asters, are outgrowing their space and becoming golden glow, coreopsis, gladioli, cosmos, ill-shaped, or to increase the stock of a "mums," or any easily grown flowers can certain variety, the work should be done be easily disposed of if a few simple rethis month if the soil thaws to permit the quirements are attended to. The flowers digging necessary. The earlier this work should be of one, or at most two, sorts that have long stems and keep well after settling of the soil during the spring will being cut. Select those that are not fully bring it closely around the roots where expanded, and cut the evening before the forming rootlets can "take hold" of it shipment. Arrange in loose bunches; and make use of the soil elements needed tie the stems loosely and put into water for a few hours before shipping. The tops should be cut back to balance the time to sell is in the future but the time roots and, even when this has been done, to start the plants that will produce the That good, sharp tools make easy work

swaying of the tops keeping the roots is a fact, and that keeping them in one easy-to-catch-up place makes it easier Although the lawn may seem a far- is another. Get a basket and fit it out fetched topic to introduce in a floral talk, with trowel, hand-weeder, small hoe and a velvety, well cared for, lawn has an or-rake, (those from a child's set are fine), and in order to secure it certain things in the house or where it will be easy to must be attended to this month. If fer- pick up when going to the garden. Take pots of various sizes, tilizer was spread during the winter the it with you every time, whether you excoarse litter may be raked off now, leav- pect to work or not, and many little particular plant is in need of fertilizers ing the finer stuff to rot where it is, but things will be done that would be postif none has been applied it should be done poned until harder to do, if it was necesing plants; kill every bug "on sight" and this month and then raked off after one sary to go here and there to find neces- in every way continue the work outlined or two heavy showers. As soon as pos- sary tools. Guard this tool-basket jeal- for last month. sible after the removal of the coarse fer- ously and as new ones are secured add

Whenever there is a bright day and the look the beds over carefully and wherever roots or bulbs are found loose and brim. Comparatively few farm wives (except- heaving out of the soil, pack them down any large town it may be made to yield they need to be placed deeper in the soil. not have such patterns.

Perennials may be transplanted this spring, though the work will be more successful if done in the fall as a rule, but bulbs should be taken up as soon as the foliage dies, while it still serves to show just where to dig for them. The replanting may be done at once or the bulbs kept in a cool, shady place until

Many bits of work will be suggested by the things noticed during the month and each should have prompt attention but, even though the days are pleasant, the window garden is still to be cared for and now that it is in its prime is the time to make plans to secure a better showing earlier in the season hereafter.

By the latter part of the month geraniums and many other kinds of plants will be making rapid growth and cuttings can be taken and rooted for next winter's garden. Many growers say this work should be done in August but whenever I have tested the plan I have merely secured plants that would bloom rarely before the holidays and not much more freely until near spring. When I took cuttings from the sturdy spring growth and then kept the buds off, as carefully as I would bugs, until about the time most people begin to root slips I had bushy, free-flowering plants all the time from early fall until spring.

This early pruning of plants by taking cuttings gives them time to heal before being taken outside and wherever the end of a branch was taken new ones will form in the axils of the leaves on the lower part of the stalk and produce sturdy, many-branched plants for the beds in place of the tender, leggy specimens that would die back if not cut back.

Much of the indoor work this month will consist of seed sowing and transplanting seedlings, and those accustomed to the work prepared flats or pans and plenty of fine soil last fall, but because beginners have made no preparations the following plan is given. It may be said. too, in passing, that the plan has many good features to commend it to those best equipped for the work.

Get a shallow box or pan and enough cinders, gravel, moss or other material of some sort to partly fill it. Cut rather stiff paper (old letters furnish good stock), into four-inch squares and then across diagonally, into triangles; roll them into tiny cornucopias; turn the point up a little way and pin at the top. Now put a layer of whatever material is ready into the box and stand these little paper-pots, that have been filled with fine soil, closely together with enough of the packing material between to hold them firmly in position. Sow the seeds in the pots and give the same care as would be given any seed-pan.

When the soil is filled with roots remove the pin; peel off the pot (?), and set the clump of roots into another of the same sort, a size larger. Any number of transplantings may be made as needed and when the final one is made and the plant put back into the open ground it will get no setback, if it has been gradually accustomed to the open air.

Beside their convenience when transplanting is to be done the use of these paper pots is to be commended as a saving of money, space, and labor, as they namental value beyond that of flowers and all sorts of small tools, and keep it save the buying, storing, and repeated scrubbing needed by a supply of earthen

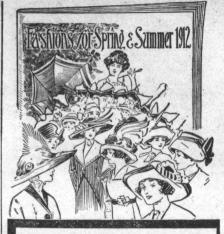
Keep up the watch for signs that any

SUMMER HATS.

The summer hats are in and really have some shape. For the most part, they have large, high crowns, but the brim is in proportion and not bent or rolled or pulled down over the face in the ridicu-lous way of the past winter. Sailors are low-crowned and medium as to width of

QUERY.

In the issue of February 17, Mrs. W. F. if living within reasonable distance of covering, as it is a sure indication that tequests patterns for cross stitch. We do



Where Many of the Well **Dressed Women Come From**

In almost every community in the United States, in almost every country on the globe, there are well dressed women who buy their clothes from Montgomery Ward & Co. They buy through our Women's Fashion Book, an authority for the latest, the best creations for women's wear. The fit, the fabric, the style, the wearing qualities of their clothes are of the same high grade that is found in the clothing of the most fashionably dressed women of the big cities. And yet, these Montgomery Ward & Co. customers are paying only two-thirds, and often only one-half of what other women who buy from retail stores are paying.

other women who buy from retail stores are paying.

And, madam, you, too, can have the best quality of clothing that money and brains can manufacture if you will buy them through the pages of our WOMEN'S SPRING AND SUMMER FASHION BOOK. You need only put your name and address on the coupon below and the number 30, which is the number of this book, and it will be sent to you at once, free of charge. Remember that we guarantee the fit, style, fabric, workmanship—everything—about each single garment, to please you perfectly. If for any reason you are not entirely pleased, you may return your purchase at once and we will refund your money and any transportation charges you have paid. Put the numbers of the other books u want on the coupon also.

2. Planos.

- 2. Pianos.
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 9. Wall paper.
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 5. Carpets & Rugs.
 7. Baby Carriages.
 9. Sewing Machines.
 - 24. Underwear Samples. Dress and Tollet. 30. Women's Spring Fashion-Book. 35. Dry Goods. 36. Muslin Wear. 37. Millinery.
- Put the numbers of the books you need on this coupon, and your name and adress, and send it to us immediately.

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Please send me the following books free of charge: Book Numbers 30,



Do You Care for Your Baby's Skin?

JAP ROSE The "Bubble Bath" Soap

Instead of irritating soaps let this vegetable oil soap cleanse and protect the delicate shrinking surface.

JAP ROSE bubbly lather is entirely liquid, penetrating, cleansing and purifying thoroughly. Bathe in it—notice the refreshing result. One trial is convincing.

Most Dealers Large Cake

Special Trial Offer: Send a 2c stamp and your dealer's name for a Free trial cake of JAP ROSE. JAMES S. KIRK & CO., 213 Michigan St., Chicago



TRUSTWORTHY MEN OR WOMEN

Wanted as local representatives of responsible manufacturer. High class merchandise and clean seiling methods. \$12.00 per week guaranteed on easy conditions, with possibility of \$30 and advance. Experience not necessary. Manufacturer, Box C J 278, Philadelphia. Please mention the Aichigan Farmer when writing to advertisers.

WHAT KIND OF SUGAR SHALL WE I would propose that the price of sugar

BY FRANCIS E. WEST, M. S.

is so high, I am sure that all who have families to support will be glad to cut down their grocery bills wherever possible. Perhaps few of us have thought of low that of the highest purity. the waste of money we make in buying sugar. I was not aware of this waste until the other day when I stepped into three different grades. The first was a light brown sugar, No. 8, and the second on the market we will pay but 74.8 was a very light brown, No. 6, and the third was granulated sugar. The first cost 7c per pound, the second cost 7c per pound, and the third cost 7.5c per pound. I analyzed these sugars and found that

the first contained 87.1 per cent of sugar, the second 87.5 per cent of sugar and the third 99.8 per cent of sugar. Now, suppose that one purchases 10 pounds of each. Ten pounds of the first will cost will cost 70 cents and ten pounds of the third will cost 75 cents.

In the ten pounds of the first sugar we only get 8.71 pounds of real sugar; in the and second sugars cost us the same money but in one case we get 8.71 pounds of sugars, sugar and in the other 8.75 pounds. Is this a square deal? If so, why should not we get the same amount of sugar for equal amounts of money? In no case do we get the ten pounds of pure sugar that for ten pounds of sugar.

us 60.9 cents but we paid 70 cents for it ter so that we enjoy her act pounds which, at 7c should have cost us amply able to meet any contingency. 61.25 cents and on this we lost about 8c sugar but on analysis it gave 99.8 per This is a very small differcent purity. Who gets this cent and a half? Under the present methods of selling sugar it is a little difficult to say.

Where do the profits go in this case? Only a tenth of a mill on a pound. Why, that is not worth mentioning. Let us see. There are 16 sugar factories in Michigan and they will probably make 1,500,000 pounds of sugar on the average of all the factories, or 24,000,000 pounds. This cent and a half on every 100 pounds will amount to \$360,000. That isn't much, Who pays this? The consumer when he pays for 10 pounds of granulated sugar and gets 9.98 pounds.

For two years I was chemist for a sugar company and we always analyzed the granulated sugar and usually found it containing from 99.7 to 99.9 per cent of pure sugar. Now the chemists do not analyze the final product or granulated sugar, but put it out as of 100 per cent This is where the \$360,000 goes to, the sugar is marked 100 per cent pure and is only 99.8 per cent pure.

It is next to impossible for a sugar company to make a sugar of 100 per cent purity, it is only by the most careful chemical methods that this can be done, and if done would greatly increase the price of the sugar. Therefore the remedy is not in making the sugar factories put out a 100 per cent product but in having some standard of comparison.

milk at a fixed price per gallon, regardtains, as to buy his sugar at a fixed price more comfortable sunbonnet for herself, per pound regardless of the amount of especially, after having seen the model? sweetening power that it has. In other They one and all needed somebody to tell words, a farmer might better keep Ho!- them when to come in out of the rain. steins than Jerseys, if quantity and not quality is to be the determining factor in brella which met with an accident and deciding the value of the milk.

be fixed by its sweetening power and that a 100 per cent sugar be the standard of judging as to price. If sugar was 8c per In these days when the cost of living pound it would mean that pure sugar was worth this much and that all other sugars were of proportionate value according as they contained more or less sugar be-

When this is done, then, instead of paying 70 cents for ten pounds of the light brown sugar we will pay but 60.9 cents a grocery store and purchased sugar of and instead of paying 75 cents for the best grade of sugar that we can now buy cents for ten pounds.

But we do not buy sugar on these terms at present and so the question at present Which is the cheaper sugar for me to buy, the granulated or the light brown? At 7.5 cents per pound one can get 9.45 pounds of granulated sugar for 70 cents, and of the light brown sugar one can get only 8.71 pounds for 70 cents, therefore one will get nearly three-fourths of a 70 cents, ten pounds of the second pound more of the granulated sugar for 70 cents than of the light brown sugar. I was unable to secure at the time any of the darker brown sugars but may be able to do so later, but I think that these will ten pounds of the second sugar we get run still higher in cost if measured by 8.75 pounds of real sugar, and in the their sweetening power. If you want to third 9.98 pounds of pure sugar. The first prevent this waste buy the granulated

NATIVE INGENUITY.

BY CHARLOTTE BIRD.

"I will not be bossed around by this we think we are getting when we pay old reader," exclaimed a mite of a giri, and with disgust tossed the book from If this be true, then we should pay for her which aimed too pointedly to teach but 8.71 pounds of sugar in the first case a lesson. By this outburst the little girl which, at 7c per pound should have cost proved that she had exceptional characand were therefore defrauded out of a amusing novelty. And, mingled with our little over 9c on the ten pounds. In the amusement is the respect which we can second case we should pay for but 8.75 none of us help feeling for the person

A well-known woman's journal once on the ten pounds. In the case of the referred to that class of women which granulated sugar, which is supposed to needs to be told when to come in out of be pure sugar, we should lose nothing, the rain. And certain it is that most we find a small loss here also. The people have a sheep-like propensity to sugar was sold for a 100 per cent purity follow a leader without any thought of why or whither or of independently exercising the brains which the good God ence but nevertheless it is a difference has given them. So what wonder that and why should the consumer be com- self-appointed leaders should arise and pelled to stand for it? Ten pounds of lay down their mandates with an air of this sugar cost 75 cents and should have assured authority. And when we read cost but 74.8 cents. This means a cent some of the foolish suggestions in the and a half on every 100 pounds of sugar. household columns of even leading women's journals, it would seem as if even the editors themselves could have no very great respect for the intelligence of the average woman reader.

"You should never have your skirts made open in the back," asserted a womdemonstrator of a certain kind of feminine garment. Then she elucidated: "If your skirts are open at the side front you will never forget properly to close the vent before you leave your rooms." crowd of women listened with reverential assent.

Now most women dress carefully enough to run no great risk of making such a show of themselves. But if they habitually careless about however their garments are clothes, made, they will find some way to proclaim the fact. They can be saved by nothing short of psychological change. But this was one of the demonstrator's fads and its enunciation was an important means of making an impression upon the unthinking feminine mind.

A woman found the long skirt of the sunbonnets then in vogue, hot and close. She cut the skirt of her new one into ruffle length and had a sunbonnet which, while it protected her face from the glare of the sun, still permitted ample ventilation. And it looked so much better than her neighbors' sunbonnets that The farmer might just as well sell his promptly she was besieged for the pat-

Another woman had a pretty silk um was badly torn by a barb-wire fence. It In talking with one man about this certainly looked damaged and its owner matter he said, "Well, I always use two relegated it in sorrow to the garret as a teaspoonfuls of sugar to a cup of coffee, ruined thing, for who ever heard of a fine anyhow, regardless of the kind of su-silk umbrella being patched and looking His landlady might just as well fit to be seen! And yet, with a piece of give him corn sugar to use in his coffee black silk court plaster, which, at any for it costs much less and is only about drug store, would not have cost more half as sweet as granulated sugar but he than five cents, the hole could have been will never notice the difference for he is so neatly patched that without examina-

See These Ranges At Your Dealer's Before Buying

No prudent bousewife should trust to a printed description in
buying a range, for a very glowing description can be given to a very inferior
range. You are not asked to buy a Majestic Range in this way. But you are invited
to go to any dealer who handles the Great Majestic and compare it point for point with any other
range on earth. Then you can decide and buy intelligently. There are Majestic Range dealers in
nearly every county in 40 states—so you will have no trouble in finding one—and it will pay you to
drive an extra ten miles, if need be, to see and carefully examine the Great Majestic before investing your money in a range of any kind. You don't buy a range every day, or indeed, every year,
and when you do, you want the best your money can procure—one that will last a life time—that's the

A Perfect Great Majestic Outwears
Three Baker-Malleable and Range Charcoal Iron A Fuel Saver

Ordinary Ranges

The Majestic is the ONLY range made entirely of malleable iron and charcoal iron. Charcoal iron won't rust like steel—malleable iron can't break. The Majestic is put together with rivets—joints and seams absolutely air tight like an engine boiler. Oven lined with guaranteed pure asbestos board, covered with an iron grate—you can see it. No heat escapes or cold air gets in, insuring a dependable baking heat with half the fuel required in ordinary ranges.

All Copper Movable Reservoir—Other Exclusive Features

Reservoir is in direct contact with fire and heats like a tea kettle through a copper pocket stamped from one piece of copper—a patented feature found only in the Majestic.

Has an Oven Thermometer—accurate, not sometimes, but all the time. All doors drop down and form rigid shelves. Open end ash pan—ventilated ash pit—ash cup that catches ashes and prevents them from falling on floor. It's the bestrange at any price and should be in your kitchen. Write for our booklet, "Range Comparison".



GOOD FEAR Rubber Carriage Tires -Most Popular in Existence

The sales of Goodyear "Wing" Carriage
Tires increased 24% in 1910-11 over the previous
season, though no more carriages were made.
The 1911-12 season will, we estimate, show the
astounding increase of 81% over 1910-11.

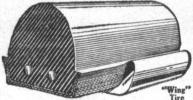
148 of the 200 carriage builders in the U. S.—
nearly 75%—are now using Goodyear "Wing" Tires.
More dealers are selling "Goodyear Wings"
than any other rubber carriage tire.
More than 3.000.000 Goodyear "Wing" Tires
have been sold since their invention 13 years ago.
Just as Goodyear No-Rim-Cut Tires have become first in the automobile world, so have Goodyear "Wing" Tires become the sensation of
carriagedom.

carriagedom.
In the light of these big facts, would it not be folly for anyone to choose commonplace carriage tires when "Goodyears" cost no more?

Our "Wing" Tire Note this patented "Wing."

"Eccentric" Tire

g." (See picture at right, above). How it presses against the channel, thus preventing mud, grit or water from getting in and quickly rusting the rim and destroying the trie base. This tire remains sound. It won't creep or get loose. Gives utmost wear. Will protect



your carriage and greatly lengthen its life. Being of tough, springy rubber, it is excep-tionally easy-riding. The

Goodyear "Eccentric" Tire

the control of the triangle of triangl

THE GOODYEAR TIRE & RUBBER CO. Akron, Ohio Branches in 103 Principal Cities.

Are Your Boots Made To Order?

If you had a pair of rubber boots made to order, you couldn't have them made better than

THE CENTURY BOOT (Beacon Falls Brand)

No matter how carefully they were made you wouldn't secure a better

wearing boot.

CENTURY Boots are made of the best rubber produced in the world.

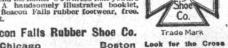
The vamp is made extra strong by forcing rubber under powerful hydraulic pressure into the best quality of canvas duck. To prevent cracking at the ankle (like ordinary boots) an extra pure gum, no-crack ankle reinforcement is used.

CENTURY Soles are made of the toughest compound known. This sole is so compounded that it will rebound when it strikes a hard substance rather than chip off, as the soles of an ordinary boot would do.

Century Boots Are Cheapest TO A TRUST because best—best in material, best in workmanhip and best for wear. Look for the name Century and the Cross on the boot. When you want a high-grade satisfactory rubber boot or since, ask for the Beacon Falls line. Look for the Cross. It insures you quality and service.

If you can't secure of the same, We will see that you are supplied. A handsomely illustrated booklet, describing Beacon Falls rubber footwear, free, Write for it.

The Beacon Falls Rubber Shoe Co. **New York** Chleago



Beacon

Falls

Please mention the Michigan Farmer when you judging by measurement and not by taste, tion it could hardly have been seen. And are writing to advertisers and you will do us a favor.

Stops a Deep-Seated Cough in a Hurry

A Family Supply of Unequaled Cough Remedy Easily and Cheaply Made at Home.

Cough medicines, as a rule, contain a large proportion of plain syrup—a good ingredient, but one that anyone can make. A pint of granulated sugar, with ½ pint of warm water, stirred for 2 minutes, gives you as good syrup as money can buy.

A 50-cent bottle of Pinex, mixed in a pint bottle with home-made sugar syrup, gives you a full pint of really better cough syrup than you could buy ready-mixed for \$2.50. There's a clear saving of \$2.00—and no trouble at all.

And money couldn't buy a quicker, better remedy. Takes hold at once, gives almost instant relief, and usually stops the most obstinate, deep-seated cough in 24 hours. It stimulates the appetite, is slightly laxative and has a pleasant taste

the most obstinate, deep-seated cough in 24 hours. It stimulates the appetite, is slightly laxative and has a pleasant taste—children take it willingly. Splendid for hoarseness, asthma, chest pains, and other throat troubles, and unequaled for prompt results in whooping-cough.

Pinex is a special and highly concentrated compound of imported Norway White Pine extract, and is rich in guaiacol and other natural healing pine elements. Simply mix it as directed with sugar syrup or strained honey, and it is ready for use.

Pinex has often been imitated, but never successfully, for nothing else will produce the same results. The genuine is guaranteed to give absolute satisfaction or money refunded. Your druggist has Pinex, or will get it for you. If not, send to The Pinex Co., 232 Main St., Ft. Wayne. Ind.



ENTERPRISE **Meat and Food Chopper**

Makes possible kitchen and farm economy—saves left-overs.

The one right cutting principle—four-bladed steel knife revolving against the inner surface of a perforated steel plate—cuts like shears. Does not mangle. For the farm—it means more money at killing time.

Like all Enterprise articles—Sausage Stuffers, Cherry Stoners, Fruit Presses, Sad Irons, etc.—made to give you service.

Price \$1.75 and upward; 45 styles and sizes. Send 4c in stamps for our economy recipe book, "The Enterprising Housekeeper."

THE ENTERPRISE MFG.CO. OF PA. Dept. 48, Philadelphia.



Fish of Guaranteed Quality goods, with % Price, 10 cents.

Fresh Frozen.

Silver Herring, Round31/20	Ċ
Pickerel, Round5	C
Dressed, Headless6	C
Pike, Round81/20	2
Trout, Dressed81/20	3
Whitefish, Round81/20	
Perch, Round3	
Perch, Skinned, Dressed, Headless 61/20	3
Tullibees (Large Canadian Herring)3½0	,
Salted Fish.	

Lake Herring, 100 lbs., \$2.25; 50 lbs., \$1.50
 Bayfish, 100 lbs., \$2.25; 50 lbs....... 1.50
 Ask your neighbors about our goods.

WISCONSIN FISHING CO. Green Bay, Wis.

WANTED—A man or woman to act as our information reporter. All or spare time, No experience necessary. \$50 to \$500 per month, nothing to sell. Send stamp for particulars. Address Sales Association, \$14 Association Bidg., Indianapolis, ind.

it would have stood rain as well as sunshine.

A woman wrote an article for a household journal on canning fruit. She enjoined her readers to handle their cans very carefully to prevent bending the edges of the covers, because, when the covers were once bent, they would have to be thrown away. Clearly, this woman never had any ingenuity or else she was not in the habit of using it. She had never discovered that whenever the edges of can covers become bent, if they are screwed tightly on the cans and with a steel knife the edges are carefully pressed down till they fit perfectly, they will be even better than new. In one thing she was perfectly right; one great secret of fruit keeping, is in the perfect fit of the can covers so that each can should have its own particular cover not to be mixed up with other covers. But she also did not know exactly when to come in out of the rain.

Every woman should respect her own native powers. If she exercise them and thus develop them, she will find that she has more than she ever dreamed of. And they will help her out of many an egigency, when no other authority is at Women have inventive capacity, if they choose to use it.

THE EARLY SHOWING OF SILKS

Bordered silks, which have been so good or a season or two, are even more beautiful and popular than ever in the new spring fabrics. In Copenhagen blue, lavender, pale yellow, with borders of roses and lattice work in self color, they tempt the woman who loves filmy, diaphanous stuffs. They are to be worn over a slip of the same or complementary color. The price is rather high, \$2.50, \$3.00 and the yard, but as a small woman can make a gown out of two and a half yards, or three yards, if she wants it more elaborate, the final cost is not very much. The silk is wide enough for the length of the skirt so that the border can finish the bottom and no trimming nor hem is needed.

A beautiful robe for the brunette was a dark red, hand-embroidered tissue worn over cerise. The combination sounds rather startling, but the effect was beau-

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.



5072-Ladies' Waist with Lining. n 6 sizes, 32 to 42 inches, bust measure. Size 36 requires 21/4 yards of 36-inch goods, with % yard of 18-inch all-over.

4850-Misses' and ron. Six sizes, 6 to 16 years. For 12 years it requires 2 yards 27 inches wide. Price, 10 cents.

5372-Children's Dress. Cut in sizes ? 4, 6, 8 and 10 years. Age 8 requires 3 yards 36 inches wide; 1/4 yard 18-inch allover. Price, 10 cents.

4619-Children's Set of Short Clothes. Four sizes, ½ to 3 years. For 1 year it requires 1½ yards 27 inches wide, sack 1% yards 36 inches wide, dress; 11/2 yards 36 inches wide, petticoat and drawers. Price, 10 cents.

4939-Children's Dress. Five sizes, 2 to 10 years. For 6 years it requires 2½ yards 44-inch material; 2% yards braid. Price,



Anty Drudge on automobile stains

Mrs. P. R. Osperous-"Oh, John, how am I ever going to get that grease out of your shirt? - I almost wish you had kept the cutunder and we didn't have an automobile. I have to boil the clothes twice as long as I did before."

Anty Drudge—"Since you've spent \$1,500 for one modern improvement, just spend 5 cents for another. Get a cake of Fels-Naptha Soap. Wash your clothes with it in cool or lukewarm water. It will take out grease spots like magic and leave the clothes cleaner than you could with hot water and common soap."

Did your boiler ever spring aleak when you had just filled it with heavy clothes? Or, after you had carefully washed your best white waist or your husband's boiled shirt, did you ever discover that a rust spot had ruined them? Why do you use a boiler, anyhow? Don't you know the new way to wash?—the Fels-Naptha way? It's a godsend to tired women. Saves all the fuss and bother and most of the work. Fels-Naptha Soap makes vashing almost a pleasure. You don't need a boiler -just a cake of Fels-Naptha Soap and some cool or lukewarm water—and you do the wash in half the time it used to take.

For full particulars, write Fels-Naptha, Philadelphia





Here It Is! Odorless, Smokeless, make the home cheerful and bright. Thee times as much light as an ordinary burner. Every One guaranteed. Just what you need! If your dealer does'nt keep them send his name and address with your name and address with your name and address will mail you as and we will mail you as many as you wish at 25c each. Agents Wanted verywhere.

THE STEEL MANTLE LIGHT CO. 292 Huron St., Toledo, Ohio



Highest Quality

10 DAYS FREE TRIAL ship on approval without a cent sit freight prepaid. DON'T LY A CENT if you are not satisfied or using the bicycle ro days. noter using the bicycle to days.

DO NOT BUY a bicycle or a pair onestany price until you receive our latest art catalogs illustrating every kind of bicycle, and have learned our unheart of prices and marvelous new offers. of prices and marvelous new offers.

ONE CENT is all it will cost you to
thing will be sent you free post-padd by
return mail. You will get much valuable
information. Do not wait, write it now.

TIRES, Cooster - Brakes rea.
amps sundices at half usual prices. MEAD CYCLE CO. Dept. ATT. CHICAGO





(Continued from page 252).

The Best Light?

The Best Light?

The Best Light?

Foreign.

condition of the concerns and their earnings.

Foreign.

The principality of Rudolstadt is the first state of Germany to be ruled by the socialists. The Chamber consists of 16 members, nine of whom belong to the above party.

It is stated that the Haitian rebels attacked Monte Christi but were repulsed by the federal troops. The rebel forces suffered a number of fatalities.

The Mexican revolt is spreading, it being reported that the rebels are now in fairly good control of the northern portion of the country. General Trevino, of Chihuahua, has joined forced with General Orozco. Their combined strength will enable the rebels to take a strong postition against the federal forces. The citizens of El Paso have appealed to the department at Washington for protection. The appeal asks that troops be sent into Mexican territory to put an end to hostilities. This, however, the government is not in a position todo.

It is reported that Spanish troops have occupied Arzilla, a fort ten miles south of Tangier on the Moroccan coast.

President Yuan, of the Chinese Republic, has agreed to move to Nankin and accept it as the capital, thus harmonizing his position with that of the National Assembly. It is not stated when the president will arrive at the new capitol. He is still at Pekin.

The action of Spanish troops in taking Arzila on the Moroccan coast has aroused the French people, who will now be iess inclined to enter into an agreement looking toward the peaceful settlement of affairs in northern Africa.

Premier Asquith, of Great Britain, is planning for the government to temporarily take over the coal mines of the country and operate them in the event of a general strike which is being considered by the unions.

Emperor Nicholas of Russia, has confirmed the regulation of the admiralty under which a commander is compelled to destroy his warship instead of surrendering it to the enemy.

Americans are leaving Mexico as rapidly as they can. The Mexicans of the rural districts are seemingly ill-disposed towards the American

CATALOG NOTICES.

Big Factory, Big
Sales, 23 Styles

No traveling salesmen, small expense low. Every thing expense low. Every thing expense low. Every mail. Prices of leading styles freight prepaid to all points north of the Ohio and east of the Mississippi River:

Wires Incheshigh Medig: Weight Exits beary(all No.9)

30 250, 470d 36e per rod 36e per rod 35 55 32e per rod 48e per rod 35 55 32e per rod 48e per rod 35 56 32e per rod 48e per rod 35 56 32e per rod 48e per rod 35 56 32e per rod 48e per rod 36e per rod 37 56 32e per rod 36e per rod 36e



TARMS fenced with steel have practically no waste. Corn, fed to the lard hog; barley fed to the bacon hog-hogs that are grown the country over-bring dollars from packer and butcher. Double your pork production without increasing the cost. Use alfalfa, clover, peas, root crops, all raw products of the farm. A liberal equipment of woven wire fence allows the hogs gradually to clean up field after field, adding to their weight without effort and without price. See the nearest dealer in American Fence.

MERICAN FENCE A is made of large, stiff wires, galvanized heavily, having the American hinged is interested a fabric joint (patented), a fabric most flexible and wear-resisting. Square mesh fence of weight, strength and durabil-Square mesh fence of ity-three great needs in farm fences.

Dealers in Every Place

where farm supplies are sold. Shipped to them direct from mills in carload lots, thus saving freight charges and enabling dealers to sell at lowest prices, giving buyer the benefit.

American Steel Fence Post Cheaper than Wood and More Durable. Get

Soud for copy of "American Fence News" also book "How to Make the Farm Pay," proplusely illustrated, the voted to the interest of farmers and showing how fence may be employed to enhance the earning power of a farm. Purnished free signs, capitacition.

F. Baackes, Vice Pres. & Gen. Sales Agt., AMERICAN STEEL & WIRE CO. Chiengo, 72 Adams St.; New York, 90 Church St.; Denver; U. S. Steel Products Co., San Francisco, Los Angeles, Fortland, Seattle.



TERMS CASH: We save you the wholesalers' and retailers' profit. These special prices only hold good for immediate shipment.

Indestructible by Heat, Cold, Sun or Rain.

Write for FREE SAMPLES or order direct from this advertisement. Satisfaction guaranteed or money refunded. We refer you to Southern Illinois National Bank. CENTURY MANUFACTURING COMPANY, Dept. 207, East St. Louis, Ills.

Enough to Feed Seven Cows For One Year

70 TONS OF CORN FROM ONE ACRE

Mrs. H. Will Harris of Michigan planted Eureka Ensilage Corn and won our \$50 gold prize for heaviest yield over 70 tons to the acre. Eureka Corn grows tallest—has most leaves—greatest number of ears, the result of long time breeding.

Wildbank, Adrian, Mich., Nov. 9, '11.

Wildbank, Adrian, Mich., Nov. 9, '11, BOSS BROS. CO., Worcester, Mass.

The Eureka Ensilage Corn seed bought of you was the finest corn for Ensilage ever grown in Michigan. Corn is fine, too. One are grew over 50 tons of fodder and corn and over 100 bushels of good ear corn. We also grew two acres of this corn; one of these grew 70 tons and 800 pounds, which won your prize. From these two acres we have kept 5 cows, 4 horses, a number of hogs, geese, ctc., and still feeding. Corn grew from 15 to 20 feet high and had from 3 to 5 ears of good corn. Everything eats it as fit is were sweet corn—cattle, horses, hogs, geese, etc.

Plant Eureka Ensilage Corn this year and do the same as Mrs. Harris.

\$100 Gold Prize for Heaviest Yield. Equally divided in case of tie. Winners announced at New England Corn Show, Boston, Nov. 20-24, 1912. Prices low—write to-day. Sheffield Prize Fint Corn will holds the record established in 1910 of 128.8 bushels of crib dry corn from one acre. This is the world's record for Flint corn. Sheffield Flint Corn was first prize and the only first prize in 1910 at the New England Corn Show for the heaviest yield of corn from one acre. SHEFFIELD FLINT CORN won the first and sweepstakes for the best 90 cash of Elint corn at the Mass. Corn Show in 1911. We offer \$20.00 in gold for the best 190 cash of the exhibited at the Worcester Horticultural Show, Oct. 10, 1912; first prize for the best 90 cash of 1912 of the prize \$4.00. In case of a tie, prizes will be equally divided. On account of the early frost our stock of this variety is limited. We therefore advise placing order the prize \$4.00. In case of a tie, prizes will be equally divided. On account of the early frost our stock of this variety is limited. We therefore advise placing order the prize \$4.00. In case of a tie, prizes will be equally divided.

ROSS BROS. CO., 37 Front St., Worcester, Mass. each work of this variety is limited. Plant Eureka Ensilage Corn this year and do the same as Mrs. Harris.



FREE SAMPLES Fighting Campain of the New York of the New About our Pure Bred, Big, Hardy, Im Seed Oats grown on the new Virgin soil of our

Why plant your whole farm when you can fill your 200 ton silo from four acres? The four heaviest acres reported last season from the

res for our prize were:

70 tons 800 lbs.
47 tons 76 lbs.
42 tons 860 lbs.
40 tons 360 lbs.

Total 200 tons 96 lbs.

Galloway Bros-Bowman Company, 642 KO Galloway Station, Waterloo, Id



SE+ SOME OU PONT CHIEFE **Red Cross** Dynamite Doubles Yields of corn, cotton, cereals, and all fruits and vegetables.

Ordinary plowing turns over the same shallow top-soil year after year, forming a hard and nearly impervious "plow sole" that limits the waterholding capacity of the land and shuts out tons per acre of natural plant food.

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makes this plant food available, aerates the soil, protects vegetation against both drouth and excess rainfall, and soon repays its cost in saving of fertilizer, expense and fertilizer expense and largely increased yields.

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System guaranteed satisfactory or your
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Catalog which makes everything plain.
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PRACTICAL SCIENCE.

BY FLOYD W. ROBISON.

it is true, the sources of the ingredients which go to make up commercial fertilizers, and outlined a desirable method nure per day, including the bedding, to pursue in buying on the market commercial fertilizers. Without going into duced 43.3 lbs. per steer per day per 1,000 greater detail at this time regarding socalled commercial fertilizers, we shall on the cement floor by 6 lbs. This loss now discuss as briefly as is consistent on the earthen floor was probably the rewith clearness, the role of animal ma- sult of the seepage or percolation of some nures, or barnyard manures, in the main- of the liquid excrement into the ground. tenance of the fertility of the soil.

nures, is the excrement of the domestic the steers fed on the cement floor while animals, sometimes solid, sometimes both on the earthen floor there was 62.4 per liquid and solid excrement, depending to cent of the nitrogen recovered. There a considerable degree upon the thrift of was 77.5 per cent of the phosphorus rethe individual farmer in conserving, especially the liquid portion. Probably as the cement floor and 78,9 per cent recovgreat evidence of the thrift of any com- ered from those fed on the earth floor, or munity of farmers is shown by the thor- practically the same amount, and 87.8 oughness with which the animal manures per cent of the potassium in the feed was produced on the farm are conserved. In recovered from those fed on the cement driving through the country this condition is very noticeable indeed, especially at this particular time of the year when, due to the severe cold and the general inclemency of the weather, the animal manures have not been removed to the as might be expected because of the fact fields and have been stacked in the barnyard and under the eaves of the barn and in discarded places.

Basis of Manure is Food Consumed.

nuares is the food consumed by the anisists practically of the undigested resithe final products, the results of the di- \$50 greater than that from the steers fed gestion of food. The amount of fertiliz- on the earthen floor, a considerable item ing ingredients present in this solid ex- in itself. crement depends, therefore, largely upon the percentage of digestibility of the food main by the liquid excrement of animals and consequently if to the solid portion the liquid portion is added, the approximate original composition of the food is thus arrived at. A surprisingly small amount of work has been done by the various experiment stations on the question of either the conservation of farm manures or the subject of the waste of farm manures, both of which topics present an abundant field for investigation.

An Actual Experiment.

At the Ohio station a series of experiments were conducted on the production of manures from different domestic animals and some very admirable comparisons were made and some very desirable data presented. With 48 steers, 24 of which were stabled on cement and the other 24 stabled on ground floor, the total 48 produced a little more than one-half ton of manure per month per animal, inluding the bedding, which was rejected with the excrement. The amount of nitrogen in the feed, including the straw and bedding was 8,058 lbs., the amount of phosphorus was 1,814 lbs., and the amount of potassium was 4,115 lbs. The analysis of the manures showed that it contained: 0.496 per cent nitrogen; 0.237 per cent phosphorus; 0.473 per cent potassium.

This equaled 9.92 lbs. of nitrogen; 4.74 lbs. of phosphorus; 9.46 lbs. of potassium per ton of manure. The total recovery in the manure amounted to 3,472 lbs. of nitrogen, or 46 per cent of that given in feed and bedding, 1,659 lbs. of phosphorus, or 92 per cent of that given in food and bedding, and 3,311 lbs. of potassium, or 81 per cent of that given in food and bedding. The comparatively low percentage of nitrogen recovered was undoubtedly due, in these experiments, to inaccuracy of the methods employed for the determination of the nitrogen. Often a great en to prevent this during the analysis.

The Value of the Manure.

Valuing nitrogen at 16 cents per pound, contain. as we should be inclined to value it for animal manures, phosphorus at five cents per pound, and potassium at four and prices as quoted in our previous discus- 14,088 head.

THE MAINTENANCE OF FERTILITY, sion last week, for the nitrogen, phosphoric acid and potash present.

The Cement Floor Pays for Itself.

In comparing the results from those fed We have discussed, somewhat briefly, on the cement floor and those fed on the earth floor, the steers fed on the cement floor produced a total of 50 pounds of mawhile those fed on the earth floor prolbs. live weight in favor of the animals There was 74.7 per cent of the nitrogen The basis of farmyard, or stable ma- in the feed recovered in the manure of covered in the case of the steers fed on floor and 78.4 per cent of the potassium was recovered with those fed on the earthen floor. From this data it is apparent that the variation is largely a variation in nitrogen and the potassium that both the nitrogen and potassium in the animal manures is quite readily soluble, the phosphoric acid being readily thrown out of solution and fixed. The Of course, the basis of all animal ma- phosphorus, too, is quite largely excreted res is the food consumed by the ani- with the undigested portions and it finds In so far as the solid excrement of its way more rapidly into the solid exanimals is concerned, this product con- crement than into the liquid portion. The value, therefore, of the manure from the dues of the food, together with certain of steers fed on the cement floor was about

Manure from Dairy Cows.

The Cornell and Minnesota experiment consumed by the animal. The digested stations have conducted some experiments portion of the food is represented in the on the quantity of animal excrement, using dairy cows as subjects. production of manure from the dairy cows, six cows being selected, was 61% lbs. per cow per day, including bedding, or 57% lbs. exclusive of bedding, thus showing that the value of the manure from dairy cows is somewhat higher than that from fattening steers. This possibly is caused somewhat by the great amount of food consumed by the dairy cows.

Sheep Manure.

The experiment of the Ohio station was, extended in 1905 and 1906 to sheep. One hundred and sixty lambs were fed for a period of 112 days, in lots of 40 each. These were fed entirely on an earthen floor and the manure, with one or two exceptions, remained on the ground throughout the entire experiment. The total production from the 160 lambs was 49,895 lbs., which included 4,950 lbs. of bedding. The total amount of manure was 33.15 lbs. per day, figured on a basis of 1,000 lbs. live weight per animal, or excluding bedding, 29.86 lbs. The value of the feed and bedding amounted to \$679.54. The total value of the manure was \$237.69, thus making an average value of \$5.53 per ton of the sheep ma-

Manure vs. Commercial Fertilizers.

The complete results of this experiment, which are too lengthy to be given here, are shown in Bulletin 183, of the Ohio experiment station, and are interesting as demonstrating the exceeding value of animal manures when judged solely from content of nitrogen, phosphoric acid and potash, which is the basis upon which commercial fertilizers are judged. When it is borne in mind that animal manures contain from 60 to 75 per cent, and in some instances as high as 80 per cent of water, it may be seen that the dried deal of nitrogen is lost during the drying uable, if not quite so, as many of the manures in themselves are almost as valunless extraordinary precautions are tak- commercial fertilizers, judging from the relative merits of the nitrogen, phosphoric acid, and potash alone which they

(Continued next week).

During the month of January we only one-half cents per pound, we have for exported 7,601,295 bushels of corn, against the value of the nitrogen in the manure, 9,752,146 bushels in January, 1911. Of \$555.52; for the phosphorus, we have a wheat 2,018,594 bushels were exported value of \$82.95 and for the value of the last month against 2,789,152 bushels in potassium, \$148.99, making a total of the same month last year. We sent abroad \$787.46, or \$2.25 per ton, the current val- 10,624 head of cattle in January of this ue of the manure figured at the market year, while in January, 1911, we exported



Dollars Take The Place of Stumps

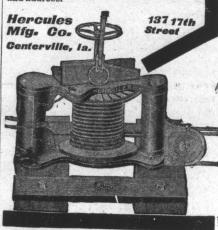
\$750 extra crop-profits every year on 40 acres and double value of land when stumps are pulled out. Let us prove it. Write now for new, fine, free book showing testimony of Hercules Stump-Puller owners. See actual photos of 3-foot stumps pulled in less than 5 minutes. All steel, means unbreakable strength—triple power, means terrific pull. More pull than a tractor. The

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A Year's Use Free And Your

Money Back With 6% Interest

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any investment you can make. I am so sure of this that I back my faith by
the following offer, which I defy anyone to equal, viz:

If, at the end of 12 months the Spreader I send you has not been a paying investment, providing you have as much as 100 loads of manure to hauout, I will, agree to take back the Spreader pay freight both ways—give you
back your money—and pay you interest at 6 per cent from the time you sent
me the price of the Spreader. Now could I make such an extraordinary offer
if I did not have something better than the other fellows' "best"?

"Streak of Gold" FREE

I never fully realized the wonderful value of manure until one day on my farm I was watching one of my men hauling manure on an alfalfa field. As I stood there I got to thinking about what that manure really meant to that field. And it came over me like a firsh—"Why, it's just like a streak of gold in the soil." Gold," and filled it from cover to cover with facts, figures, information, experience and advice of priceless value to every farmer with manure to haul. I have a Free Copy for you. Write for it. Read it. Apply its teachings, and if you are not convinced that." A Streak of Gold" shows you how to make much greater profits in 1912, return it to me and I will send you one dollar in exchange for it.

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If a fence stands erect, even and firm under the hardest wear, tear and abuse - that's

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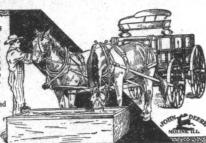
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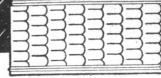
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Regardless as to whether the spoke is at the top, side or bottom of the wheel, it always carries its share of the load.

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MARKETS

DETROIT WHOLESALE MARKETS.

February 28, 1912. Grains and Seeds.

Grains and Seeds.

Wheat.—The wheat market has received support the past week from the strength in Liverpool, small shipments from Russia and the Danube district and a decline in receipts from local elevators in the northwest. It is further believed that the March report of the government will show a very small amount of last year's crop in the hands of farmers. This information has tended toward a slightly firmer market than prevailed last week. However, the cash situation continues discouraging to sellers and the visible supply shows a decrease of less than a million bushels. In some sections where the snow has melted away the uncovered fields do not appear to be in good condition. One year ago the price for No. 2 red wheat was 89%c per bu. Quotations for the week are as follows:

No. 2 No. 1

Red. White, May. July.

Red.	White.	May.	July
Thursday Friday 96½ Saturday96¼ Monday96¼	.94½ .94¼ .94¼	$$1.01\frac{3}{4}$$ $1.01\frac{1}{2}$$ $1.01\frac{1}{4}$.96 ½ .96 ½
Tuesday Wednesday98	.96	1.03	.971/2

Corn.—The decline started last week continues over into the present period. This change was due mainly to a large increase in the deliveries of farmers, and the larger amount shown in sight by the report of the visible supply. Restricted feeding of stock is permitting more corn to go into the market which aids in himself. feeding of stock is permitting more corn to go into the market which aids in bring-ing prices to a lower leved. One year ago the price for No. 3 corn was 4644c per bu. Quotations for the week are as

	No. 3 Corn.	No. 3 Yellow
Thursday	 65 3/4	65 1/4
Monday Tuesday	 65	65 1/64
Wednesday Oats.—This	 661/2	651/

Oats.—This cereal has recovered the loss sustained during last week's trading. There is, however, liberal increase in primary receipts this week and the visible supply shows a larger amount of the cereal in sight. One year ago the price for standard oats was 32% c per bu. Quotations for the week are as follows:

Standard. No. 3

															ndard.	White
Thursday									٠							
Friday	٠	٠	٠									٠			5334	531/
Saturday						Ċ.	٠.							2	5334	531/4
Monday															5334	53 1/4
Tuesday				·							·	·	ŀ	ú		
Wednesda	V	+							,	į,					54	531/2
		n										-				

Beans.—The closing figures of last week have been maintained. The market is easy and dull. Farmers are not disposing of their supplies liberally. They, however, have few beans of high quality. Quotations are as follows:

the state of the s	Cash.	May
Thursday	\$2.38	\$2.4
Saturday	2.38	2.4
Monday Tuesday	2.38	2.4
Wednesday	2.35	2.4

Clover Seed.—There are no changes in quotations for either common or alsike seed. While traders are anxious to secure as large holdings as possible to supply the spring trade the scarcity of seed prevents any large transactions. Quota-tions are as follows:

	Prime Spot.	March.	Alsike.
Thursday Friday Saturday Monday	\$13.50	\$13.50 13.50 13.50	\$13.25 13.25 13.25
Tuesday Wednesday .		13.25	13.00

timothy Seed.—Timothy seed sold here this week at \$6.90 per bu., which is a decline of 10c as compared with the price for the previous week.

for the previous week.

Rys.—This deal is steady and inactive, with the price for cash No. 2 at 94c per bu., which is the same as last week's quo-

Flour, Feed, Potatoes, Etc. Flour .- Prices are unchanged

Flour.	Prices	a	re		U	11	10	h	a	n	g	е	d				N	1	arke
Straight				,															.\$4.2
Patent M	ichigan																		4.8
Ordinary	Patent														٠,			٠.	4.60
Rye			٠.																5.20
Feed,-	All gra	de	S		a	r	e		u	n	c	h	a	r	1 2	re	26	F	an

Feed.—All grades are unchanged and steady. Carlot prices on track are: Bran, \$28 per ton: coarse middlings, \$28; fine middlings, \$28; cracked corn, \$30; coarse corn meal, \$30; corn and oat chop, \$27 per ton.

Hay and Straw.—Both hay and straw remain steady. Firm. Quotations are: No. 1 timothy, \$22@22.50; No. 2 timothy, \$21@21.50; clover, mixed, \$20@21.50; rye straw, \$11.50@12; wheat and oat straw, \$10.50@11 per ton.

Potatoes.—The demand for potatoes is broad, with supply restricted to limited offerings. Prices rule firm with those of

offerings. Prices rule firm with those of a week ago. Car lots on track are quoted at 95.0 \$1 per bu.

Provisions.—Family pork, \$17.50@18.50;

mess park \$16.50; medium clear, \$16@17.50; picnic hams, 9%c; bacon, 11½@13c; pure lard in tierces, 9½c; kettle rendered lard, 10%c per lb.

Dairy and Poultry Products.

Dairy and Poultry Products.

Butter.—This market shows firmness at an advance of 1c over the depressed prices of last week. Quotations are: Extra creamery, 28c; first creamery, 27c; dairy, 21c; packing stock, 20c per lb.

Eggs.—Dealers are receiving eggs in fairly liberal supply and prices have dropped as a result. Current receipts, cases

26e. Eggs.-

Eggs.—A general advance of 1c came early this week. Being due to delayed shipments it is looked upon as merely temporary. Quotations are: Firsts, grading 45 per cent fresh, 29½c; ordinary firsts, 26@27c per dozen; at mark, cases included, 24@26c.

Poultry.—Steady to firm under light receipts. Live are quoted as follows: Chickens, 15c; fowls, 14c; roosters, 9½c; turkeys, 14c; ducks, 15c; geese, 9c. Dressed—Chickens, 14@15c; fowls, 14@15c; roosters, 10c; turkeys, 18½c; ducks, 17c; geese, 13c.

Potatoes.—Weather conditions have

geese, 13c. Potatoes.—Weather

geese, 13c.

Potatoes.—Weather conditions have limited shipments and prices have again advanced; market firm. Michigan stock is now quoted at \$1.08@1.10 per bu. Wisconsin, \$1.05@\$1.10; Minnesota, \$1.08@1.10. Beans.—Market steadier than a week ago; pea beans have recovered a part of last week's loss. Current quotations are: Pea beans—Choice hand-picked, \$2.58 per bu; prime, \$2.48 per bu; Red Kidneys, \$2.65.

\$2.65.

Hay and Straw.—Market is steady to firm. Quotations: Timothy, choice, \$22.50 @23.50 per ton; No. 1, \$20.50@21.50; No. 2 and No. 1 mixed, \$19@19.50; No. 3 and No. 2 mixed, \$14.50@18; clover, \$16.50@19; No. 2 and no grade, \$7.50@13.50; alfalfa, choice, \$20.50@21; No. 1, \$19@20; No. 2, \$18@19; straw, rye, \$9.50@10.50; oat, \$9@10; wheat, \$7.50@8.50.

New York.

included, are quoted at 29c per doz., which is a se below the quotation of last week. Poultry.—The supply of chickens and other kind of poultry is small. Demand is moderate. Prices continue firm with moderate. Prices continue firm with moderate. Prices continue firm with some negures slightly above those of last week. Balfactions are as follows: Live the continue firm with some continue firm of the continue firm with season of the continue firm with season of the continue firm with

a big discount.

Cattle have been on the down-grade most of the time recently, with the general demand of the slow character usual when Lent begins, and the indications were that consumption of beef is even smaller than in other years because of its great dearness, resulting in the substitution of fresh pork to an unprecedented degree. The Monday market last week was dull and 10@25c lower under excessive offerings, the run amounting to over New York.

Butter.—All grades 1@1½c higher; market firm. Creamery specials are quoted at 30½c per lb; extras, 30c; firsts, 290 29½c; seconds, 27½@28½c.
Eggs.—Market unsettled; quotations running 4@5c below last week; figures.
Fresh gathered extras, 30@31c; firsts, 29½c; seconds, 28½@29c; western gathered whites, 30@32c per dozen.
Foultry.—Live—Steady to firm with prices unchanged. Western chickens, 12 20½c; seconds, 13½@14½c; turkeys, 15@ 16c. Dressed—Steady. Western chickens, 12½@15c; fowls, 13½@14½c; turkeys, 15@ 21c.

Boston.

Wool.—Interest is centered in bidding southwest. Attention in old wool is largely contined to fleeces, special inquiry being made for Michigan and Ohio stock. Pulled wool is fairly active. Following are southwest. Attention in old wool is largely contined to fleeces, special inquiry being made for Michigan and Ohio stock. Pulled wool is fairly active. Following are rest to be leading domestic quotations for fleeces: Ohio and Pennsylvania fleeces—the leading domestic quotations for fleeces: Ohio and Pennsylvania fleeces—the leading domestic quotations for fleeces. Ohio and Pennsylvania fleeces—the leading domestic quotations for fleeces. Pine unwashed, 26c; fine unwashed, 21½c. Michigan, Wisconsin and Soc; ½-blood combing, 30c; ½-b cost of feed of all kinds everywhere, corn selling in many feeding districts at 60c per bushel or more and hay around \$20 per ton. Stockers sold at \$3.50@5.50 and feeders at \$5@6.35, and 765-lb, steers sold up to \$5.65. Calves sold fairly at lower prices, sales ranging at \$3@7.60 per 100 lbs. and milkers and springers sold moderately at \$30@65 each. At the close of the week cattle selling below \$7.60 averaged a dime lower than a week earlier, stockers and feeders averaging 10@15c higher. higher.

s is ited of of uotBuffalo.

8.50;
7.50;
Special Report of Dunning & Stevens, New York Central Stock Yards, ard, Receipts of stock here today as follows: Sheep and lambs, 80 double decks; sheep and lambs, 80 double decks; calves, seep and lambs, 80 double decks; calves, with only 80 cars of cattle on our market here today, we quote the market at 27c; 15@25c per cwt. higher than last-week, but with the exception of one load of neavy prime cattle, the best seen here in rop- a long while, the better grades of cattle on seen and seen of cattle on our maral long while, the best seen here in rop- a long while, the best seen here in rop- as seen and long unality and fin-

of the prevalence of sickness. at a wide range of prices, with class of pigs of the heavier c

of the prevalence of sickness. Pigs soil at a wide range of prices, with the better class of pigs of the heavier class selling around the prices realized for light hogs. The consumption of fresh pork products throughout the country continues unprecedentedly heavy, and this accounts chiefly for the way prices for hogs are maintained in the markets of the country. The hogs coming to market are somewhat heavier in weight than several weeks ago, although much lighter than a year ago. At the close of the week hogs sold at \$5.80@6.25, against \$5.90@6.35 a week earlier, with pigs bringing \$4.40@5.90 and stags \$6.25@6.50.

Sheep and lambs were marketed much less freely last week than heretofore, the snow blockade helping to curtail supplies for the mid-week, and this helped sellers to obtain higher prices for the choicer class, these comprising too small a percentage of the daily offerings. There were very few buying orders for feeding lambs, and most of these went to city slaughterers at very low prices. Among sales of lambs to feeders may be mentioned a flock of 362 head that averaged 77 lbs. at \$5.75 and a lot of 124 head of inferior grade that averaged 54 lbs. at \$4.60. Ewes sold chiefly at low prices, many offerings being "lamby." At the close of the week fancy Wisconsin-fed western lambs averaging 77 and 88 lbs. brought \$7.10@7.15, lambs selling all the way down to \$4.50. Yearlings sold at \$4.50@4.25 and bucks at \$2.75@3.25. The top for lambs the previous week was \$7. Horses were especially active on Tuesday last week, with quite a number of sales of desirable farm workers from \$5 to \$10 per head higher. Farm workers have been selling mainly at \$160@200, with mares of a good grade wanted at \$210@275. Light drafters had a good outlet at \$175@225, better and heavier ones selling at \$230@255 or even higher. Inferior horses sold below \$100 and wagoners at \$160@200. Very little was done in drivers, prices ruling at \$125@225 or more.

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DETROIT LIVE STOCK MARKETS.

Thursday's Market.

Receipts, 755. Cows and bulls and canners steady; good grades 15@25c higher than last week.

Cathe.

Receipts, 755. Cows and bulls and canners steady; good grades 15@25c higher than last week.

We quote: Extra dry-fed steers and heifers, \$6.25@6.60; steers and heifers, \$1000 to 1.200, \$5.50@6; do. 800 to 1.000, \$4.75@5.25; do. that are fat, 500 to 700, \$4.64.75; choice fat cows, \$4.75@5; good do., \$4.04.75; choice fat cows, \$4.75@5; good do., \$4.04.75; common cows, \$3.26.75; canners, \$1.75@2.75; choice heavy bulls, \$5; fair to good bolognas, bulls, \$4.47.5; stock bulls, \$3.23.75; milkers, large, young, medium age, \$40.655; common milkers, \$20.035.

Bishop, B. & H. sold Newton B. Co. 4 steers av 1.045 at \$5.60, 1 do weighing 1,260 at \$6.50, 2 cows av 1,155 at \$4.75; to Thompson Bros. 3 butchers av 626 at \$4.50, 4 do av 900 at \$5.60; to Parker, W. & Co. 7 cows av 1,083 at \$4.60, 2 do av 770 at \$3, 1 do weighing 1,120 at \$5.2 do av 955 at \$4, 1 do weighing 1,200 at \$3.75; to Rattkowsky 1 bull weighing 1,020 at \$3.75; to Rattkowsky 1 bull weighing 1,020 at \$4.75; to Newton B. Co. 12 steers av 904 at \$5.75, 16 do av 922 at \$4.57; 2 bulls av 1,150 at \$4.50; to Sullivan P. Co. 5 steers av 1,074 at \$5.50, 1 bull weighing 880 at \$4.50; to Goose 12 cows av 890 at \$3.65; to Marx 4 heifers av 812 at \$5.25; to Sullivan P. Co. 2 cows av 1,000 at \$4.10 at \$4.75; do av 925 at \$5, 5 steers av 654 at \$4.75, 4 do av 925 at \$5, 5 steers av 654 at \$4.75, 4 do av 925 at \$5, 6 steers av 1,010 at \$5.50, 1 bull weighing 1,020 at \$4.75; to Marx 4 heifers av 812 at \$5.25; to Sullivan P. Co. 2 cows av 1,000 at \$4.10 at \$5.50, 1 bull weighing 1,000 at \$4.75; to Marx 4 heifers av 812 at \$5.25; to Sullivan P. Co. 2 cows av 1,000 at \$4.75; to Applebaum 6 at \$4.50; to Applebaum 7 butchers av 790 at \$5.50; do av 881 at \$4.50; 2 do av 1,005 at \$4.50; do av 881 at \$4.75; do av 880 at \$4.50; 2 do av 1,005 at \$4.50; do av 881 at \$4.75; do Applebaum 7 butchers av 732 at \$5.60; av 1,000 at \$4.75; do Applebaum 7 butchers av 732 at \$5.60; av 1,000 at \$4.75; do Applebaum 7 butchers av 732 at \$5.60; cows av 820 at \$5.50; 2 steers av 1,161 at \$5.

At \$5.50.

Veal Calves.

Receipts, 447. Market 50@75c higher than last week; steady with Wednesday.
Best, \$9@10; others, \$4@8.75; milch cows and springers steady.

Lovewell sold Parker, W. & Co. 16 av 145 at \$9.

Spicer & R. sold Sullivan P. Co. 1 weighing 140 at \$9.50.

Haley & M. sold Mich, B. Co. 2 av 180 at \$10.

Bishop, B. & H. sold Norther.

at \$10.

Bishop, B. & H. sold Newton B. Co. 1 weighing 210 at \$10; to Mich. B. Co. 15 av 150 at \$9.50, 11 av 150 at \$9.50; to Parker, W. & Co. 10 av 134 at \$9.50, 2 av 150 at \$9.50; to McGuire 9 av 140 at \$9. 12 av 150 at \$10; to Parker, W. & Co. 25 av 155 at \$9.50, 8 av 120 at \$8.75, 2 av 135 at \$8; to Sullivan P. Co. 10 av 150 at \$9; to Applebaum 1 weighing 170 at \$10, 2 av 115 at \$8.50, 1 weighing 250 at \$6, 4 av 125 at \$7.50.

Sheep and Lambs.

sheep and Lambs.

Receipts, 5,772. Market 25@50c higher than last week. Best lambs, \$6.50@6.75; fair lambs, \$5.66; light to common lambs.

33.50@4.50; fair to good sheep, \$3@4; culls and common, \$2@2.75.

Bishop, B. & H. sold Newton B. Co. 50 lambs av 62 at \$6.25, 91 do av 71 at \$6.25; to Sullivan P. Co. 4 do av 83 at \$5, 17 do av 85.50; to Youngs 118 lambs av 82 at \$6.50; to Youngs 118 lambs av 82 at \$6.50, 28 do av 65 at \$5; to Thompson Bros. 26 do av 55 at \$4.50; to Thompson Bros. 26 do av 55 at \$4.50; to Parker, W. & Co. 103 do av 48 at \$4.50; to Parker, W. & Co. 12 sheep av 100 at \$4, 9 do av 75 at \$6.57; to Mich, B. Co. 12 do av \$5 at \$6.50; to Parker, W. & Co. 12 sheep av 90 at \$4, 14 do av 80 at \$5; to Thompson Bros. 18 lambs av 80 at \$6.75; to Mich, B. Co. 13 do av 55 at \$4.65, 7 sheep av 120 at \$4, 14 do av 80 at \$2; to Hayes \$7 do av 85 at \$6.75, 18 do av 80 at \$5, 5 sheep av 120 at \$3. Haley & M. sold Mich, B. Co. 23 year-

160 at \$6.35.

Spicer & R. sold same 165 av 210 at \$6.45, 125 av 180 at \$6.40, 120 av 165 at

\$6.35.
Bishop, B. & H. sold Sullivan P. Co. 325
av 180 at \$6.40, 315 av 150 at \$6.30, 120
pigs av 110 at \$6.20.
Roe Com. Co. sold same 135 av 200 at
\$6.45, 125 av 190 at \$6.40, 80 av 170 at
\$6.35, 65 av 150 at \$6.25.

Satisfactory reports regarding the condition of the ranges and the sheep in such important sheep raising states as New Mexico, Nevada, Arizona, Washington, Oregon, Idaho and Utah are received, but this cannot be said of conditions in Wyoming and Montana, where losses will be considerable.

be considerable.

Looking over past years, it is found that for the ten years ending with 1879 the average weight of the hogs marketed in Chicago was 275 lbs. It dropped off during the next ten years to 257 lbs., declining the next decade to 239 lbs., while the following ten years saw the average weight only 219 lbs. Heavy hogs, as well as heavy cattle, once so popular with stockmen, have long been succeeded by much lighter weights, although there are still some farmers who always market heavy steers and heavy hogs.

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

Advice through this department is free 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.

accompany the letter.

Cracked Heels—Tonic Powder—Acute Indigestion.—I would like to have you give me a formula for making a tonic condition powder for live stock and another for sore heels in winter season. One of yearling steers took sick suddenly and died within a few hours. He bloated and a fluid came from mouth. I also lost a calf showing very similar symptoms. These cattle are kept in a basement barn and fed same as my other cattle and calves. G. H., Fairgrove, Mich.—Apply equal parts tincture of benzoin and glycerine to cracks in heels twice a day. For a stock tonic mix together equal parts ground gentian, quassia, cinchona, nux vomica, fenugreek and ginger and give a tablespoonful to each horse and cow at a dose two or three times a day. Your cattle no doubt die of acute indigestion or may possibly become poisoned from eating infected food; however, I can hardly believe they do.

Lump Jaw.—My four-year-old heler

hardly believe they do.

Lump Jaw.—My four-year-old heifer has a bunch on upper jaw situated below eye, about the size of a man's fist. This bunch is hard as bone, eye discharges and our local Vet. thought it might be result of an injury. A. W. O., Novi, Mich.—You had better apply one part red iodide of mercury and eight parts lard to bunch twice a week, and give her 2 drs. iodide potassium at a dose two or three times a day for two weeks.

Knuckling.—We have a colt that is

a day for two weeks.

Knuckling.—We have a colt that is now nine months old that is cocked over on both hind ankles. Our local Vet. tells me that the colt will perhaps outgrow this trouble. G. H., Plainwell, Mich.—Usually crooked legged colts do straight en as they grow older; however, if the pasterns are straight, short and uprignt the tendency is to knuckle easily. Apply equal parts turpentine, aqua ammonia and olive oil to fetlocks three times a week.

Mange —I have a how that her

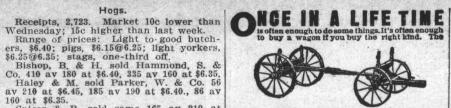
week.

Mange.—I have a hog that has a sore skin, scabs cover about one-half of his body and he has been in this condition for the past 12 months. He must itch because he rubs himself a great deal. J. W., Dorr, Mich.—Apply one part oxide of zinc and four parts vaseline to sore parts once a day. You should not cover all sores at once, but treat one-fourth part at a time.

Mich. B. Co. 13 do av 55 at \$4.65, 7 sheep av 130 at \$4, 14 do av 80 at \$2; to Hayes 45 lambs av 65 at \$6.75, 18 do av 80 at \$5, 5 sheep av 120 at \$3.

Haley & M. sold Mich. B. Co. 23 year-lings av 85 at \$4.50, 37 lambs av 73 at \$6.50.

Spicer & R. sold Sullivan P. Co. 29 sullivan P. Co. 29 sulli of dentition and as soon as he has a lambs av 50 at \$5, 61 do av 65 at \$6, 41 full set of permanent teeth he will be do av 78 at \$6.75, 20 sheep av 80 at \$3.75.



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strict attention to vitality in poultry as and males, carry their health indicators any other domestic animal. A good hen ing, large and bright red, the size deis expected to lay annually about five pending upon the breed, of course. Strong
times her weight. It has been estimated fowls have round, open, bright eyes. They
that the ratio of dry matter in one of our are very active, not "dopey," and squat compared to the milk she yields yearly, found upon the perch during the day. The is about 1 to 2.5. It will be noticed that, weak hen moults slowly or late, while the measured by such comparisons, the hen strong one does the reverse. The strong does twice as well as the cow. This be- hen is known by her loud singing and ing so, it is very important that the poul- cackling; a strong male by his frequent tryman strive not only to maintain, but and loud crowing, and by his great gento increase, the constitutional vigor of erosity demonstrated by calling his mates

Of course, the old, hap-hazard way of eat. should never be used as breeders.

hatching should be placed in roomy, are rough in plumage, whose wings drag sunny, well ventilated quarters. Put in the ground and whose appetites are poor, a male, the best you can afford, for every New York. W. D. Korb. 12 to 15 females. This pen should not be fed for heavy laying and should be com- POULTRY DESTROYERS AND HOW TO pelled to take plenty of exercise.

Little Details which Affect the Vitality of Chicks.

hibition or other qualities are sometimes for the sake of killing them. No animals developed at the expense of vigor. Close are more blood thirsty and carnivorous breeding can be followed successfully only than the weasel tribe. by mating the strongest individuals. One purchased from breeders who have repu- and his fur is quite valuable. tations which are above reproach.

ing of eggs for hatching will naturally but nothing larger. Locate his runway affect the vitality of the eggs and this or a place which he frequents. Hang bait may affect the chicken through life. Eggs from the limb of a tree, with heavy intended for incubation should be kept thread or string, about twelve inches at a temperature of about 50 degrees, from the ground. Place the trap directly should be turned daily, and should be beneath the bait. Use rabbit, bird or livplaced into the incubator, or under hens er for bait. before they are two weeks old at the In many instances this animal is caught

person caring for them. The physical grounds of the animal. vigor of chicks is also reduced by close The same general methods in trapping confinement or crowded, unsanitary con- should be pursued as for mink. Use the

the most efficient transformer of raw ma- around the trap as natural as possible. terial into finished product that we have on the farm, and since she is willing to wear herself out for us in perhaps less HATCHING TURKEYS ARTIFICIALLY. than three years, we should gladly give her the best care possible.

stages of fowl life. The very weak chicks a means of hatching poults. The quesare hardly worth trying to raise; others tion is often asked whether turkeys can should be marked and disposed of as be successfully hatched in incubators, and broilers, the strongest and most vigorous to those who still favor the natural methbeing retained for layers, and the best od we would cite the results of an exof these used for breeders, generally when periment made at the Washington stanot less than two years old. I prefer to sell old hens and roosters several weeks ticability of hatching and rearing turbefore the moulting period begins. This keys artificially, is also the best time to dispose of any In this test 10 young hens which lack vitality.

Points that Indicate Strong Vitality. Even though trap-nesting is not practical for the average farmer it is not these eggs 87 poults were hatched. ers. The bright, active hen, the one that be infertile at the time of the first test

THE MICHIGAN FARMER.

is willing to convert a large amount of feed into eggs, regardless of how much litter she must move to get that feed, is the profitable hen. The heavy layer invariably has a bright red, well developed comb. But to distinguish the fowls having constitutional vigor is a different proposition. It should always be rement-It is quite important that we pay as bered that mature chickens, both females to heavy egg production. The require- on top of their heads. As before stated ments of the modern hen are greater, in in regard to heavy layers, the comb of proportion to her weight, than those of the physically strong fowl is, when laybest hens, compared to the dry matter in rather than stand. They are late to take the eggs she produces, is about 1 to 5; the roost and early to leave it. The while that of a first-class Jersey cow, weak hen, like the poor layer, is often and giving them the choicest morsels to Vigorous fowls carry their heads selecting eggs for incubation from the and tails well up, have rather short heads, entire flock, with very little if any regard short, strong beaks, short, stout toes, for uniformity in size, shape and color, legs well colored according to the breed, must be abolished. Select only breeding strong, broad backs of medium length, stock of known physical vigor. The rather short, plump bodies and necks, breeder possessing a clear understanding broad, full chests, are quite wide beof the physical differences between the tween the legs and have smooth, closely strong and the weak has no difficulty in fitting plumage of fine brilliancy. They selecting the best. Most anyone is able are always ready for feed, yet bold and to acquire, through practice, this under- willing enough to leave feed for a good standing to at least a passable degree. fight, at times. With a few exceptions, Pullets, unless they are full of vitality the foregoing may be applied to chicks. and are known to be fully developed, But beware of chicks with long, slim necks, toes and legs, with crow-like heads The hens selected to produce eggs for and bills, that are slow in feathering out,

CATCH THEM .- II.

The weasel, which resembles the mink In-and-in breeding, by the average very closely, has similar habits. It, too, farmer, should be avoided. Laying, ex- will kill chickens and other fowl merely

The coat of the weasel is brown in must always have in mind "the survival summer, but as winter advances his fur of the fittest." Unless males can be changes to pure white, except the tip of procured near home, where they can be the tail which is jet black. To the fur carefully examined, new blood should be trade this animal is known as the ermine

For trapping weasel use No. 0 traps if Carelessness in the selection and keep- you have them, although No. 1 will do,

in traps set in muskrat, skunk and civet The vitality of the chicks is also im- dens. This is due to the fact that the paired by the use of unreliable machines, weasel is a wanderer and usually enters or the improper handling of any machine; all such places along the route which he also by hens which are not close sitters, travels. Often successful sets may be or which are not handled right by the made along streams or upon the hunting

They must be kept free from greatest of care in setting the traps. They lice, and especially head lice. They must should always be covered, as well as the be fed the best rations and have free chain, which should be fastened to a tree, range in order that their growth may be stump or stake. Select good places for uninterrupted and natural. This is very your sets, and remember where each is made; otherwise you will lose some of Increased productiveness demands a your traps. Oil the traps frequently. higher standard of vitality. A hen with Rabbit oil is good for this purpose. Spring great productive powers, and lacking in them occasionally, never letting them set physical vigor, so reduces herself that too long. Rust should never be seen on she invariably dies of exhaustion before any traps. Never allow dogs to follow she is two years old. Since the hen is when setting traps. Leave everything V. P. GOKEY. Minnesota.

Turkey growers, as a rule, have never We should cull closely during all the looked with favor upon the incubator as tion with a view to determining the prac-

In this test 102 eggs from good stock of the Mammoth Bronze breed were used. this number being quite sufficient to fill an ordinary 150-hen-egg incubator. From very difficult to distinguish the heavy lay- the remaining eggs, four were found to





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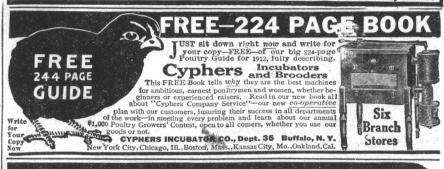
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Mrs. Jerry McMahon, Vederleysburg, 1nd., with a 125 Egg
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Brooders equally well constructed, hover, safety oil lamp, wire yards—both the best in every
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Choice Standard-bred Rouen, Pekin and Indian Runner Ducks; Buff, White, Golden, Silver, Columbian and Partridge Wyandottes; Barred and Buff Rocks; Reds; \$2.50 single bird; \$6 trios; Toulouse Geese, \$4 each. Catalog free, Geo. F. Hartman, Box 280, Freeport, Ill.

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WHITE Wyandottes—The most beautiful and useful of American breeds. Send for 1912 circular.

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three were cracked and four of the poults died in the shell. The temperature of the machine at the time of placing the eggs in the tray was 102 degrees. moisture pan, of the same size as the tray and placed two inches beneath it, contained a half-inch depth of sand and this sand was kept wet enough to show puddles of water on its surface at all times during the period of incubation, water heated to about 100 degrees being applied to it daily. The eggs were turned every 12 hours after the third day. During the first week a temperature of 102 degrees was maintained and after that 103 degrees, with but slight variations. The eggs were tested for fertility on the tenth day and again on the twentieth day. Hatching commenced on the twenty-seventh day and all the poults were out of the shells by the end of the twenty-eighth day. The day following the hatching the incubator door was left ajar about one-eighth of an inch, and on the second night this was increased to one-quarter of an inch. This was done to gradually harden the poults in their preparation for the hover.

THE CLOVERS AND THEIR VALUE AS HONEY PRODUCERS .- II.

Alsike Clover.

Alsike clover (Trifolium hybridum) is by many people supposed to be a cross between the white and the red, but this is not a fact, for it is a distinct species. In appearance it is intermediate between the white and the red. The blossom is like a very large white clover blossom with the extremities of the petals tipped with a delicate pink shade. The leaf is similar to that of the other clovers except that in color it is a bright green and free from the downy spots which are found on leaves of other varieties.

It is an abundant honey producer and as the petals are short, the common honey bee finds no trouble in securing the nectar. The quality of the honey is fully equal to that made from white clover. Being widely grown for hay, it is in many localities the most important honey plant and in some sections honey producers have gone so far, in their efforts to encourage the growth of this plant, as to supply their neighbors with seed.

As a forage plant it is far ahead of red clover, in quality at least, and it has been claimed for it that where tested as a feed for milch cows it has proven superior to all other clovers. This has been tested by turning cows from good red clover pasture to alsike pasture and then, later on, turning back to red clover. The change from the red to the alsike has almost invariably resulted in a very marked increase in the flow of milk, while turning back from alsike to red brought a marked decrease. I have seen it stated that one can cut two crops of hay from an alsike seeding in a season, but this has not been the case with me. have found that it yields just as heavily as the larger clovers on heavy land, but on light land it does not do so well. The quality of the hay, however, is superior and as I have given up the seeding of light soils to alsike I find it a very profitable crop as I now handle it.

Seeding is best done in the spring, thus obviating the risk of winter-killing. As the seed is much smaller than that of the red clovers, it does not require so many pounds to the acre. I find three to four pounds sufficient for a good catch. It should be sown either on a light snow, late in March, or just when the ground is freezing and thawing and leaving cracks and crevices all over its surface in a manner highly injurious to the wheat crop, but just the condition for successful seeding. Alsike will usually do well sown with oats or buckwheat if the nurse crop is not sown too thick. As it lodges very easily it is a very good plan to sow a think sprinkling of timothy with it to hold it up.

Unlike the red clover the first crop must be cut for seed, but as it is a good yielder, and there is always a good demand for the seed at paying prices, it is a very profitable crop to grow for seed. An average yield of seed would be about four bushels per acre, but it has been known to go as high as seven and perhaps even more to the acre. As it very seldom sells below \$8 per bushel, and as the hay, after being run through the huller, is still better than are the other clovers without hulling, it would seem that bee-keepers may safely depend upon this plant, since the area devoted to it is sure to increase year by year.

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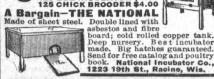
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PREPARATION AND CARE OF THE HOTBED.

lengthening the period of growth for gardo in this consideration only with the make their life short. hotbed since it comes first in the sequence of putting into commission in the spring.

about him practically all of the mate- animals that are about the same age, i rials needed, about the only exception be- e., it is not good policy to mix the maing perhaps the sash and glass. He has nure from colts with that from old horses the manure, the loam, the garden soil and The manure should be about half strawy the space, and generally is supplied with material. This makes it about the proper struct the walls. The satisfaction in above. pleasure, health, and economy in supplymonth, and even more, before they would with a flat top, and allowed to ferment

Principle Employed in Hotbeds.

The manner of obtaining heat in hot- by the application of a few pails of hot

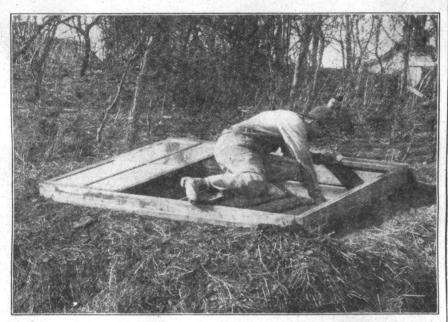
tiple of three feet. The frame can be made out of boards nailed at the corners or if a more permanent structure is wanted plank can be fitted together so as to be taken down and stored away.

The sash may be purchased or made. Use double thick, second-grade glass 12 inches wide and lay in putty, fastening There are numerous contrivances for above with points. If sash frames are made rigid and care is exercised in han 1den plants, chief among which are the ling, the sash and glass will last for hotbed and the coldframe. We have to years. Recklessness in their use will

The Manure Supply

It is important to start with a quality of manure that will ferment well and still It may be stated by way of parenthesis have such lasting qualities that the plants that the farmer who operates a general can be carried to maturity, or until they farm is, perhaps in as good, if not a bet- can be taken from the hotbed and placed ter, position for having upon his prem- in the open fields or coldframes. Such a ises a serviceable hotbed than any other marure is that from horses which are class of persons, he being able to find fed a high ration of grain and usually the required number of boards to con- consistency to gain the ends suggested

The manure is prepared by being placed ing the table with early products a full in a long pile three or four feet deep, be due in the regular course, makes it When the weather is very cold it is often worth while for the general farmer to a little difficult to start the bacteria to provide such an innovation, and usually work, for the fermentation depends upon once tried the institution is continued. the activity of certain bacteria in the manure. They can be inspired, however,



Hotbed in which the Heat is Obtained from the Manure Around the Frame, Instead of Placing it in the Bottom.

beds for the early growing of plants, is water. When fermenting begins the mabe placed underneath the soil in which mentation uniform. makes better use of the heat generated ings. by the heating material.

Of What a Hotbed Consists.

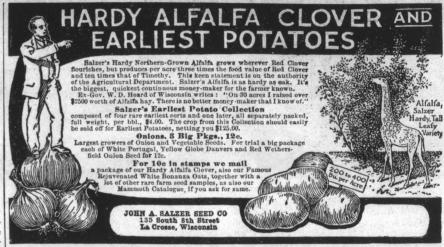
frame set on this and other manure bank- better distribution of the heat. If one the frame is set on the level ground and after it is packed down. the manure merely packed about the inches thick will usually run the bed for frame, the heat radiating through the a full month. frame to warm the inside for plant grow- Over the manure, or mold, if the latter ing. This latter plan is little better than is used, the soil is placed. Good garden the coldframe and can be used only for a soil is the best for this purpose. It should short period. It, however, is very use- be free from clods or refuse of any kind. ful if one is not particular about making The soil should be made about five inches his crops real early.

high on the north side and eight or ten the remainder can be put in and worked inches high on the south side, the long down with a rake. If one has sand, about run of the structure being east and west, a half-inch of it placed on top makes a The frame is made six feet wide and nine, good bed for receiving small seed, helps twelve or more feet long, to accommodate to keep the moisture in the soil and the the sash, which come in sections three surface heat. feet wide and six feet long-the length For a few days after the bed is made of the frame, therefore, can be any mul- the temperature will be too high for the

to use the heat generated by the decom- nure should be turned and piled in a simposition or "heating" of manure, tanbark, ilar manner, taking pains that the spots or other material for conditioning the soil where heat is being generated are well as to temperature and also the air in distributed through the parts that are unwhich the plants grow. The manure may changed. This will tend to make the ferthe seeds are planted, or around the and occasionally a third, fourth and even structure, as is shown in the illustration a fifth turning is necessary before the accompanying this article. The former manure is ready for the hotbed. A few way is the most common and no doubt days should intervene between the turn-

When the manure is ready and the pit for receiving same is cleared of whatever The ordinary hotbed consists of a pit, may have been stored in it, the next step which may be walled or not, a frame and is to fill the pit with the fermenting ma-The pit is dug large enough to oc- terial. It is usually best to cover the cupy the full space beneath the frame bottom with a couple of inches of leaves above. The pit should be dug in the fa'l or straw; then put in the manure and as it could not be done at this season, tramp it in in layers about six or eight filled with leaves or strawy material to inches thick, being particular that every prevent the sides and bottom from freez- portion of the surface is made of equal ing hard. This straw is removed when firmness that uneven settling may not rethe pit is to be put in use in March. If sult later. If one has it available, it is a no pit is dug the manure can be piled on good practice to place over the manure the ground about two feet thick, the a couple of inches of leaf-mold to give a ed about the frame. Still a third method desires to run the hotbed for two months is that illustrated in the halftone where he should put in about two feet of manure A mass 15

thick. Put in about half the amount and The frame is commonly made one foot thoroughly tramp it down, after which





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Burn any fuel—set on the ground anywhere—no foundation required Sizes 15, 20, 30, 40, 55, 65 and 75 gallon. Write at once for full information and low price, or send order for size wanted. Heesen Bros. & Co., Box 64, Tecumseh, Michigan.

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and another reaching down into the ma- with towers and very long extension rods. nure and when they indicate a tempera- For such work an entirely different class ture that ranges about 90 degrees F. the of nozzles must be used. seeds can be planted.

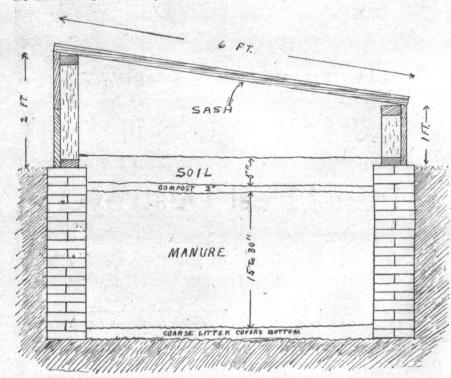
Lettuce and beet seeds can be planted in the beds for growing until large enough to use on the table. For the early crops of tomatoes, celery, cabbage and to the open field. In this manner these crops are brought to the kitchen table be matured under natural conditions.

Close watch should be given that the old blankets or straw to prevent freezing where the man stood. the plants, but can be removed again when the weather moderates.

growing of plants. One should keep two the ideal, mist-like spray, cannot be dethermometers in the bed, one in the soil pended upon to cover large trees even

But probably the most common fault is in handling the rods. Few people seem to have any sort of system in doing this work. A boy started to do a piece of plowing with oxen, and when the team cauliflower the seeds can be sown in the didn't go where they were bidden he told hotbed to produce the plants which are them to go where they pleased, the field later removed to the coldframe and then all had to be plowed. This is about the method usually employed in carrying the spray rods. The nozzles are passed over fully a month before the time they could the tree a few times, here and there, crossing their tracks or not, as they may happen to, and too often with little atbed does not become too warm for the tention to whether enough or too much plants during sunshiny days for the heat is put on. Again, some men attempt to rays are caught beneath the glass and spray a whole side of a tree from only greatly increase the temperature. This one position. Where this is undertaken is overcome by raising the sash on the those parts, both to the right and left, upper side and placing a support under it, are sprayed from widely different direcor if the day be warm enough the sash tions, and neither side will show the may be removed entirely. On the other same covering as that which has been hand, on extremly cold nights it may applied to that part directly in front of become necessary to cover the glass with the operator. The spray will show just

We find it is necessary to spray all then the weather moderates. except the very small trees from at least It is the best practice to water the beds four directions. The operator takes his in the morning instead of at night, es-position at a convenient distance from pecially where the weather is cold and the tree and beginning at one side passes the rod up and down, gradually proceed-In preparing the plants for setting in ing across the tree in this way, letting the field the grower should consider that each pass lap on the preceding one with the surroundings of the plants in the the same system with which one furrow



Cross Section of a Well-Constructed Hot bed, Showing Method of Filling and Sug- gesting Amount of Materials to Use.

bed and the open territory are quite dif- is lapped on another in plowing. Meanmentioned is the most convenient.

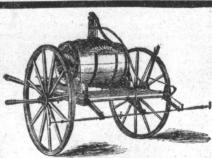
WHY SPRAYING MAY FAIL.

lime or some coloring matter is used these positions. There are three causes for this. Impropthe spray to all parts of the tree. The long hose and good carrying nozzles and type which makes a funnel-shaped spray goes after the back side of those little and dissipates the force only a few feet fruits. At one time I had occasion to away from the nozzles, although making spray an apple orchard with the hand

ferent and that the plants are too tender time it is necessary to observe closely to stand the change if it is made sud- just how much is being put on. The rule denly. It is the practice, therefore, to is to spray until all parts of the tree "harden off" the plants. This is done by commence to drip. Some interpret this getting them accustomed to the air by rule too liberally and spray the liquid on first taking off the sash during the warm- till it runs off in a genuine shower. Such er days, then every day and finally leav- spraying is wasteful and not so effective ing them off altogether; or if cold frames as when just the right quantity is put are available the plants can be taken on, as some fruits have a foliage that is there, should the hotbeds be wanted for cily and where excessive quantities are other purposes. But if not, the plan first applied the liquid gathers in globules instead of remaining evenly spread. Then, too, the poison which is carried in suspension, like Paris green or arsenate of lead, is the first to wash off. If the ap-Among orchards that are supposed to plication is made from four sides, each have been sprayed it is a little singular, time in this systematic manner, the probhow few there are which show a thor- abilities are that the tree will be pretty ough and even covering. This is es- thoroughly covered for the first two appecially apparent where Bordeaux mixture plications, though it is occasionally necor some spray with a good admixture of essary to stop midway between two of

But we find that with the later spray er nozzles may be used, the plunger pack- ings, after the foliage is well advanced, ing or cylinder in the pump may be con- a man is required on the ground to spray siderably worn, but more probably it is from the inside outwards. A man standdue to improper and unsystematic hand- ing on the spray rig and spraying a tree ling of the spray rod. Good spraying re- from four directions from the outside can quires a good pressure with the pump, cover the foliage and small fruits pretty and this cannot be maintained with a well on most sides, but there is a side of pump in which the liquid flows past the the little fruits that is away from him plunger very much. With Bordeaux mix- which is not reached from one side, and ture or other limy sprays in which there when he comes to spray the opposite side is considerable grit the wearing parts of of the tree the spray doesn't carry the pump are cut away quite badly and through sufficiently to reach that side, so require frequent attention. It is neces- it is left unprotected unless a man goes sary, too, to use nozzles that will carry around on the ground with a sufficiently

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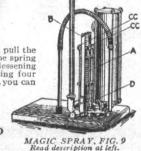
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The trees were small enough so we thought the spray would carry through the trees and make a good covering from the outside, so the man holding the rod stood on the trucks all of the time instead of doing part of the work from the ground, as we did with trees that were larger. At harvest time the fruit on that orchard was quite scabby, much more so than on the larger trees that had been sprayed both on the outside and inside.

These two things are necessary, then, in doing thorough work, a proper equipment in proper order and adequate system in making the applications. These, with the proper mixtures at the proper times, are sure to bring results.

Allegan Co. EDWARD HUTCHINS.

REMOVE THE DEAD WOOD.

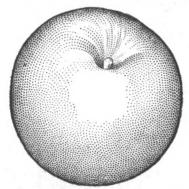
The neglected farm orchard is conspicuous for the dead and dying trees which it contains, if for no other reason. In fact, the average neglected orchard shows this neglect, almost as badly during the winter season as in the summer. Where dead trees are to be seen in the orchard and dead and broken branches strew the ground, the passer-by at once forms the opinion that the owner of the orchard is neglecting it to his own disadvantage and to the detriment of the appearance of his farm. It would not be a great task to cut the dead trees and remove the dead limbs from those which have not yet succumbed to the insect and fungous enemies of the orchard. The resulting firewood will pay well for the labor expended, to say nothing of the improved appearance of the farm. Then, the chances are if the owner interests himself to this extent he will take sufficient further in terest in the proposition to spray the trees himself or rent the orchard out to someone who will the following season. The old orchard with even a few good trees standing can be made to yield an abundance of fruit for the family which otherwise they would probably do without and removing the dead wood should be the first step toward that end.

But in doing this work don't succumb to the temptation of becoming a tree butcher. Too many farmers, when they get into the orchard with axe and saw, yield to the inclination to trim off the lower branches of the trees, so as to make it more convenient to work under them with a team and the ordinary farm This is a mistake, as it tends to tools. increase the heighth of the trees and makes the spraying of the trees and the harvesting of the fruit more expensive. Pruning should be carefully done, with the view to letting in light where needed, and of reducing, rather than augmenting, the heighth of the trees where severe pruning is needed. However, in the old orchard, where immediate results are desired, too much pruning should not be done at one time, and the novice would do well to limit his efforts to the remov-ing of dead wood and letting in more light in the thick places, avoiding the cutting of large branches.

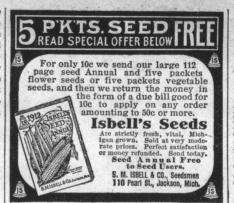
That the old orchards which have not produced profitably for years are worthy of attention, and by good care can again be made to produce fine fruit, is becoming more generally realized each year.

A. R. FARMER. Oakland Co.

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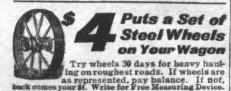
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FARMERS' CLUBS

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

WHAT THE LOCAL CLUBS ARE DOING

The Lenawee and Hillsdale Club follows a plan similar to that of the Napoleon Club, recently mentioned. The Club owns its own lap-boards and the members take their own lunches, the hostess furnishing the coffee. Printed programs are used, designating the place of each meeting. Topics are published for both gentleman and ladies, leaving details to be filled in in the several programs. feature of the work of this Club is a standing committee of ladies whose duty it is to send flowers to members who are ill.

The Conway and Handy Union Farmers' Club holds twelve meetings during the year. This Club has a membership of thirty families and publishes printed programs for six-month periods. A temperance meeting is held in March. Topics of the day are discussed at the monthly meeting of the Club. The hostess furnishes the dinner and there are enough members so that two or three years elapse between meetings at the The six-month program same home. idea has been entirely satisfactory and met with the universal approval of the Club members.

The Ceresco Club, of Calhoun County, was represented at the annual meeting for the first time in a number of years, although the Club is in a prosperous condition, having a membership of nearly 200. Ten meetings are held during the year, with an annual picnic in July. The members take their own dinners, each carrying their own dishes, etc. A program committee prepares the program from month to month and the members discuss all the live topics of the day. good musical program is provided for each meeting.

CLUB DISCUSSIONS.

Discuss Parcels Post.—Seville and Sum-ner Farmers' Club met February 1, at the home of Mr. and Mrs. George Bailey, the home of Mr. and Mrs. George Bafley, with about 40 present. After a bounteous dinner the meeting was opened by the president. After the program, parceis post was discussed. A unanimous vote decided that resolutions be written and sent to Hon, Francis H. Dodds, Senators Wm. Alden Smith and Charles E. Townsend, and the Michigan Farmer.—Mrs. E. C. Ferris, Cor. Sec.

send, and the Michigan Farmer.—Mrs. E. C. Ferris, Cor. Sec.

The Ideal Farm.—For their February meeting the Washington Center Farmers' Club went to "Old Homestead," the home of Mr. and Mrs. James E. DeMott. There was 120 present, and responded to roll call by giving a "Noted Birthday." After music by the Club, and miscellaneous business, Mr. F. E. Cammet told the Club what to take into consideration when looking for a farm. He said, soil first. then location, buildings, water supply and drainage, besides many other items should be considered. It is hard to find the ideal farm. Do the best you can, then go to work and make it ideal. The best way to conserve the fertility of the soil was discussed by O. J. Campbell, S. Z. Crowell and others. Mrs. Addison DeMott furnished some choice instrumental music, and Mrs. Cammet read an excellent paper entitled, "Business Metods for Farmers' Wives," which contained many good suggestions for everyone. This was followed by a song by Mr. and Mrs. Edward Fos-Wives," which contained many good suggestions for everyone. This was followed by a song by Mr. and Mrs. Edward Foster, who responded to an encore. "Why I Married a Farmer," by Mrs. John Pankhurst, was much enjoyed by the audience, and the question box finished the program. A pleasant feature of this meeting was the presence of our former valued members, Mr. and Mrs. Frank Brattin, now of Isabella county. The next meeting, with Mr. and Mrs. L. C. Curren, on March 14, will be a temperance meeting, for which a good program has been provided.—Mrs. O. J. Campbell, Cor. Sec.

Discuss Mortgage Tax Law.—The Had-ley and Elba Farmers' Club held their last meeting at Walnut Ridge with Mr. and Mrs. Wm. Bartenfelder, February 18. The extreme cold had a marked effect on the attendance, many farmers remaining at home to thaw out frozen pipes, pumps, etc., but the program was carried out in full. Instrumental solo by Mrs. Leslie Bartenfelder. The new mortgage tax law was well handled by Wm. E. Ivory, who cheerfully answered the many questions on the topic. Mrs. Carrie B. Snook read "Forward," a paper given by Mrs. Purdy, of Indianfields Farmers' Club at the annual meeting in Lansing. Mrs. James McDugal gave a fine paper on "Men's Share in Home-making." A reading, "Nobody But Father." by Mrs. Charles Farrar, elicited hearty applause from the gentlemen present. After a short business meeting the Club adjourned to meet in March at Orchard Home, with Mr. and Mrs. A. M. Bullock, feeling amply repaid for the journey through the drifts and bad roads.—Mrs. C. P. Johnson.

A Joint Pomona Meeting.—The Pomona Granges of Shiawassee and Genesee counties will hold a joint meeting in Durand ties will hold

GRANGE

Our Motto—"The farmer is of more consequence than the farm, and should be first improved."

THE MARCH PROGRAMS.

Suggestions for Second Meeting.

Song. Modern Modern ways of using power on the farm and in the home; relative cost to old ways

Recitation. Lessons from last summer's drought. Songs. Experiences in feeding alfalfa, or oth-

er new crop.

Musical contest.

Songs of various nationalities sung in costume throughout this program.

ACTIVITY, THE SECRET OF GRANGE GROWTH.

The text of my Grange sermonette this week will be found in certain passages from a letter received today, which extracts reads as follows:

tracts reads as follows:

"Stockbridge Grange, organized in March, 1911, has a membership of 86 and will receive a class of 17 this month. Hold a meeting every week. Have organized four degree teams, the one for the third degree being composed of young ladies. Have just purchased a new piano and have an orchestra of seven pieces. At the meeting of Feb. 7, T. J. H. Bruerton was made an honorary member, he having been the first lecturer of Michigan State Grange and organized many Granges. State Master Hull has promised to visit us soon. We have a most energetic master, which is the keynote of our success. Pomona was a great success when held here last month. Can you suggest a good book of recitations and plays, and a book of drills?"

These facts are noticeable in this newsy letter:

There is such an abundance "things doing" in this Grange that they fairly tumble over one another in the telling.

2. Already, with quite a large membership, the number is still growing. Success succeeds. One of the dangers of organizing with a large charter list is that the Grange is tempted to stay where it starts

About half the membership of this Grange is enrolled in degree teams. Degree work serves many and various uses; it often appeals to young people who shy at literary exercises or social features; grounds the members of the teams thoroughly in the beautiful language, teachings and forms of the ritual; it is an opportunity for young people to become well acquainted under wholesome conditions that afford activity of mind and body; it adds a strong, upbuilding feature at regular Grange meetings, inspiring candidates for membership with respect and admiration for an Order which thus receives them in such a dignified and delightful manner,

4. Music is being used as an impelling force in the development of members. new piano and an orchestra can build or rebuild any Grange anywhere if rightly directed, for, no matter how they differ in other things, people almost universally yield to the magical effect of inspiring music.

Notice how this Grange reaches back into history to grasp the hand of long-ago lecturer of State the first. Grange, while at the same time it offers welcoming hand-clasp to the present state master

6. Notice how the Master of this Grange is evidently the radiating center of activity in all departments. The most successful master is the one who sets the most of his members at work.

7. Notice how this Grange has assumed its share in county work, for we know that no Pomona meeting is a great success unless aided by the local Grange.

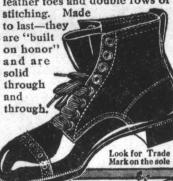
Finally, note the look ahead shown by the inquiry for program helps and JENNIE BUELL.

A Joint Pomona Meeting.-The Pomona

Western (Ottawa Co.), at Conklin, Thursday and Friday, March 1 and 2.

WORK SHOES THAT STAND THE WEAR

Mayer Honorbilt Work Shoes outwear other shoes because they are made from specially selected, tough and seasoned stock-choicest uppers-heavy soles-solid counters-double leather toes and double rows of



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WARNING—Look for the Mayer Trade Mark on the sole—if your dealer cannot supply you, write to us.

We make Mayer Honorbilt Shoes for men, women and children, including "Leading Lady" and "Special Merit" brands; also Mayer "Yerma Cushion" and "Martha Washington Comfort Shoes."

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THE SIGN OF A RELIABLE DEALER_

A dealer who offers you a Kraus Cultivator is thinking of something else besides the profit on that one sale. He is considering the service you will get and the good will you will have for him for selling it to you.

THE KRAUS Pivot-Axle Sulky CULTIVATOR

is guided entirely by foot levers. So easy—seems like play. A touch of the foot moves, entire cultivator to right or left.

Hillsides, Uneven Land and Crooked Rows Cultivated as easily as Level Land.

Steel Frame, Perfect Balance, Built for wear and work. High or low wheel. Pivot Gang or Hammock Seat, 105 different styles to choose from. Free descriptive catalog on request. Don't buy a Cultivator until you find out all about the KRAUS.

AKRON CULTIVATOR CO. DEPT. 61 AKRON, OHIO



ATENTS that PAY, \$878,140 made I Instructive 112-p. Guide B. Krae report as to pat E. VROOMAN, Pat. Atty., \$64 F. St., Wa

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SEND US YOUR LUMBER BILL FOR OUR ESTIM

We buy supplies at Sheriffs', Receivers', and Factory Sales, besides owning outright saw mills and lumber yards. Usually when you buy your building material elsewhere for the complete buildings shown in this advertisement, it costs you from 50 to 60 % more. By our "direct to you" methods we eliminate several middlemen's profits.

Every stick of lumber and every bit of building material offered in this advertisement is guaranteed brand new and first class; as good as you can purchase from anyone anywhere. You run no risk in dealing with us.

\$493 Our price for the material to build this house.



House Design No. 111
Here is a neat, cozy, little cottage that can be built at the minimum of cost under our guaranteed building proposition. Size, 23 ft. 6 in. wide by 33 ft. Five rooms and bath. All the comforts desired by home-loving people. Extra large porch. Convenient interior. For the price it is impossible elsewhere to secure a home with so many excellent features.

\$635 Our price for the material to build this house.



HOUSE DESIGN No. 149 The Mansard roof construction of this design enables the owner to utilize all space to the best advantage and get the very most to be had for the money. Size, 21 ft. wide and 28 ft. deep; six rooms, bath and basement. This design offers more convenience than many larger and higher priced houses. Is constructed of the very best materials at a magnificent saving.

Our price for the material to build this house.



HOUSE DESIGN No. 6

This is our leader. Size, 23 ft. by 33 ft. 6 in.; 7 rooms and bath. There has never been a design offered that can be built in so economical a manner with less material to produce satisfactory results and a general effect of elegance than this house. Has satisfactorily been built more than 400 times during the last two years. A beautiful home at a splendid money-saving price.

\$835 Our price for the material to build this house.



HOUSE DESIGN No. 130 Size, 25 ft. 10 in. x 29 ft. 6 in.; eight rooms and bath, pantry, vestibule and large hall. A square, solid, substantial construction. All space is advantageously utilized. The Colonial windows and porch columns are distinctive features. For convenience and artistic arrangement, general elegance of appearance, and low price, this house is unequalled. CHICAGO HOUSE WRECKING COMPANY THE GREAT PRICE WRECKERS

SAVE 30 TO 50 PER CENT

Now is the time to get our prices on lumber or building material. Do not hesitate to send us a list of your wants, whether it is lumber or mill work, complete house, barn or corn crib, or a plan of your own that you wish developed. We have the best Lumber Yard in the United States, experienced Architects, and can give you unequaled service in shipment, quality, finish and design. We are the only concern in the United States that has all the

building material right here at Chicago where you can come and see it loaded, and from which point IMMEDIATE SHIPMENT can be made. We can furnish everything from a common board to the finest Quarter-Sawed Interior Finish, including Mill Work, Doors, Mantels, Colonnades. Side Boards, etc.

SEND AT/ONCE for Our Special Building Material Catalog No. 1034—The Greatest Material Book Ever Offered 2,000,000 SHINGLES | READY ROOFING, SQUARE 85c Our Rawhide Roofing is the highest grade roofing at the lowest price ever offered. It has a foundation of tough fibre texture so substantially prepared that it is well-nigh indestructible. Every foot carries our iron-clad guarantee to be absolutely right.

In addition to our high grade Rawhide Roofing, we offer for a limited time 10,000 squares of our Ajax Brand of Ready Roofing at 85c per square. It is put up 108 square feet to a roll. Price includes large headed nails and cement sufficient to lay. While it is practically the same as our Rawhide Roofing, it does not come in continuous lengths; maybe two or three pieces to a roll; of course that does not affect the quality. 85c This price includes freight to Illinois, Indiana, Iowa, Wisconsin, Ohio and Michigan. Write to-day for free samples.

SPECIAL SALE

SPECIAL SALE
The following special prices on Standard Brand Shingles are made to readers of this paper only. Shingles guaranteed absolutely the equal and better of any similar-brands on market. Do not delay. These are the lowest prices ever quoted. They are so low that we must reserve the right to refuse orders when this lot is sold.

ORDER WHILE THEY LAST

Lot FF22-1 The Best 52 Clear Wash. Red Codar, per 1000, \$8.75

Lot FF22-3 " "5/2 6 inch Clear Butt" " " \$2.64

CORRUGATED ROOFING

Per Square \$1.25

Roofing Prices
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Metal roofing is superior to all other coverings. A fact proven absolutely and conclusively by 100 years of actual experience. We carry a complete stock of all styles.

Here is a roofing offer that has never before been equalled. We have 5,000 squares of Corrugated Iron Roofing sheets all 22 x 24 x 1¼ in. corrugation.

Strictly new first-class that we offer at \$1.25 per square Free on Board Cars at Chicago. At this price we do not pay the freight, but if you will write us for our Great Roofing Offer, we will make you Freight Prepaid Prices lower than ever offered in the history of roofing material.

Our stock includes painted and galvanized.

than ever offered in the history or rooms material.

Our stock includes painted and galvanized. We can furnish it in flat, corrugated, standing seam, "V" crimped, brick siding, beaded ceiling and in ornamental fancy ceiling. In fact we can furnish your every want in the covering line.

line.

A hammer is the only tool needed in putting on all grades but the standing seam. We give you without cost with every order for 3 squares or more a handsome serviceable crucible steel hammer that ordinarily retails from 75c to \$1.00. Write to-day for our Great Complete Roofing Catalog, and our latest Roofing quotations.

"PREMIER" HOUSE PAINT Per Gallon \$1.08

\$37.50 BUYS COMPLETE **BATHROOM OUTFIT**



Here is an outfit that is good e n o u g h for any home. It is strictly A No. 1 and first-class in e v e r y particular. The bath tub and lavatory are white porcelain enameled over iron. The closet is a syphon acting low down Our handsome Plumbing Catalog lists many other outfits ranging in prices from \$28.30 to \$392.50.

Our handsome Plumbing Catalog lists many other outfits ranging in prices from \$28.30 to \$392.50.

We will turnish all the Plumbing material needed for any of the houses shown in this advertisement, including an of the bathroom outfits described above, besides a one piece roll rim white enameled kitchen besides a one piece roll rim white enameled kitchen and all material of every kind to complete the entire plumbing system, including all fixtures, furnished with iron pipe connections for the sum \$83.95

Our capital stock and surplus is over \$1,500,000.00. Our 19 years of honest dealing guarantees absolute satisfaction. Any material not up to our representation may be returned at our freight expense both ways and money refunded in full.

Our wonderful spring building offer sets a new pace in the building world. Never before have such remarkably low prices been published.

Our stock includes practically every manufactured article. Besides building material we have a complete stock of Dry Goods, Clothing, Boots and Shoes, Furniture, Household Goods, Groceries—in fact everything needed in the home, on the field or in the workshop.

Our price for the material to build \$260

UNIVERSAL BARN DESIGN No. 45
A combination city and suburban barn, size 26 ft. 8 in, by 30 ft. long. Will accommodate 4 horses and leave a carriage room 15 ft. by 30 ft.; ample room on second floor for storage of hay or fodder. Excellent material and construction throughout, double hung windows, sliding doors, both sides. Plenty of ventilation. Price includes stable partitions. Material for 2 in. thick floor \$39.00 extra. Same barn as above 16 ft. by 24 ft. \$178.00.

Our price for the material to build this barn.



OUR JOIST FRAME BARN No. 221

Size, 36 ft. by 48 ft. Height to top of roof, 38 ft. 6 in. The most practical and serviceable barn ever designed. No heavy timber in the entire structure. Self-supporting roof. Easily built. No joists in hay-loft. This design represents strength, rigidity, economy of construction, and is absolutely dependable and substantial. Write us for more complete information.

Our price for the material to build \$620

OUR "STAR" BARN DESIGN No. 270
The Stockman's Paradise. Size, 53 ft. wide by 80 ft. long, 24 ft. to comb. An ideal barn for farmers raising stock on a moderate scale; balloon type. The hay-mow is on the ground floor and above the grain rooms on each end of the barn. Cattle stalls on one side of the hay-mow; horse stalls on the other. Excellently ventilated in every part. A practical barn well built of guaranteed first-class material, and will give excellent, all around satisfaction.

Our price for the material to build \$956

ROUND BARN DESIGN No. 206

Size, 60 ft. in diameter and 16 ft. high to plate. Has 14 sides, each side 14 ft. A 16 ft. Silo in the middle, same being 36 ft. high and will hold 160 tons of silage. Hay capacity, 65 tons. Will accommodate 100 head of cattle. The many and excellent features offered by this construction, the high grade materials furnished by us, and our extremely low price makes this a barn bargain worthy of thorough investigation.

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We will save you 30 to 50% on a modern steam, hot water or hot air heating system. A modern heating system is now within the reach of all. We have hot water heating plants for modern homes all the way from \$100 up.

By following our simple plans and instructions, you can install your own material, thus cutting out the expense of plumbers and steamfitters. This together with the great saving we afford you on the material itself insures a saving of 30 to 50%.

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This is our price for Smooth Galvanized Fence Wire, known as Wire Shorts. It comes in various lengths, put up 100 lbs. to the coil. \$1.25 is our price for our 6-gauge; other gauges in proportion.

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Galvanized 2 pt. Barbed
Wire put up on reels,
containing about 100 lbs.
Price per 100 lbs.
We can furnish this also in 4 point at the same
price; also in painted at \$1.50 per 100 lbs.
Better order now while these remarkably low
prices exist.

prices exist.

26 Inch Square Mesh Heg Fencing per Red 15 Cts.

Here is a bargain such as has never been offered. A heavy weight new Galvanized, well built hog fencing, suitable for general purposes at 15c a rod. Other sizes at equally low

IRON PIPE AND FITTINGS

Rejuvenated Pipe, in random lengths, complete with couplings suitable for gas, oil, water and conveyance of all liquids. Sizes ¾ inch to 12 inch.

1 inch, per foot. 3c. 1¼ inch, per foot. 3½c. Send us specifications and we will quote for your exact requirements. Also a complete stock of Valves and Fittings.

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