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The Wexford County Boys' Agricultural Club.

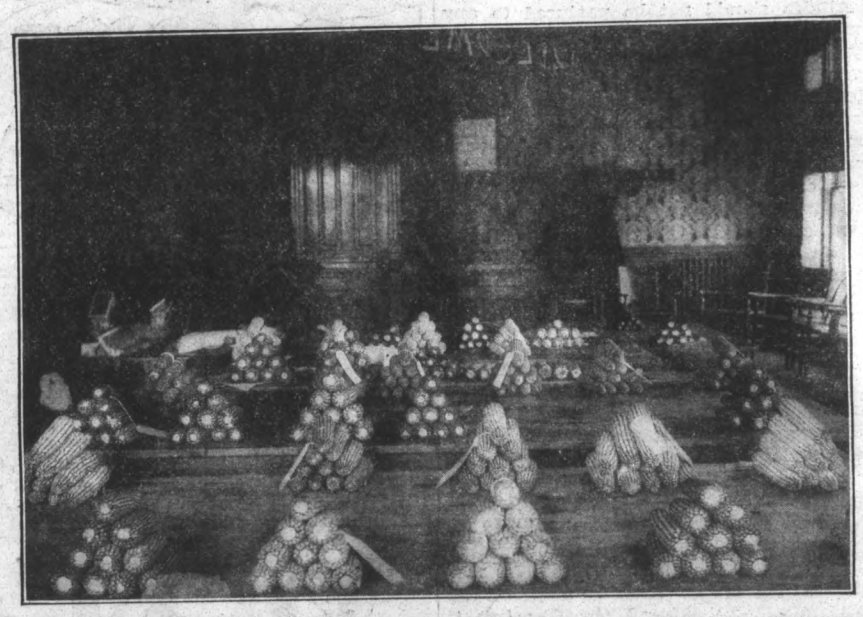
AGRICULTURE has been spoken of, and justly so, as the noblest vocation of man, but those engaged in the business have not always had this lofty conception of it. They have often taken up farming because chance left them nothing else to do, and their daily prayer was that sometime a kind Providence might interfere and the farm could be sold and they could move to town to spend their time in ease and comfort. The boys and girls were brought up to think of the daily round of work in the field and barnyard as drudgery, and were taught to envy the life of the easy-mannered folk of the city. And the city folk have more or less shared this attitude, and connected the honest, hard-working farmer and his family with sundry jokes and characterized him as a "gawky country jay" and not "up to snuff" with all the very latest activities of the world. In fact, this would almost lead one to believe that possibly, because of the fact that work in tilling the soil had had its supposed origin in connection with a curse passed upon man, that agriculture had been handicapped in its development by an instinctive racial prejudice. At any rate, the interesting field of biological and chemical research in connection with his labor and their practical application for his commercial advancement had been, up to a few years ago, entirely outside of the average farmer's mental environment. And least of all did he appreciate the artistic wealth of rural life, and that it were possible to pass the restful period of life in ease and comfort in the rural home with all the advantages of the city, and none of its disadvantages. The rural school lent its support also to this wide-spread prejudice, educating the boys and girls for city rather than for rural life.

But the rapid trend of growth of population in the large centers, with a corresponding lessening in proportion of the rural population, the alarming rise in the cost of foodstuffs, and a widespread protest against the high cost of living, has started a movement towards improving conditions in the rural communities and awakening an interest and arousing an appreciation for rural life. A greater impetus has been given to the work of the agricultural colleges, experiment stations, farmers' institutes, the grange, and other farmer's organizations.

There have been few developments in recent years of greater educational interest and significance in this direction than the work done by boys' "agricultural clubs," and girls' "home culture" associations.

The first movement of this kind in Michigan was started by Hon. James C. McLaughlin, congressman from the ninth district, who, as member of the committee on agriculture in congress, became interested in what had been done in other states along this line, and set out to do something for his own state. At his suggestion a successful corn contest was held in Muskegon county in the fall of 1908, and afterwards through his influence contests were organized in other counties of his district.

Wexford county was one of the first to organize. At an invitation from the commissioner of schools, about 150 expectant interested boys met in Cadillac, Friday, April 23, 1909. Prof. Joseph A. Jeffery, of the Michigan Agricultural College and Mr. F. W. Howe, who was at that time assistant in agricultural education in the department of agriculture in Washington, D. C., and who is now in the department of agricultural education for the state of New York, were secured to assist the boys in perfecting an organization. The former gave the boys an interesting and instructive talk on the most approved methods of selecting seed corn, preparing the ground, and caring for the growing crop and harvesting it. Mr. Howe gave an inspiring lecture on the purpose of boys' clubs and what had been done in other states, illustrating his talk with the stereopticon.



Prize Corn Show of the Wexford Boys' Agricultural Club, Held Nov. 25, 1910.

The Wexford Boys' Agricultural Club was organized at this time, officers being chosen and a committee appointed to draft a constitution and by-laws. All boys of the county between the ages of 12 and 18 years were made eligible for membership, and the following rules were made: Each boy must plant at least one-eighth of an acre of corn, care for and harvest it himself, and make his own selection of exhibit ears; he must not have any help except in plowing; he must keep a written record of everything done and send the record in to the secretary at least two weeks before the annual corn show; he must exhibit ten ears of corn at the annual corn show. High-bred seed was afterwards distributed to the boys because there was no suitable seed to be had near by. The committee on finance found that the granges of the county, prominent farmers, and business men, especially the lumbermen, were willing and ready to lend such financial help as would insure success to the undertaking, because they believed that a movement of this kind would contribute to the agricultural development of the county.

During the growing season bulletins containing instructions for the preparing of the ground, planting, cultivation, and in harvesting the crop were sent just at the right time to be of most help to each boy. The season was a poor one, but 66 boys made creditable exhibits at the corn show held November 12, and prizes to the amount of $125 were distributed as follows: First prize, $25; second prize, $20; third prize, $15; three ten dollar prizes and the rest in five and two-and-a-half dollar prizes. Two judges were sent by the Agricultural College to judge the exhibits and these men gave the boys further instruction.

The next year a still larger membership was secured for the club and at the meeting and corn show held that year, 72 made exhibits that far exceeded in general quality the exhibits of the year before. The season had been more favorable and the boys had the advantage of more knowledge gained through observation and reading. The executive committee secured Mr. O. J. Kern, superintendent of schools of Winnebago county, Illinois, a man well known in all parts of the country for his activity in bettering rural life, who delivered his lecture, "Along Country Roads in an Educational Way." The boys were delighted with Mr. Kern and his message.

During the past season there was a membership of 153 boys and 83 of these made excellent exhibits at the annual show held in connection with the farmers' institute December 20-21. There had been a decided improvement over preceding years. At this contest every boy was awarded a prize of at least one dollar, and the boy who won the first prize of $25 also received a suit of new clothes.

One of the most far reaching and helpful achievements of the club is its awarding of free scholarships to the state agricultural college. These are given as prizes for essay writing and best yields of corn, and in-

First Corn Meeting for Boys, Held April 23, 1909, Under the Auspices of the Agricultural Club.

clude all expenses to the eight weeks' course in general farming. They are considered the big prizes by the boys and there is much strife in their capture as they are worth about sixty dollars. Last year two boys were sent and this year there are three representing the club at the college. It is our aim to increase this number from year to year. Who can foretell the influence of this upon the agricultural growth and awakening of our country if this is continued for ten or fifteen years?

At the meetings of the club the boys are in full charge and take a great deal of interest in doing something towards their success, and willingly read essays or participate in the parliamentary drill. Interest is also added by furnishing each member with an appropriate badge, and on the day of the meetings the large crowds of boys with their badges attract no little attention on the streets of Cadillac.

The results already apparent from all this work and organization may be summarized as follows: Each boy has been led to observe more closely, to recognize the value of good breeding, and that certain desired characteristics may be obtained by change in environment; thus he has met and solved some of the intricate problems of crop improvement; he has learned to set a fixed value upon his own labor and something of the keeping of simple accounts in the various farm transactions; he has been taught how to use technical information as contained in agricultural bulletins and good literature upon this subject, and he has learned where to obtain this literature; his views have been broadened by contact with others and by reading; and the power of taking the initiative has developed in him and made him feel as an individual and responsible member of the community. The boys have learned the value of organized effort, of co-operation and compromise; and the social instinct has been developed. This is a matter of great importance, because, living as he does isolated on his own forty, working independently of his fellows, solving his own problems, has made the American farmer an unsocial being. The influence upon the community at large has also been noticeable. It has awakened an interest in things agricultural, not only among farmers but among those who live in towns, thereby bringing rural and city interests into a more sympathetic attitude toward each other.

Wexford Co. W. H. FAUNCE.

FARM NOTES.

Eradicating Toad Flax (Butter-and-Eggs).

Would be pleased to read in your paper something that will kill butter-and-eggs, or stink weed, as it is called. I found a patch of perhaps four feet square on my farm this summer and know of no way to kill it. How it got there I can't tell and I greatly desire to eradicate it.

Kalamazoo Co. K. S.

Where one has quite a small patch of any foul weed to be eradicated, one of the very best and easiest ways to accomplish the desired result is to cover the patch with tarred paper weighted down with a few stones after the seeds have germinated and the plant gotten nicely started. This treatment will smother out all vegetation on the patches and ordinarily will end all trouble with the weed.

This weed is one of the many introduced from Europe and is in places a vigorous pest in meadows, spreading by root stocks as well as seeds and it is a wise plan to kill it out when first started, as is contemplated in this case. However, in any field which is devoted to the regular crop rotation it can be subdued by clean culture and the sowing of clean grass seed when the field is reseeded.

Clover in the Crop Rotation.

If you sow both alsike and medium clover about 1½ qts. of alsike and 3½ qts. of medium, then in a few years does the alsike get the best of the medium?

Kent Co. R. F.

The duration of a stand of clover depends not a little upon circumstances. While the clover plant is not strictly a biennial, it does not endure at its best more than one year after the year in which it is seeded. In some sections of the state, the sections which are favored by heavy snowfalls and light freezing of the ground, this does not always obtain, but it is, generally speaking, quite largely true of both medium and alsike clover. The latter is not as easily killed out by unfavorable conditions, as heaving from freezing and thawing weather, and will endure a wet soil much better than red clover.

However, this is not a question of great importance in Michigan agriculture. The way to get the most value out of the clover crop is to cut it for hay the first year, taking a crop of seed, if one matures well, and plowing it down the following year for corn, or some other spring crop. In case the second growth does not fill well with seed, it is also profitable to plow that down to supply needed vegetable matter to the soil. In this way the nitrogen which the clover crop gathers from the air is made available for grain crops or other cash crops grown after the clover, and the vegetable matter from both the top and root adds needed humus to the soil, while the extensive root system of the clover plant loosens up the soil, brings up mineral elements of fertility from the subsoil and puts the soil in a much better mechanical condition. For this reason, clover should come frequently in the crop rotation, and be used for hay only one year for best results, and not more than two when it is seeded with timothy and other grasses.

Pasturing Alfalfa.

Does alfalfa make good pasture for sheep and cattle during the summer or is it liable to bloat them when it is wet, the same as clover? Also, would like to know if, after using commercial fertilizer four or five years one would be obliged to continue the use to secure a good yield? I have been told that after using it a few years it is almost impossible to grow a crop without it.

Clinton Co. F. S.

Alfalfa should not be pastured to any extent as the stand will be injured thereby. It is inclined to produce bloat to an even greater extent than even common clover, for the reason that it is a rapid growing plant and the new growth is more succulent. Sheep should not be pastured on alfalfa at all for the reason that they crop the young shoots closely and thus injure the crowns. In fact, it is not good economy to pasture any stand of alfalfa from which it is desired to cut future hay crops.

Physical Effects of Fertilizer.

There is nothing in the theory that where fertilizer is intelligently used its use is made necessary in the growing of future crops. Fertilizers should be used as supplementary to stable manure or other vegetable plant food to balance up the nutrient contents in the soil solution and better enable plants to make a maximum growth. If fertilizer is used to force the production of a greater number of crops in the rotation, and thus exhaust the humus in the soil and injure its mechanical condition, its future producing powers will be injured thereby; but it would be due to unwise management of the soil rather than the effect of the fertilizer used. Fertilizers can be used successfully to build up the fertility of the soil so that it will produce much better crops without it than it did before its use, provided that the mechanical condition of the soil at the same time is improved in its process of upbuilding by the addition of needed vegetable matter; and most of our soils need additional vegetable matter to be converted into humus more than any other one thing to improve their fertility and increase their crop producing power.

Fertilizer for Beans.

I would like to know through your paper the best way to fertilize beans. I have ten acres of corn stubble sowed to fall rye. The ground is rather light and lays high. I would like to put on about 200 lbs. of fertilizer to the acre.

Manistee Co. E. W.

In applying commercial fertilizer to beans, one should be careful not to place too much fertilizer in the drill rows with the beans as bean seed is very easily injured in its germination by heavy applications of fertilizer containing considerable potash when the fertilizer comes in contact with the seed. Where beans are planted with a drill, the fertilizer being distributed at the same time, most growers adopt the plan of sowing the fertilizer in about three drills, one on each side of the drill in which the beans are sown.

On a dry, light soil which has been in corn one cannot expect the best possible results from fertilizer, unless the moisture is well distributed throughout the season. The rye sown in the fall, if plowed down before it attains too big a growth in the spring, will not interfere with the capillary action of the soil water to any considerable extent, and if the ground is plowed rather early it can be better fitted and the moisture better conserved for the bean crop. Where rye is allowed to get well along to maturity before it is plowed down there is danger that the crop will suffer from drouth, unless there is plenty of rain after the crop is planted.

The Feeding Value of Your Hay

is controlled largely by the condition in which it is put up. From experience and from chemical analysis we have learned that to retain the most nutrition in it, we must handle each operation in the process of curing in just the proper manner and at the proper time. Otherwise moldy, musty hay results from its being stacked or stowed away too green, or with external moisture on it; or, as in the case of the clovers and alfalfa, if it dries out too much the leaves become brittle and drop off and the stems become stiff and woody, and also the sun leaches out much of the nutriments.

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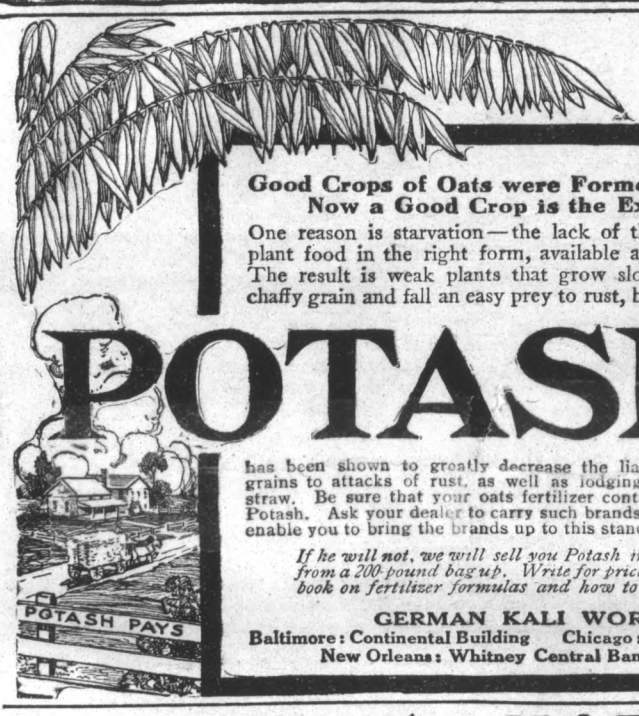

Good Crops of Oats were Formerly the Rule; Now a Good Crop is the Exception.

One reason is starvation—the lack of the right kinds of plant food in the right form, available at the right time. The result is weak plants that grow slowly, yield light, chaffy grain and fall an easy prey to rust, blight and insects.

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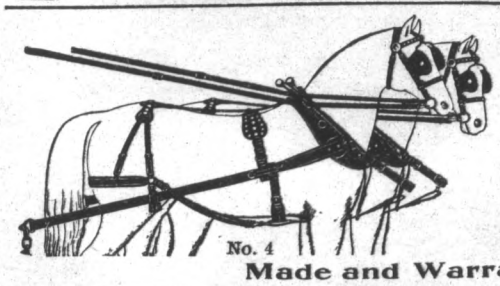

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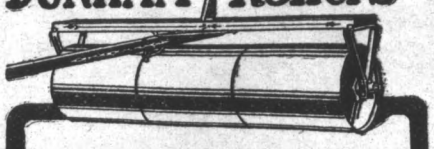

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WHY CLOVER FAILS.

In many sections of the state clover failures are getting to be quite common. People seed their land to clover, the seed germinates, it grows for a little time, and then, just as soon as the dry weather comes it dies and they lose their investment. In some sections of the state large areas are affected in this way in dry years. In almost every locality of the state there are occasional clover failures. On the other hand, there are farmers who never lose a seeding of clover. This is a fact in my own case. I have never lost a seeding of clover yet in all of my twenty odd years of farming, and I have clover in a three or four-year rotation. Yet, we have severe drought. Certainly in that period of time we have had as severe drought as you get in any part of the state and we have had many, many years when it was exceedingly dry, and yet the clover always seeded on the wheat in the spring lives through and produces a good crop. My experience is that clover likes to grow just as well as any plant and it seems to be vigorous and grows just as luxuriantly.

Now there must be a reason for this clover failure other than the drought. If this was not so then nobody in any section in certain years would grow clover. I have always contended that the soil either lacked vegetable matter or the mineral elements of fertility—phosphoric acid and potash, which clover loves so well and is such a gross feeder of—or that the land was sour. We know that land by cortinual cropping is liable to get sour, have an acid reaction, and that clover and the other legumes require soils having an alkaline reaction in order to thrive. However, it is not very often that you get direct evidence which would seem to substantiate beyond the question of a doubt this theory. But at a farmers' institute in Kalamazoo county just recently a statement was made and a question asked which, to my mind, throws a great deal of light upon this question.

The statement was that a prominent farmer in that section and also his neighbor, too, had lost their entire seeding of clover. Each had quite a large acreage into wheat and it was all seeded to clover and the clover all died when the drought of last summer came, with the exception of one small place on one field where the fall before about a barrel and a half of hard-wood ashes had been spread as a top-dressing. There, the man said, he had a splendid catch of clover and it lived through the drought and was in thriving condition when it went into winter this last fall. Now, his question was, "Does this throw any light upon the clover question. Can you tell me from this what to do in order to get a clover catch?" I told him that I was very glad indeed to get this evidence, that it did throw a great deal of light upon this question of clover failures. Why? Because when you put hard-wood ashes upon the land you are adding five per cent of potash, two per cent of phosphoric acid and 32 per cent of lime in a good condition to sweeten the soil. Now this experiment would indicate to me that either the soil was sour and needed sweetening or else it was very deficient in phosphoric acid and potash, and the probability is that it needs an application of all three—lime, phosphoric acid and potash. There is no doubt in my mind but what this soil has an acid reaction and that besides it is deficient in the two plant foods which clover needs in order to make a thrifty and luxuriant growth.

Of course, we can't get hard-wood ashes. That's out of the question. Wood is not used much for fuel now. There was a time a few years ago when hard-wood ashes could be imported from Canada in commercial quantities. But that time has now gone by and we have got to use a substitute for ashes. We certainly have that substitute. We can determine if the land is sour by purchasing five cents worth of blue litmus paper at a drug store and burying it in the moist soil, leaving it there for a half hour and if the blue litmus paper turns any tinge of pink the soil is acid, and it needs lime to sweeten it. We can get all the lime we want at a reasonable price. If the soil is sour it is barely possible that you can get a catch of clover by simply applying lime but the probability is that this soil is also deficient in phosphoric acid and potash, and then the only thing to do is to purchase these ingredients. A farmer, to my way of thinking, might better invest his money in phosphoric acid and potash if his soil needs it, than to put it into the bank. His soil should be his bank. If he hasn't got a fertile soil, if it isn't well stored with available plant food so that he can grow profitable crops he can't make any money farming, and so I say, he might better buy the essential things which are necessary to produce luxuriant crops than to put that money into the bank.

It would be the proper thing to do to make the following tests: Apply lime on a strip in a field to be seeded to wheat this fall. On another strip by the side of it apply phosphoric acid. On another strip potash. Then on another strip phosphoric acid and potash. And on another strip all three, lime, phosphoric acid, and potash. Note results. In all probability you will get results from all three. You should get better results where all three are used in combination. Personally, I would make these tests on one side of the field and the balance of the field I would have faith enough in what I know from experience about fertilizer and about lime to give a good application of at least a ton of ground limestone to the acre on the balance of the field and then put on a good commercial fertilizer rich in phosphoric acid and potash, and I would put stress upon the phosphoric acid because I believe most all of our soils are deficient in this ingredient. An application of a fertilizer containing one to two per cent of ammonia, eight to ten per cent of phosphoric acid, and two to four per cent of potash I would think would not only bring profitable returns from the wheat crop but it would practically assue a good stand and a thrifty growth of clover, providing the land was not acid. But if the land is acid then in addition to this application of fertilizer there should be at least a ton of limestone used. You can't get the best results with commercial fertilizers if the land is sour, so far as the clover crop is concerned. You can get a good wheat crop because that will live and thrive in soil that is a little acid but the clover crop will not, and the wheat crop even will do better if the soil is sweet. I should say that a ton of lime and 350 to 400 lbs. of the fertilizer I have mentioned would be none too heavy an application for the most profitable results and from my own experience I would expect a good crop of wheat and a good crop of clover following. This is the way we can build up our soil by the use of fertilizers. Use the fertilizers not only to grow wheat but to grow the clover, for the clover will add needed vegetable matter and nitrogen to the soil and permanently improve its mechanical condition and crop producing power.

COLON C. LILLIE.

HAVESTING THE CORN CROP.

In reply to M. M., Hillsdale county, on page 27 of the January 13 issue of the Michigan Farmer, I would say that I endorse fully and entirely his idea concerning the usefulness and convenience of husking and shredding corn by machinery. In an experience of ten years I have never lost any fodder, nor ever had any damaged, except now and then a little, where it was tramped a good deal.

This year we threshed more than 40 acres of heavy corn. The stalks were very juicy. We used 2½ barrels of salt through them, and I never had any better fodder. All the stock eat it up clean and with relish. If you can save a little room on top and cover it 2 or 2½ feet deep with straw, it will be insured against moulding.

I think I can put up my corn in this way with less expense than I can husk it by hand. It can be fed in the stable; all that is not eaten makes good bedding and drawing out the manure, it is certainly much easier than handling the "long stalks."

This year the 42 acres were husked in one and one-half days with 22 men and 10 teams, costing $54.47 in money. With such a season as we had it could not be done too quickly. The teams we do not count, as both those and the men's work is paid by changing work.

Ever since I began to use the machine I have been decided to husk no more shocks of corn in the field. The women in our family would far rather have a few strenuous days' work cooking for shredders than to have the husking of a large crop of corn dragging through week after week of unpleasant fall weather, with the discomfort of sore fingers for the men, added to the tired backs. As the shredders are now built, there is much less danger to the feeders than formerly, but they should always keep before their minds the one thought—be careful!

Van Buren Co. E. OSBORN.

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The Great Western has 214 feet of solid oak in its construction. It has an all oak frame, double oak bolsters, oak pole, oak axle caps, oak beater, oak bed stakes, oak rake head and oak cross pieces. It has hickory Single trees, hickory Double trees and hickory Neck yoke. The frame is absolutely rigid; it cannot be twisted out of shape, no parts can bind—hence it is the lightest draft spreader made. The GREAT WESTERN endless apron runs on 75 large rollers—one set on each side of the heavy oak frame and one set supporting the center. These large rollers are set close together so there's no sagging or waving of the apron slats.

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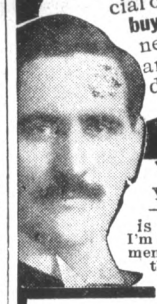
WANTED!

I want 10 men or more in every township to write me **quick** for a special offer on the sized engine they need. When you get this offer you'll **buy.** I make it practically irresistible. Then **everybody** in your neighborhood will know the **truth** about Galloway—his quality and savings—and all will **understand** the foolish tales the dealer tells in order to get his big price and personal profit.



10 OR MORE MEN

Write Now to Galloway

You'll soon see the reason for the really funny things that dealers say of Galloway—"Galloway has no factory"—"Galloway's pretty near broke"—Galloway's stuff is poor quality"—those are a few of their stories. But I'm going to call their bluff and make such prices to 10 or more men in every township that will bring the orders and show up the dealers' "jokes" in their true light. In the meantime I'm getting hundreds of letters like this: A. L. Westphal, St. Francis, Minn., writes: Last winter I investigated 5 or 6 different engines on the market, but I bought the Galloway, and I am very well satisfied with it. I have saved at least $100.00 on it.

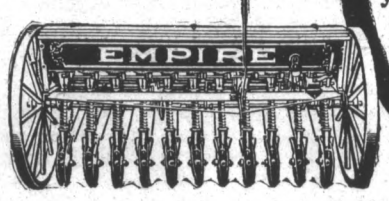
Write quick for Big Engine Catalog and special prices. I'll also send my fine new General Line Catalog in five colors.

Get My Prices NOW

WM. GALLOWAY, President

THE WM. GALLOWAY CO 645A J Galloway Station, WATERLOO, IA.

EMPIRE GRAIN DRILLS



"The Empire makes the yield higher," because it plants right. This cutshows the Empire Twin Disk 11x7 Combined Grain and Fertilizer Drill—the style that is at home everywhere except in very hard ground. We make them in Single Disk, Hoe and Shoe also. Every drill guaranteed. You can get any size and every style. No matter what your seeding conditions are, you can get an Empire Drill to do the work. Send for an Empire Catalogue. Then go to your local dealer and insist on seeing the Empire Drill.

THE AMERICAN SEEDING MACHINE CO. INCORPORATED RICHMOND, INDIANA. U.S.A.

MORE ABOUT THAT HUNDRED ACRES OF CORN.

We read with interest Mr. Washburne's article on raising one hundred acres of corn in 79 days and have noticed some of the comments on the article by various writers.

It really would seem scarcely worth while bothering to say anything in reply to such statements had not the writer, when a boy, listened with credulity to stories of big work done in short time. He thought he, too, could raise some dust and started in with more energy than sense.

Results, one foundered horse, another one badly sweenied, and much delayed spring work. Some aspiring lad or man from the city might try to do what Mr. Washburne says he can accomplish, and the writer would caution such to "make haste slowly." The farmer with horse sense is in no danger because of Mr. Washburne's 100 acre corn story.

However, some of Mr. Washburne's statements will bear sober attention. His clearing away of many rail fences and making several small fields into one large one was a sensible move, provided the lay of the land and character of soil would permit such treatment. In arranging the big fields no doubt he saw to it that each field was similar in soil throughout.

He spoke of raising 60 acres of corn in Illinois. We don't doubt it at all, because it is entirely within the range of possibility on good, smooth ground, large fields, etc., for one man to do this. It matters not whether it be Illinois or Michigan, so far as that is concerned. But 100 acres in 79 days is different!

The writer has traveled through the middle west several times and has lived and farmed in the great corn district of Kansas, where fields of corn containing several hundred acres were not rare. We used to figure that one man ought to put out and care for 50 acres, or possibly a little more, of corn. But mind you, in our Kansas fields we had never a stump, nor stone, nor tree to bother in fitting ground or planting and caring for the crop. Not many Michigan fields can boast of such ideal conditions. Think of the bother a single tree in a field creates when the wire check-rower is at work.

Yes, and Mr. Washburne says he plows over six acres per day with five horses. That is, he averages over six acres per day for 16 days. He's got the west badly beaten. If the five horses in question can actually turn over five acres per day for a period of 16 days they are doing well enough. Most western men are more than satisfied if they can do that well throughout the corn plowing season. But never mind that; possibly Mr. W.'s plow is well greased.

He plants 25 acres per day with a check-rower. Now let us maintain our equilibrium and be reasonable, always giving credit where credit is due. The check-rower is the proper tool all right, but let the average farmer boy be satisfied with less acreage. If he plants 10 to 12 acres daily none need complain. In fact, that is a good day's work, in our opinion. Let him strive to do a real good job. Not how much, boys, but how well! To be sure it is possible to plant more than 12 acres. The biggest day's planting the writer ever witnessed totaled about 18 acres. This was near Jamestown, Cloud county, Kansas, in 1885, on a ranch belonging to F. A. Lane. The field was a half mile long, level and smooth with open prairie at each end so the driver was not bothered with fences, but could snap off his wire, drive right out and turn around quicker than as though he had end fences to bother him. To be sure, he was crowding his work, for the season was somewhat advanced and he put in more than ten hours for a day. Three years ago we planted about 28 acres in 19 hours' actual planting, not including time spent in stringing out check wire before planting and reeling it up afterward. But the job was hurried a bit too much. It wasn't checked real well. This field, too, was nearly ideal, being smooth and 120 rods long, with fence on only one end.

Mr. W. says he gets his "perfectly straight both ways." Now, boys, look out for that and our advice is to use eight days instead of four when you plant your 100 acres. You have got to take pains with your wire or your corn won't be in rows properly. The wire check-rower is a splendid tool, but take time to see that the seed boxes don't get empty, that your wire is tight and your planter dropping the corn right under the button. Notice your discs to see that you are getting the right amount of seed in a hill. So much depends on a corn crop, and we are not all star performers like Mr. Washburne.

Now I like the idea of the big field, the gang-plow with five horses, and corn harvester, too. I'm not so sure about riding on a sulky behind the harrow. Yes, I've seen it done, but if a stone, a clod, a bunch of grass roots or wad of manure or stubble gathers under the harrow, what then? Can one get off the sulky to relieve the harrow of its impediments or will he just "let her rip?" No, guess we can't do much getting off till quitting time, because, according to Mr. Washburne, 50 acres is a day's work with the harrow. I'd say with the harrow problem as with the two-row cultivator, it is all right to do it so if one can do a real first-class job. Right there is the problem, boys. The two-row cultivator may be capable of doing first-quality work if corn is good, fair height, ground in good order and rows straight. However, we shall not buy such a tool until it proves itself.

Now let me say Mr. Washburne is well known hereabouts, is said to be a man of tremendous energy and might be able to shock 14 acres of corn per day, but in good corn the ordinary man would better be satisfied if he shocks in good shape five to seven acres. Such a man will be ready for his supper all right when night comes. So, boys, don't build your hopes too high for the coming spring, just because Mr. Washburne says he can excel others. Let us all wait for his next fall's report of that 100 acres of corn and the cattle he feeds and sells from it. Meanwhile we will save his article and see if he measures up. It is up to him. One hundred acres in 79 days. Drive on, Washburne!

Kent Co. M. M. KRIGER.

WET LAND FOR CORN AND BEANS.

Can you tell me what I can do for a piece of ground that will not raise good corn or beans? The ground is rather low but the water only stands on it in spots. When I first bought this place I planted this piece to beans but it was a very wet season and they drowned out, all but on the high spots, which grew fairly well. The next year it grew a very heavy crop of rye. I seeded it to clover and timothy and the next year had a very heavy crop of hay. I cut hay from it for two years, after that I used it for a permanent pasture for six years. A year ago last spring I broke it up and planted it to corn. The corn came up and looked fine until it was large enough to cultivate, then it began to look yellow and only here and there grew up to its natural height. The balance of the field only grew about two feet high with only here and there an ear of corn. Last spring I planted this same field to beans. They also looked fine until they were large enough to cultivate and then turned yellow, and did not grow any more until late in the season. The vines were still small at harvest time and most of the pods were green. This soil is dark loam with clay quite near the surface. The timber that grew on it was elm, ash, oak and basswood. The soil is quite easy to work but is not mucky.

Saginaw Co. O. J.

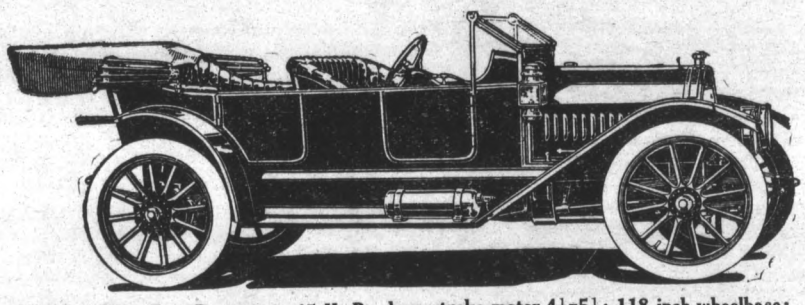
If one has wet land, land on which water stands at any itme during the growing season, and wishes to grow corn and beans successfully the only remedy is to thoroughly tile this land. Neither corn or beans will grow in wet fields. It will pay to borrow the money and thoroughly tile this land if you want to raise these crops. Of course, land that is rather wet will raise good crops of timothy, redtop and alsike clover, and at the present price of hay it might be that it would be more profitable to seed it down and keep it in a permanent meadow for some time. However, you can't keep it in a permanent meadow all the while. Sooner or later it will want a rotation of crops, and then to make a success out of all the crops in the rotation this must be thoroughly tile drained. I know of no other remedy.

From the description given I should say that the only trouble with the corn crop and the bean crop the year they did not make a successful growth was simply an excess of water. But land such as this, of course, is liable to be sour. Corn will stand land that is quite acid and still do well but it can't stand wet land. The bean crop, on the other hand, will not stand an acid soil. Tiling the land would, in a large measure, tend to do away with acidity because it would allow the air to permeate and allow the action of the natural lime of the soil to neutralize the acidity. If, after draining the ground the corn did not do well, then I should say that this low soil probably lacks potash but I am of the opinion that the only thing needed is thorough draining.

COLON C. LILLIE.

No hill too steep. Jackson No Sand too deep.

In power, size, equipment—the Jackson gives you more



Model "45"—Five-Passenger; 45 H. P.; long stroke motor 4½x5½; 118 inch wheelbase; full elliptic springs, front and rear; 34x4 inch tires. Including equipment, of top windshield, gas tank, etc.—$1650.

Where, save in the Jackson "45", will you get full 45 horsepower, 118 inch wheelbase, 34x4 inch tires, full elliptic springs, top, windshield, gas tank, etc.—all for $1650?

Compare the Jackson "45", part for part, with any other car at $1650.

See if you can buy in any other car of moderate price all the elements that make for efficiency, comfort, safety and satisfaction.

Make the comparison actual, if you can.

It will convince you that in power, size, equipment—the Jackson "45" gives you an extraordinary $1650 worth of value.

In the Jackson "52"—a full fifty horsepower motor, 124 inch wheelbase, 36x4 inch tires and full elliptic springs—for $1800.

In the Jackson "32"—a full thirty horsepower motor, 32 inch wheels, 110 inch wheelbase and full elliptic springs—for $1100.

The Jackson always gives you more.

Send a postal for illustrated catalog and nearest dealer's name.

Jackson Automobile Company,

1460 E. Main Street, Jackson, Michigan.

Buy the One Plow That Will Serve Every Purpose

Why spend your good money for a plow that only answers one purpose, when for about the same price you can get a *real*, ALL-PURPOSE *plow?* An implement that will do perfect work in *any* field on your *farm.*

What a vast saving and convenience it is to be able to plow (*at any depth up to 8 inches*) Tame Sod, Heavy Clay, Sandy Loam, Mixed Soil, Stubble Fields, Old Corn Fields, etc.—all with the same plow. The Rock Island Universal Plow does *all* those "stunts," a fact to which *thousands* of farmers gladly testify.

Besides, this remarkable plow turns over each slice *flat* and *smooth.* Leaves no *kinks*—no *air spaces* between top soil and subsoil that keep the precious moisture from coming up when needed. Even though hot, dry weather sets in, your crop goes right on growing, because the top soil lying flat on the *subsoil* allows moisture to be taken up from below, just like a lamp wick takes kerosene out of the bowl of a lamp.

Farmers tell us, too, that land plowed with a Rock Island "Universal" needs *less harrowing,* because this plow will *pulverize the soil* more as it turns the furrow. The

Rock Island (C. T. X.) Universal Plow

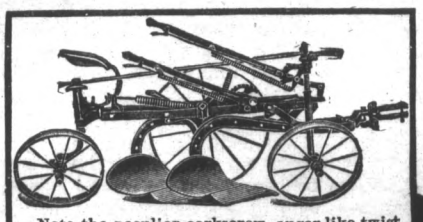
has been in actual, general use for three years. Under the most difficult tests ever given a plow, it has proven its right to the title, *"The World's Only Universal Plow."* Take for instance:

Down at Pickering, Missouri, fifty-five farmers gathered on a neighbor's farm to see the new plow perform. Fifty-five pairs of eyes watched it keenly as their neighbor put it through the "paces." They rendered the following unanimous verdict:

"We, the undersigned, have today witnessed a demonstration with the Rock Island Gang Plow on Mr. Swinford's farm, and express our unqualified approval of its light draft and perfect work in difficult condition of soil; turning a smooth, flat furrow and covering all trash. It handles sod as perfect as a breaking plow, and fully deserves the title of a "Universal" plow. The C. T. X. Bottom is a wonder."

Signed by Fifty-Five Farmers.

The names and addresses of these fifty-five men can be had for the asking.



Note the peculiar corkscrew, auger-like twist of the mouldboard. A slice of any thickness spreads out evenly over the surface without crimping and turns completely over, burying all trash completely. No spilling over into the furrow or slopping forward onto the land. Lightest draft and easiest on the horses of any plow made. We own the patents on these mouldboards and they cannot be had on any other make of plow.

Large pictures of this gang plow and of our Universal Sulky Plow are shown in our free books, together with complete description and large plowing scenes. (50)

Write!

Don't tie up your money in several plows. There's no use in it when you can get one plow that does the work of three or four, and at reasonable cost. Send for the complete story of the "Universal" and letters from men who use "Universals" on their farms. We gladly send you this information free. Merely say on a postal, "Tell me more about the new plow." Then put your name and address below and send postal to

ROCK ISLAND PLOW CO.
284 Second Ave., Rock Island, Ill. (50)

Write for FREE BOOK and Special Introductory Offer

From Factory to Farm

DOUBLE DUTY HARROW

Spring Teeth stir and cultivate—the spikes pulverize and level. Once over does the work as perfectly as twice over with the ordinary harrow. Saving in time alone will pay for this harrow first year. Strong—Durable—All Steel.

Naylor Mfg. Co., Box 255, Piano, Illinois

THE SOIL FERTLITY PROBLEM.

The question of maintaining soil fertility is to me a very interesting problem. Referring to Mr. Long's article in the issue of January 20, will say that I agree with him to the end of the first paragraph, but from there on I wish to take issue with him on some of his statements. First, because I do not believe you can eat your cake and keep it, and again, for the encouragement of grain farmers who, either because of their dislike for live stock farming or because they have not the means to engage in the manufacturing industry also, by investing in the urchase of the necessary equipment, still have a desire to improve, permanently, the condition of their farms.

To those I will say that I believe it possible to build up and maintain our soil fertility without considering live stock as a source of revenue, and that sometimes it is much more economical to do so. Of course, a good many farmers will agree that with proper management and by putting the residue and most of the grain back on the land, by means of live stock, that the fertility will be maintained; but then, most farmers think live stock absolutely necessary without knowing why. But the fact remains that something cannot be made from nothing, and there is no data showing that phosphorus and potassium belong to cycles whereby they replenish themselves and live stock do take something from the soil that they do not put back.

Take clover, for instance. If you make hay of the first cutting and let the next crop produce seed, you can sell the seed and some of the hay and if the plant growth after the last cutting is not pastured, but is left to grow, it will gather far more nitrogen from the air than it would if kept killed down by live stock, and it will all be there without waste, and better distributed than if run through a manure spreader when plowed under for corn in the spring.

All the clover adds to the soil is what it gets from the air; the mineral matter contained in the hay and seed must be returned in some other manner, and the question for each one to decide for himself is, "Can the mineral matter be purchased as economically in the form of commercial fertilizer as it can be produced by the purchase of feeds, not grown on the farm, and manufactured into farm manures?

I contend that all a good rotation does is to improve the mechanical condition of the soil; that larger crops can be grown for a time, but in a gradually diminishing ratio, and at the constant expense of the soil. I'll have to take a whack at Mr. Washburne, too. If he had not gone to the expense of a corn binder but had left his corn standing and had "shucked" 125 to 150 bushels per day like they do in Illinois, he would have had it all nicely cribbed by Thanksgiving, and would have paid himself a rent of $5.50 per acre in fertilizer material at commercial rates; or, had the same as 2½ tons of average farm manure already on the ground without the trouble of gathering, feeding, hauling and spreading, estimating the crop at 50 bushels per acre.

Cass Co. F. T. BRADY.

AIR-SLAKED LIME.

slaked lime that is leached some. Of late I have read considerable in The Farmer and in some of the bulletins in regard to lime for the clover crops. Our local dealers, about a year or so ago, found themselves with a quantity of air-slaked lime on their hands, which they dumped out back of their warehouse in a big pile, which has since been exposed to the weather. Do you think it would pay to draw this three miles and spread it on land I intend to sow to alfalfa, as I can have it for hauling?

Jackson Co. R. C.

This lime which has been dumped out in the open air and thoroughly saturated with water should be fairly carbonized and would be simply equivalent to ground limestone. Ground limestone is dried and very much of the moisture driven off. This lime would be thoroughly saturated, would contain a large per cent of moisture, and consequently a ton of it would not be worth anywhere near as much as a ton of pulverized limestone. Where you only have to haul it three miles, however, and can get it for nothing or for a small amount, if your land needs lime, I should think it would pay to haul it. Being so wet it would be difficult to distribute it but by thoroughly harrowing the soil a fairly good distribution could be accomplished. The kind of lime applied is not so important as is the matter of distribution in the accomplishment of results.

COLON C. LILLIE.

Get at it with the Scales!

Don't guess at your crops. Get at them with the scales as this man did, and see how our fertilizers pay you good dividends.

"I will write you my experience with A. A. C. Co. Fertilizer on Oats. The yield was 70 bushels per acre of oats that weigh 40 pounds to the bushel, struck measure, on land I call very much run down.

There were 12 acres in the field. It was in beans last year and the ground was fall-plowed late for oats, and was well fitted in the spring with a spring tooth harrow and the oats drilled in at 2½ bushels to the acre.

I commenced on one side of the field by drilling 100 pounds of Fertilizer to the acre. I increased the Fertilizer at intervals at the rate of 50 pounds each time until I got up to 400 pounds per acre leaving a drill row at each increase unfertilized. The parts that were fertilized with 100 pounds and 150 pounds each per acre were not as good as that which was fertilized with 200 pounds and over. The unfertilized strips were sorrowful looking oats by the side of the rest and attracted a great deal of attention. These strips were examined by good judges who laid their yield at from 30 to 40 bushels per acre—the yield of the whole field had no Fertilizer been used. That being the case, from 30 to 35 bushels per acre were added by using the Fertilizer.

We pulled up equal distances of rows that grew only seven inches apart, side by side, and took the dirt from the roots and weighed them and found that the fertilized row weighed over two and a half times as much as the unfertilized row. The fertilized oats stood a foot higher than the others and were much stiffer and larger, with over three times as much root as the other.

It pays well to use Fertilizer. It will add 20 to 40 bushels per acre, besides giving you double the straw and ripening your crops from a week to ten days earlier." (Name given on application.)

Our soils in the Middle States will produce good crops if the farmer goes at it in the right way. There is no chance to make any money at all out of a poor crop.

Some Fertilizers are better than others. That is a well known fact. There are farmers who are satisfied with ordinary crops grown with inferior Fertilizers, because they have never used the best. While the farmer is obliged to take some chances on things beyond his control, he should not take any chances as to the Fertilizer he applies, for that is something he can control.

A A C CO. FERTILIZERS

are made not only to contain the full percentage of plant food according to guaranteed analysis, but—we go further than that. The agricultural value of our Fertilizers is given first consideration, because we look to the future. We want every farmer who uses our Fertilizer to get good results and increase his orders each season. That is why we are doing a tremendous business. Our factories never shut down.

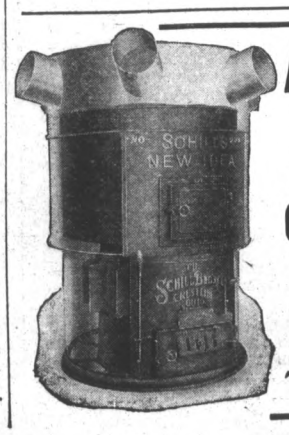
Write for further information and agency proposition.

Every farmer should read an article by John A. Widtsoe, Ph. D., printed in our pamphlet—How to fight drought with fertility and why the richness of soil makes up for lack of moisture.

The American Agricultural Chemical Company,

Detroit Sales Department, DETROIT, MICH.

Largest manufacturers of high grade fertilizers in the world.



A "NEW IDEA" HEATER IN EVERY HOME

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 **"NEW IDEA FURNACE"** is the most practical, convenient and economical of any heater ever built. We will send you one at

ONE-THIRD OFF TO THE FIRST BUYER IN EACH COUNTY

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.

THE SCHILL BROS. CO., Sole Mfrs., Crestline, Ohio

GROWING A LARGE ACREAGE OF CORN.

Washburne's Reply to His Critics.

In answer to the avalanche of criticisms which have appeared in the columns of this journal referring to my article on how one man could grow 100 acres of corn, which appeared in the issue of December 30, permit me to say a few words in my own behalf, as well as for the benefit of the readers. This, as I acknowledge, was an extreme statement to make in a farm journal which reaches thousands of readers of many different opinions, and it was written not altogether because it "could be done," but as well to create an interest and bring forth different opinions which would bring out essential points on successful methods of farming. To start with, I wish to say that it is not my desire to write anything that is misleading or in any way damaging to agriculture. I am a friend of every farmer, even those who do not look at matters as I do and may criticize me for what I say. I am fully persuaded in my own mind from actual experience and what I have learned from others, however, that I am working to the very best advantage for "my own interest." But if any other farmer can "show me," and prove with facts and figures where I am wrong and "making progress backward," I am willing to follow his advice and methods immediately.

Crops Should be Cheaply Grown.

You must remember that I have not recommended any extreme amount of labor for the reader to perform, nor have I recommended it practical for me to follow up. I have simply stated what I "could" do in the matter of producing 100 acres of corn with 79 days' work, not specifying the number of hours in a day, as we all have different views on what we call a "farmers'" day's work. Yet I am willing to back up my statements as to my ability to carry out this specified amount of work, and it will not require any more time than I have stated, and I could devote the balance of my time to other crops, of which I grow quite a variety. I am a firm believer in diversified farming and produce thousands of bushels of other grain aside from corn. But my purpose in farming is keeping big droves of stock and feeding same, and for this reason I appreciate a large farm where I can have much pasture for my stock, as well as large fields of corn, grain and hay. I am no truck farmer, as I was not educated that way. In my big fields, with the large type of improved farm machinery, and with the very best of horseflesh I can accomplish wonders in the production of crops at a very small expense.

I will say right here that the profits from this farm this year will be sufficient to buy "Brother Long's" ideal 40 acres, providing it could be purchased for around $80 per acre. I am glad that Mr. Long is so contented and satisfied. But I have been wondering just what would become of the multitude of humanity who are not so fortunate as to have even an acre of land, and must depend on some one else who may be satisfied with his own lot and just barely produce enough for his own special use and benefit. Every bushel of grain which a farmer produces not only benefits himself but the world at large, and if he is capable of devising methods whereby he can produce what two or five average farmers do, and do it as easily, he should be entitled to two or five times the credit, should he not?

Saving Time and Labor.

We should use every available effort in trying to figure out where we can save both time and labor, which means financial success in the end. I just finished hauling to market about 2,000 bushels of grain. I did this with 11 days' work and had a five-mile haul to make. Aside from doing this, I had chores enough to keep some men busy two-thirds of a day. If I had cared to carry this work to extremes I could have saved two days, or done it in nine days and, had the elevator been equipped with an automatic device for unloading, I could have saved shoveling this 2,000 bushels, or another day's work. I will again say that there are days, weeks, months and years of hard labor thrown away on farms on account of not knowing how to take advantake of work, which amounts to millions of dollars loss to the farmers annually.

Ambition and Achievement.

An amusing feature of the comments of my critics is that they all say they were interested in my article. Now I consider I have won a decided point right here. If I had made the assertion that I could produce 10 or 20 acres of corn alone, like many Michigan farmers do, they would have taken no notice of it and made no comments. Why? Because any 12-year-old schoolboy could do that. But when a man has the nerve to make the bold statement that he could prepare the land and produce 100 acres of corn and feed it, with no help whatever, and has the ability and determination to carry it out to a successful finish, it causes much comment.

I am aware that one seldom reads of any great accomplishments achieved by a farmer, but we often read, and think nothing of it, of what wonderful achievements are accomplished in the line of invention and great enterprises every day, and yet the farmer supports and makes possible all of these wonderful conditions. Why should he not open his eyes and seek his share of fame and profit? It is true we must all creep before we walk and serve before we can command, but do not creep all your life, or make no effort to command. You may get ridiculed, as it is human nature to stand around and "croak" at the success of others. But what care you as long as your bank account and satisfaction in work well done is increasing through your efforts of honesty and ambition.

Planting Corn.

Now, regarding how much corn I can plant in what I call a day, or around 12 hours' work, will state that I have planted 40 acres in one and one-half days. This was in Illinois, on my place, in a 40-acre field which was level. But the rows were only 80 rods long, and I figure that here, where I can have rows from 120 to 160 rods long I could do even better, or as well at least. I did a good job of planting and checking and used one good, active team. I have never tried to see how much I could plant in a day in Michigan, but know that I have planted around 20 acres, with no special effort and with favorable conditions. But I am an expert with a planter and perhaps the average farmer who manipulates this machine cannot plant more than 12 to 15 acres per day with a two-row planter. They now build planters that plant four rows.

Of course, the team and the field have much to do with the number of acres you plant. In fact, good, large, sound, active horses are one of the most important factors before any farm machine or on heavy loads. My horses are built for hard work, hence I accomplish much. In Illinois, many years ago, before they had the sulky plows or riding cultivators, they used to figure that one man should prepare the land and produce 40 acres of corn and husk the same from the hill in the field. But now, with the sulky plows and riding cultivators and harrows, they expect one man to do nearly twice as much, which he easily can. Of course, the farms are ideal there in most cases to do more work than ordinarily can be done in Michigan, but I am fortunate in this respect and have large, level fields, and the soil is sandy loam and perfect corn-producing land, with no clay, stones or stumps to contend with, and for this reason I am able to carry out my project of producing 100 acres of corn.

Doing Two Days' Work in One.

There would be no especially laborious work connected with this task, except the shocking, as the five horses would do all the hard work, for which they are intended. I would not have to walk a step, only to hitch up and unhitch; nothing except to manage the machinery. You will admit that one man can cultivate eight acres per day with a two-horse, single-row cultivator. Why can't one man cultivate 16 acres with a cultivator that takes two rows and drive three or four horses? You will admit that one man can plow three acres per day with a 14-inch sulky plow in favorable fields. Why can't one man drive four or five horses on a gang of 14-inch plows and plow six acres? Also drag 50 to 60 acres with a 25-foot, five-section harrow per day? This is what I call doing two days' work in one.

Shocking Corn.

I did not say that I could shock 100 acres of corn in eight days that would yield 65 to 80 bushels of shelled corn per acre, like I have seen grown in Illinois. I said "corn," which would signify the average yield, which in Illinois is below 40 bushels of shelled corn per acre. I do not know what the average is in Michigan, but should judge it is about the same. Last season (1910) I timed myself in 30 acres, which would yield about 50 bushels of shelled corn per acre, and I shocked this much in 2¼ days. This season, (1911), I had one field of 48 acres and I also noted how long it would take me to shock the same. This corn would yield around 45 bushels of shelled corn per acre. I found it required about 3¾ days to shock this in first-class shape, with not special effort on my part.

As I have stated, I do not cut my corn green, but let it get reasonably matured, which is better for the corn and fodder, also for shocking. I let it lay on the ground and cure out for a few days also. A little rain will do it no special harm. My shocks are in splendid condition now and nearly every ear of corn is as bright as a dollar, and my cattle seem to eat it with a much better relish than would be the case had it been stacked or put in the barn and much of it molded.

I noticed that some of my critics have been borrowing trouble about me. I wrote a few lines in my article, "Saving Time and Labor on the Farm," expressly for the benefit of such pessimistic farmers who forever are looking for trouble ahead, and crossing bridges before they reach them. Mr. Long looked for rainy days in September. Well, Brother Long, I have farmed for around 30 years and I never saw a much worse fall than that of 1911, and yet I got along nicely with 80 acres of corn, and it is in splendid condition in the shocks today. Regarding the wet weather in planting time, this is just where the machine planter comes in ahead of the "stabber." I can go out on any of my fields and plant corn in a few hours after a heavy shower, with my two-horse planter. What would you do if you had only a stabber or a grain drill? Work your ground all over, perhaps several times, for nothing. One farmer in Kent county did this same old trick and he finally came to me and begged me to come and plant his 20-acre field of corn, and he will tell you that I did him the finest job of planting he ever had done and that he had a splendid crop of corn that season, for all his ground was wet and in no condition to plant with the stabber.

The Other 400 Acres.

Some of my critics were wondering what I would do with the balance of my farm, or 400 acres. I could seed the same down and put thereon a hundred or two light cattle, which I could buy in Chicago for a low figure and sell in the fall at a good profit, and also be a good thing for the land. Or I could rent it out to my neighbors who have small farms who apply to me every spring for a field to put out to some crop.

Of course, we all have different opinions as to what is best for our own welfare, to which we have a perfect right as long as we do not tread on some one else's toes. But I will leave it to the intelligent readers of this journal, as to whose nose is the nearest to the "grindstone," the man with 40 acres which he calls a farm, or the farmer with 160 to 500 acres, where he can find plenty of work for his boys and girls (which he should have), and where he can afford to invest in all the latest improved farm machinery, which will enable him to do two days' work in one.

Washtenaw Co. B. F. WASHBURNE.

CATALOG NOTICES.

The Melrose Convertible Wagon Bed, recently placed on the market by the American Wagon Company, (Dept. 1215), 112 West Adams street, Chicago, Ill., is fully illustrated and described in a handsome booklet sent upon request to readers of the Michigan Farmer. The Melrose is really fifteen wagon beds in one, which can be easily changed from a hay rack to a grain rack, a grain-tight box, or into any one of the fifteen different positions to which it is adaptable, in less than two minutes, and without adding or removing a single part or the use of any tools. In order to introduce this wagon bed quickly, it is being sold at about the same price usually asked for one of the old style beds. Write for the free booklet, mentioning the Michigan Farmer.

"The Proper Care of Lawns" is the title of a 50-page booklet published by the Dunham Co., of Berea, Ohio. This is also a catalog of the Dunham roller-bearing rollers for use upon the lawn. They have many types of rollers for hand and horse power and of different styles, including a novel "water-weight" roller. Many styles are shown, including a two-horse land roller and even heavy road rollers. Grass and lawn seeders for both hand and horse power are listed in this catalog, which will provide valuable information and interesting reading for every reader of this paper who will write to The Dunham Company for this catalog. Write them, mentioning the Michigan Farmer.

"Alfalfa and How to Grow It" is the title of a 50-page booklet, published by the Wing Seed Co., of Mechanicsburg, O. In addition to the interesting information which it contains regarding alfalfa culture, it contains a description and supply list of the full line of farm seeds sold by this firm.

Concrete Fence Posts Pay

It may surprise you to know that the *first cost* of concrete fence posts is actually *lower* than wood posts.

From *every* other standpoint—appearance—durability—strength—they are so far ahead of any other materials that there is simply no comparison.

They are the only kind you can really *afford* to use.

LEHIGH PORTLAND CEMENT

If you are willing to take the judgment of the greatest engineers in the country, you will *insist* upon LEHIGH. Exactly the same qualities which cause experts to select LEHIGH for their most important work are the ones that make it the *one* cement for you.

Concrete Handbook FREE! We will be glad to send you without charge, a valuable book explaining just *how* to use cement. How to test, mix, make moulds, etc. You need it—a postal will bring it.

LEHIGH PORTLAND CEMENT CO.
534 People's Gas Bldg., Chicago, Ill.

(11 Mills—11,000,000 Barrels Capacity)

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DRAIN TILE

INDESTRUCTIBLE

Well drained land produces big crops. Invest in high grade clay tile and you will have a permanent drainage system. We have been manufacturing indestructible drain tile for several years. Thousands of satisfied customers. We satisfy you. **Write Now for our prices.**

SUMMITVILLE DRAIN TILE CO.
SUMMITVILLE, INDIANA.

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.

Legumes will supply plenty of nitrogen.

You Must Buy Phosphorus in some form

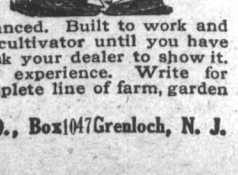
and the only economical way is to buy it in the form of finely ground phosphate rock. The best is the cheapest, and can be had from us

Our goods pulverized to fineness 95% passes 100 mesh, 75% 200 mesh.

FEDERAL CHEMICAL CO.,
Ground Rock Dept. Columbia, Tenn.

GROW BIGGER CROPS!

Hold the moisture in your soil; make more plant food available; save both from weeds. Better cultivation will do it, and make your field outyield one naturally more fertile. Best cultivation is done with Iron Age Cultivators. They are adjustable to all conditions—hill land, wide or narrow rows, different crops in same row, one or two rows; pivot or fixed wheel, break pin or spring hoe, or spring tooth styles; sand and dust-proof hub; re-enforced double point shovels; perfectly balanced. Built to work and last. Don't buy any cultivator until you have seen the Iron Age. Ask your dealer to show it. Backed by 76 years' experience. Write for special booklets. Complete line of farm, garden and orchard tools.



BATEMAN M'F'G CO., Box 1047 Grenloch, N. J.

LIVE STOCK

INSECT PESTS OF FARM ANIMALS.

The most common insect pests are the various kinds of lice that attack animals and fowls of all kinds, and which, though not fatal in the matter of their attacks cause serious financial losses. In the case of man we find the louse associated with him only in filth and degredation, so, also, the the species of lice that attack live stock. The louse finds no permanent abiding place in a cleanly, well-kept stable or pen or on well-groomed and well-fed stock. The trouble is always introduced from outside sources. Even the hog is not entirely devoid of all sense of cleanliness and may be contaminated. I have seen an entire herd of dairy cows infected by the introduction of a recent purchase among them. Then, there is another point, it is usually the runts and the animals that are in an emaciated condition that are the first to suffer an attack from these parasites.

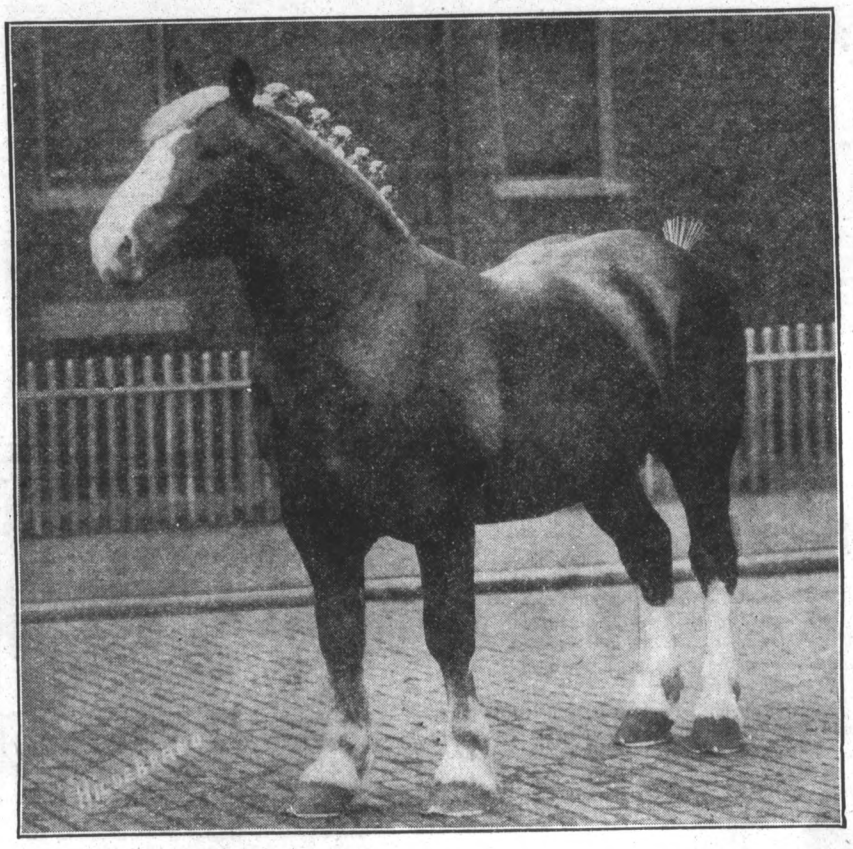
It is not my purpose to give any detailed account of these lice, for their habits and characteristics are much the same and they are all amenable to a line of treatment that is safe, easy to apply and harmless to the animals that are being treated. Cattle and horses harbor three kinds of lice; sheep and swine but one kind. These are all small, wingless, dull white insects with mouths fitted both for prieking and masticating. The eggs are glued to the hairs, wool and bristles, and the young hatching from them have much the form of the adults. The females greatly outnumber the males.

Cleanliness is of the first importance in keeping animals free of lice. Clean, well-ventilated, well-kept quarters, with bedding and litter changed frequently, will have a wondrous effect in this direction. An occasional coat of whitewash is excellent and may be applied to the side walls, partitions and ceilings without stint. As to remedies there is nothing superior to the old-fashioned kerosene oil emulsion. It is difficult to understand why farmers are not more familiar with this most useful compound, the ingredients of which are found in every rural home, and the combination of them is simple and easy, while the cost does not exceed two cents per gallon. To make the emulsion heat an amount of water, a quart, or a gallon, according to the quantity desired, to the boiling point, and dissolve in it one-half of a bar of ordinary laundry soap to each gallon of water. While boiling hot remove from near the fire and add twice as much kerosene. Stir and agitate this mixture until it forms a creamy mass, then add nine times its bulk of water before it is desired to use it. It may be applied with a spray pump or sponge. It is perfectly safe, and it will destroy the eggs as well as the lice. Spraying the walls and ceilings of the stable and pens with a stronger mixture is also very beneficial in connection with its application to the animals that are being treated. Many prepared dips and louse-killers are valuable and efficient, easy to apply and save the trouble of home-mixing.

Another kind of minute organisms, closely allied to spiders, are Sarcoptinitic Scabies, and comprise nearly all of the itches of man and beast. The itch of man, the mange of the horse, the scab of the sheep and one of the pig are all closely allied, and it may be stated here that in order to become infected animals must come in immediate contact with those that are infected. In sheep, cattle and horses there are three forms of scabies. Regarding the mange of the horse, under favorable conditions it can be transmitted to the mule, and even to man, and may live indefinitely on the human skin. It will bury beneath the scurf-skin, where it hides and lays its eggs and the young are hatched. It is difficult to find the parasite on the skin, unless it has been heated by a temporary exposure to the heat. These parasites are wonderfully prolific, and in three months a single pair may produce more than one and one-half million offspring.

The treatment consists in the removal of the scabs by soapsuds, and if necessary with a brush, and the thorough application of water three pints and tobacco two ounces, prepared by boiling. This may be applied more than once, and should always be repeated after fifteen days to destroy the new brood that may have hatched out during that time. All harness and stable equipment should be similarly treated and the interior of the stable sprayed with a whitewash, containing one-fourth pound of choloride of lime to the gallon. The scab of sheep is much more serious and harder to treat on account of their living in flocks, which facilitates contagion, and this increases by allowing the bedding and litter to lay for a long time in the yards and sheep-sheds. To secure information relating to treating sheep scab write to the Bureau of Animal Industry, Washington, D. C., for Bulletin No. 21. This gives the best information obtainable and is free for the asking.

One of the most common parasites of sheep is the sheep-tick. It seldom causes any serious damage either to sheep or to the wool, but it disturbs the peace and health of both sheep and lambs. The ticks interfere with the health and growth of the lambs by crowding on them as soon as the ewes are shorn and then begins an unsuspected drainage of the life-blood of the lambs. Lambs suffering from these pests can not prosper, and soon become weak and emaciated, and never after fully recover the loss of vitality thus inflicted on them at this period of their development. The most simple treatment is dipping, in the same way and at the same time as for scab. In this way we avoid an infection by the scab and destroy the ticks at one operaation. Thus we accomplish two valuable ends at one operation.



Belgian Stallion that Won First in the Two-Year-Old Class at Michigan, Ohio and New York State Fairs for Bell Bros., of Ohio, and was also a winner at The International.

The red-headed sheep louse is becoming very abundant in various parts of the country, and the damage it does to young lambs and sheep is of sufficient importance to engage the attention of every shepherd. The true sheep-louse rarely exceeds one-thirtieth of an inch in length and the female is slightly longer and larger than the male. Its head occupies about one-fourth of its length and is of a pale reddish color. The eggs are laid at the base of the wool fibers, and a glutinous substance sticks them there. The lice are generally found on the bare spots between the legs and the body, just under the shoulder. In young lambs and open wool sheep they may be frequently found on the back of the neck. They do considerable injury in biting through the skin and causing an intense itching sensation and leave a wound. The wool becomes gnarly and worthless wherever these pests attack the skin. One dipping in any standard dip will be sufficient to not only kill the live lice but also destroy all the eggs.

The fly that causes grub in the head has been described as the connecting link between the two classes of external and internal parasites. As a fly it much resembles a bee, and as it buzzes about the sheep's head the animals show great alarm, lowering their noses to the ground and stamping violently with their fore feet. The fly will dart toward the sheep's nose at every opportunity and deposit an egg in the nostril while still on the wing. The work is done in an instant. The egg thus deposited is a living creature, a minute white grub like those we frequently see deposited in clusters on meat. It begins to wiggle and move its way upward and disappears in the nasal passage. A single fly will deposit as many as twenty or more eggs in the nostrils of a flock of sheep in one day if the conditions are favorable. This parasite seems to do little real harm except to torment the sheep unless they are quite numerous, when the irritation seems to cause so much restlessness that the sheep do not thrive, but remain poor. The effect of numbers of the grubs is to inflame the membrane, to cause a severe irritation, and at times to cause bleeding, the blood running down the nasal passages and streaking the mucus which is snorted out by the sheep with violent efforts. Frequently the grubs are ejected by the violence of these efforts. The only practical remedy seems to be the application of some soft, sticky substance to the sheep's nose by which the eggs are destroyed or the flies driven away. For this purpose tar is a wholesome thing for the sheep, an excellent tonic and antiseptic, so that two good uses are made of its application. If the flies are plentiful attacking the flock a mixture of tar and fish oil may be used to advantage. If the sheep have been seriously attacked by the flies, and numerous grubs have become lodged in their nasal sinuses on each side of the head and just above the eyes about the most effective remedy is to inject a mixture of linseed oil and turpentine in equal parts, by means of a suitable syringe provided with a long, slender nozzle with three or four openings at the end so that the remedy will be discharged in diffused streams as so reach the grubs. A favorite Scotch remedy is to blow tobacco smoke into the sheep's nostril or inject snuff which will cause violent sneezing that will throw out the grubs.

Hog lice are very troublesome and cause severe losses if not promptly destroyed. For this purpose there is nothing better than a mixture of one part crude carbolic acid and fifty parts crude oil applied with a hand-sprayer or used as a dip. By saturating old sacks or blankets and tying them around a post the hogs will learn to make their own toilets. Lime used liberally in the nests and this mixture used as a spray around the houses and yards will keep hogs of all ages free from lice and vermin.

Various kinds of flies are very troublesome to cattle, horses and other farm stock during the summer and early fall. There are a number of different preparations on the market that may be used with profit as a preventive of injury from these pests. It takes time to spray stock, but it pays from a financial standpoint and adds to the comfort and welfare of the dumb creatures which an all-wise Providence has placed under our care. Almost any greasy substance is of great assistance in preventing fliese from troubling animals during the summer. Fish

What is Your Best Horse Worth to You?

Yet your *best* horse is just as liable to develop a Spavin, Ringbone, Splint, Curb or Lameness as your *poorest*. These ailments cannot be prevented but they can be cured if taken in time. Keep a bottle of the old reliable

Kendall's Spavin Cure

handy always. For over 35 years this standard remedy has been constantly proving its efficiency and value to horse owners everywhere. It has saved thousands of dollars in horseflesh and untold time, work and worry.

The experience of Mr. W. C. Hutchinson Nashville, Ark., is merely typical of thousands. He says:

"*Of all the horse medicines I ever used, Kendall's Spavin Cure is king of them all.*"

And Mr. Frank L. Girard, Waterloo, Que., writes:

"I have known and used Kendall's Spavin Cure for about 35 years. Have always found it the best liniment for man and beasts."

Don't take chances with your horses. Have a bottle or two of Kendall's Spavin Cure always on hand—it is a reliable cure. Price $1.00 per bottle or 6 bottles for $5.00. Get our valuable Book, "Treatise on the Horse"—Free at your druggist or write direct to us.

Dr. B. J. Kendall Co.,
Enosburg Falls, Vermont, U. S. A.

Warranted to Give Satisfaction.

Gombault's Caustic Balsam

Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

No More Sore Shoulders

Your team will put more heart into their work and give more service if their collars are properly padded. **VENTIPLEX** is the kind to use, because it is made of ventilated fabric which allows the sweat to evaporate and keeps the shoulders cool and comfortable.

You can use all your horses all the time, because **VENTIPLEX** prevents sore shoulders and galls. **They are worth more than other pads, but cost no more.** Your dealer should have them, but, if not, send us his name and we will send sample promptly. Patented Sept. 20, 1910. Write for our interesting folder.

We also make the famous "Stay-On" Blanket.

BURLINGTON BLANKET CO.
Dept. 38 Burlington, Wis.

Ventiplex PADS

oil and the kerosene emulsion gives good results as a preventive.

If we secure maximum profits from our animals we must destroy these insect pests whenever they come within our reach. It means a lot of hard and disagreeable work. We have some good remedies. Good remedies are what we are interested in, and right here I desire to suggest that there are four things that are essential in any remedy. First, it must be effectual, that is, it must destroy or drive away the insects against which it is directed. But that is not sufficient. It must be cheap and not complicated. If the remedy is expensive it is not going to be used liberally enough. And then in the last place it must be harmless to the animal and those who may use it. Farmers should make a concerted, co-operative fight against these pests. The great trouble is that one man tries earnestly, and he does it very successfully, but his neighbor breeds them faster than he can destroy them. A united co-operative effort would soon exterminate some of the worst pests.

New York. W. MILTON KELLY.

PLANTS FOR FORAGE.

I could not equal John J. Ingall's eulogy on grass, if I tried. My purpose is to talk about the plants best for forage, and the immense importance of improving our meadows and pastures so as to increase their production.

A writer long previous to Ingalls, said: "All flesh is grass." This being the case, in order to raise farm stock of all kinds at a profit, there must be provided an abundance of grass.

Botanists class all the grain plants (unless it be corn), among the grasses; but farmers consider only those plants grass, which are used exclusively for forage, both pasturage and fodder, and sometimes the clover, and alfalfa. Neither beef, pork, mutton or milk, can be cheaply produced, nor horses cheaply raised, without an abundance of cheap grass. Somebody said that "the pearson who discovered a way to make two spears of grass grow where only one grew before, would be a public benefactor." The way was discovered long ago. The land must be enriched wherever it is, and if in an arid region, irrigated. Two spears can be made to grow where only one grew before, but the growing of the second spear will cost more than the first, on account of the value of the fertilizers which must be applied.

The late George M. Clark, of Connecticut, used large quantities of manure, and raised immense quantities of hay per acre. He did this many times and declared that his hay farming was very profitable. Mr. Clark sowed those old standby grass seeds, timothy and redtop mixed, on a very mellow soil without any grain crop to contend with the grass for the nourishment in the soil. Some people have declared that timothy hay is less nutritious, and is inferior to clover hay as food for stock, especially cows in milk. However this may be, just so long as timothy hay commands more in the market than other kind, farmers will do well to stick to timothy to sell, and keep their clover for their cows. The roots of timothy grow near the top of the ground and without the protection of the aftermath in the meadow, or of snow covering in the winter, are liable to get winter-killed. For this same reason (the roots near the top of the ground) a timothy meadow should not be mown too closely during a dry spell, lest the roots will be killed by the sun. I injured a timothy meadow by mowing it too closely during a drouth.

Timothy, (also called "Herd's grass"), is found in all parts of the world where the climate admits, and is no doubt also a native of America. The botannical name is pleum pratense.

In 1749 timothy was found growing in a swamp at Piscataqua, New England, by Timothy Herd, who cultivated it. As it was found to be a valuable grass, its cultivation spread over the whole country. It was not introduced into England until twenty years later. Experiments have been made which show that timothy can be improved in making it grow taller, and the heads longer, and containing more seed. This was done by selecing the seeds from the tallest plants and sowing them year after year for a number of years in succession. This was done without the use of manure or fertilizer to stimulate their growth.

It is well known that all our grains have been frequently improved in yield and quality by this method of selection. Farmers could easily try this experiment for themselves. The grasses are more widely diffused than any other kind of vegetation, being spread over all parts of the habitable globe. Twenty years ago, clover was the most popular forage and grazing plant in the United States and was also esteemed for manurial purposes.

At the present time, and for a number of years past, alfalfa has been constantly talked about and extolled by the writers for the farm papers. It has been grown by some farmers in the United States for a long time past, and it is astonishing that more of our farmers did not get interested in it until recently.

Pennsylvania. J. W. INGHAM.

WINTERING THE EWES.

"Keep the ewes in a strong, vigorous condition, but don't make them too fat," is probably as sound as any advice ever given a beginner in sheep raising. The ewes must be well fed, so that they will keep up their own strength and vigor and besides will build up the bodies of their unborn lambs. Above all, the feed must be appetizing. The ewes must like it. Unless they do they will not eat an amount sufficient to meet their needs. Furthermore, if it is lacking in appetizing qualities it will not be readily digested. The feed must be nutritious and digestible.

The size and structure of the ewe's digestive apparatus are such that she can take care of large amounts of roughage. The greater part of her feed may well be of what we term rough feed. However, this must not be confused with indigestible feed. The ewes thrive best when their hay consists of alfalfa or clover of good quality. Either of these may be cheapened with corn stover or oat straw. Silage is very much relished by ewes. We have fed heavily of it with apparently good results. It seems to have about the same effect in keeping the ewes healthy as it does in the case of dairy cows. There are some who are inclined to believe that lambs from ewes fed silage are weak boned and lacking in vitality. We doubt very much if such ill effects are produced, especially if the ration is properly balanced up with protein and ash. Of course, we realize that the corn plant as a whole is lacking in both those constituents, so we make it a point to supply alfalfa or clover along with the silage. With silage and either of those not more than a pound of mixed grain will be needed per day.

Exercise, too, must be provided if the ewes are to be kept strong and healthy. In ordinary winter weather they may well be given the run of the entire farm. They will roam about, picking up stray bits of feed and obtaining needful exercise. Dry cold does not hurt sheep. It is the damp weather and winds that give them sniffles and cough. As the ewe becomes heavy with lamb she likes to lie around in the warm sunshine of late winter. A large yard enclosed with a tight board fence which will break the force of wind makes almost an ideal place in this respect. Over in England walls are made to enclose the yards with straw, simply two fences are put up ten or twelve inches apart and the inter-space packed with straw. The writer has often thought how nicely we could accomplish the same end by using cornstalks from which the leaves had been stripped.

The requirements of the ewe, so far as shelter is concerned, are few and comparatively simple. She should have a dry, clean shed and it should be well ventilated. No stuffy place filled with foul air for sheep. A large, airy shed with doors that can be closed in bad weather is probably the best kind of a structure for winter use for ewes. We have used such sheep house with inside hay racks and grain troughs. With plenty of bedding, consisting of either straw or the coarse parts of shredded corn fodder, it made a very nice place indeed for the flock during the entire season; after lambing it was a splendid shelter for the young lambs.

Ewes must be watched for parasitic disease although there is not so much danger at this season. If the shed is clean and the yards not muddy there will be but little danger of foot rot. A wormy ewe will be unthrifty. Little or nothing can be done except to dispose of her. There is more danger from colds which put the ewe out of condition. To guard against that we keep the flock in dry quarters and prevent cold drafts in their shed. To feed the ewes liberally and to look after their health does much to insure a strong crop of lambs.

Minnesota. H. E. MCCARTNEY.

HEWO STOCK FARM
The Home of the

BELGIANS
This announcement is for the men who know a horse, who need a horse, and who are familiar with values when they find something suitable. Have you, Mr. Stallioner, spent dollars uselessly searching for a first-class Belgian stallion or a No. 1 Belgian mare for a price at which you could afford to own same? Have you, Mr. Prospective Purchaser, decided where you are going to find what you want?
We want to state here, and to state most emphatically, that our twenty-five years' buying experience in Belgium, and our selling system (all stock sold at the farm), places us in a position to sell a good stallion or a good mare at prices beyond competition.
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."
We have a number of home bred colts at extremely reasonable prices.
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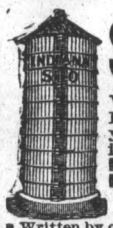
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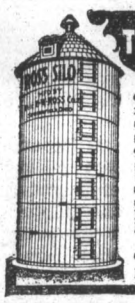
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FEEDERS' PROBLEMS.

The Feeding Value of Buttermilk for Hogs.

What is the feeding value of buttermilk for hogs, where it has to be hauled one mile? What is the best feed to feed with it, with hogs on grass, or when they are confined in yards without grass? How ought it to be fed for best results; how much of it, and how much grain? What is the feeding value of brewers' malt for hogs? Can you tell me if it would pay to get the refuse from hotels and restaurants for hogs, where same can be gotten in quite large quantities one and a half miles away and how best to feed it?

Gd. Traverse Co. SUBSCRIBER.

At the Massachusetts Station an experiment was made to determine the comparative value of buttermilk and skim-milk as a feed for hogs. Both were fed with corn meal at the rate of about 12 pounds of buttermilk or skim-milk to one pound of corn meal. The pigs weighed just under 50 pounds at the beginning and were fed to a weight of 115 pounds with practically identical results; illustrating the fact that buttermilk will give as good returns as skim-milk, provided no water has been added to the buttermilk in the process of churning. In this trial, too much milk in proportion to the grain used was fed for the most economic results. Repeated experiments have shown that for best results from one to three pounds of skim-milk should be fed to one pound of grain. This will apply equally to hogs fed in confinement or on pasture. Of course, if there is a large supply available at a cheap cost, it might pay to feed more than this, but a greater feeding value would be gotten from a given amount of either skim-milk or buttermilk when so fed than is the case when fed in larger proportions to the amount of grain used.

Corn meal is the natural complement of skim-milk or buttermilk and the two feeds together will make a well balanced ration when fed in the proportion of one to three by weight. For very young pigs, of course, some other feed such as middlings added to their ration will produce somewhat better results. We have no experimental data on the value of brewers' grain for hogs. The wet brewers' grain cannot be advantageously fed unless one is located close to a brewery. The dried grains are considered a very good food for other stock. They are rich in protein and comparatively low in carbohydrates and might be valuable for balancing up a ration but would not be economical, fed alone.

The question of feeding hogs on garbage obtained from hotels and restaurants is a difficult one to answer, but where this is systematically done it has proved to be a profitable industry in some cases. One should be able to handle it cheaply and in comparatively large quantities if it is undertaken at all.

Rape for Hog Pasture.

Am planning the hog pasture proposition and think of sowing rape, but was told that if white hogs were pastured on rape it made them scurfy and seemed to produce a kind of skin disease, which would not appear on black hogs. Will you please give me information on this subject? Also, which particular breed seems to give the best results for pasturing and fattening at eight to ten months of age? Have a very little skim-milk to give them and would be pleased to receive some good pointers on caring for and feeding hogs successfully.

Missaukee Co. H. B.

The value of rape as a forage for hogs was made the subject of two trials at the Wisconsin Experiment Station some years ago. In these experiments the first trial was made with 20 Poland China pigs and the second with 38 grade Chester Whites, so that both black and white pigs were used in these trials. In both cases the pigs were divided into two equal lots, the first having a run in the rape field with grain in addition, and the second lot confined in a pen receiving grain only. The first trial lasted 76 days and the second in 42 days. In both cases the gain of the different lots was practically equal, varying but four pounds in one case and ten pounds in the other in favor of the grain fed hogs.

The first lot, which had access to about one-third acre of rape consumed 710 pounds less corn and 352 pounds less middlings in making 853 pounds of gain. The second lot consumed 886 pounds less corn and 444 pounds less middlings in making 1,066 pounds gain; in this case a little more than one-half acre of rape was available. Summarizing these two trials and calling the gains equal, the figures show that one acre of rape is equivalent to 2,600 pounds of grain for pig feeding for hogs which are in preparation for the final fattening period. Since the crop can be seeded very cheaply and the hogs harvest it themselves, the value of this crop as a hog pasture is at once apparent. Also the ground can be seeded with either clover or alfalfa or both, as desired, at the same operation with a fair prospect of success.

Where small pigs are given access to a rape field in which the plants have attained considerable growth, there is a tendency to cause a scurfy condition of the skin if the pigs are allowed to run through the rape when it is wet with dew or rain, and the white pigs apparently have a more tender skin at that age, although it will affect both to some degree, and the fact that it is more noticeable on the white pigs makes the only difference in this respect. However, no trouble of this kind will be apparent with older hogs of whatever breed may be kept.

So far as the matter of breed is concerned, there is no one breed which may properly be described as the best for the purpose named. The different breeds of improved hogs have their advocates and all are good, else they could not attain prominence. If there was one best breed the farmers of the country would not be long finding it out and discarding the others.

Cull Beans as a Horse Feed.

Would like to know how cull beans, ground with oats, would be for a grain ration for work horses. Am short of grain, and cull beans are about the easiest to get here, and about what amount ought to be fed to horses weighing about 1,100 lbs. each?

Genesee Co. G. R. P.

Cull beans ground with oats would not be a practical feed for horses because it would not be a palatable feed. The writer has known of instances where farmers have attempted to feed a grain ration composed of a mixture of corn, oats and beans, using about one-third beans, but the horses refused to eat the grain. The only practical method for feeding beans to live stock, with the exception of sheep, is to cook them, when they will be readily consumed by practically all kinds of live stock. They might be an economical addition to the ration when so fed, but a better use to make of beans would be to feed them to hogs, and use a mixture of corn, oil meal and oats for the horses, using about 600 pounds of corn to 100 pounds of oil meal and as many oats as desired, with a little bran added in case but few oats are used. This will make about as cheap a combination as can be used and get a proper balance of food nutrients.

BUYING BREEDING STOCK.

Some farmers never have enough breeding stock on the farm because they are always in doubt as to the best time to buy or sell. If stock is high they hesitate to buy breeding stock for fear the prices will drop before they can market their offspring. If stock is low they hesitate to buy for fear the prices will remain low.

It goes without saying that there are times when there is more money in breeding animals than at others. But the man that makes money in stock is the man that keeps the best and keeps all he can well handle on his farm. The low prices at one time will balance up with high prices at other times, and no one can tell with any degree of certainty when prices will be high and when prices will be low. All meat animals just now are reasonably high. In many sections breeding stock, both young and old, is being sacrificed to an almost alarming extent. Brood sows and heifer calves are going to market almost as fast as steers and barrows. What the supply will be two or three years from now no one knows but common reason teaches that it will not be very great, and therefore the prices are apt to stay high for a long time to come. The wise farmer who has young breeding animals will not part with them now for market purposes even when the stock buyer offers high prices for them. It would be too much like selling the goose that laid the golden egg.

If your breeding stock is low and your neighbor has none to sell, look up advertisers and get in communication with them. Get from them what you need and can use to an advantage. Many breeders of pure-bred stock, especially hogs, have sold out and cannot supply orders until new ones come.

There are at least two reasons why you should buy good breeding animals now. One is that from them you can make the most of your feed for market purposes, and the other is that you can sell all the best of the young to other farmers. Whether you raise live stock for the

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S. M. Ryder, Mercersburg Pa., writes: "I am making money buying 3-year-old kickers cheap, handling them a few days and selling them, perfectly broken, at a large profit."

O. B. Hill, Robinson, Ill., Route No 3, writes: "Three weeks ago I paid $125 for a 5 year old kicker, yesterday I sold her for $225."

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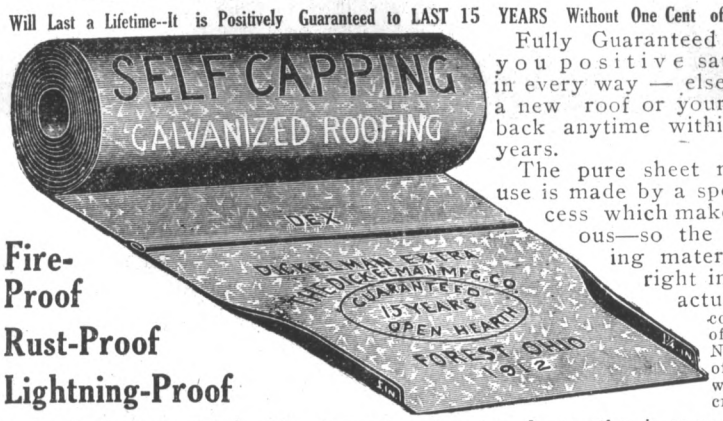

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LIVE STOCK NOTES.

The United States Live Stock Sanitary Association has taken prompt and decisive action following the refusal of the last Illinois legislature to order the tuberculin test for cattle. This association does not hesitate to say in plain words that the state of Illinois is liable to become a disease producing center and a constant source of danger to the surrounding group of states, while the legislature is severely censured. The state is declared to have taken a backward step when its legislature adopted a resolution that the tuberculin test for cattle was pernicious. This action of the association followed the announcement made by the Northwest Live Stock Association, prohibiting the importation of Illinois cattle into its territory unless accompanied by a certificate of health from the bureau of animal industry because the Illinois legislature failed to make the tuberculin test a requirement. States embraced in the northwest association are Washington, Oregon, Idaho, Wyoming, Montana, South Dakota, North Dakota and Minnesota. The peculiar action of the Illinois legislature has exerted a decided effect on Chicago's milk and cream supplies. A city ordinance requires inspection of cattle which furnish milk, but the legislative action nullifies this, and the city no longer has such inspection.

In figuring on the future of the hog market, the enormous marketing of little pigs that has been going on for so many months should be taken into account. While the crop of pigs of the country last year was known to be a large one, cholera killed off a big percentage of them, and in many parts of the corn belt the supply was almost wholly destroyed. Good proof of the wholesale marketing of pigs and young hogs was furnished last November, when the average weight of the hogs received at the Chicago stock yards fell off to 208 lbs., which was the lightest weight of the year, comparing with 242 lbs. in the month of May, when weights ran the heaviest. The prevalence of swine plague played an extremely important part in this rush of pigs and light-weight hogs to market, but much credit must also be given to the many shipments made by farmers in order to avoid winter feed bills. The year 1911 saw aggregate receipts of around 25,000,000 hogs at the eleven leading markets of the country, which is a gain of nearly 6,000,000 over the preceding year and is the largest number marketed since 1908, when they aggregated 28,000,000. The heaviest gains were made since July, the time when disease broke out among the herds in many states.

Clay, Robinson & Company's Live Stock Report has the following on the hog situation: "Producers of hogs have surely not forgotten so soon the disastrous results of the indiscriminate marketing of pigs and shoats along in 1907 and 1908. It was then that every producer seemed to want to get out of the business as quickly as possible, which resulted in the porcine population being reduced to a point where packers found difficulty in getting enough to keep their plants working regularly. Then in 1909 and 1910, when hog prices struck the highest point on record a big majority of the producers had none to sell. Thus high prices were really of no benefit to those who had gone out of the business, while the effort to get back into the business was as vigorous as it had been to get out of it a few years previous, and the cost of restocking the highest ever known. It is generally admitted that heavy inroads have been made in the supply of hogs in Nebraska, Kansas, Missouri, Iowa, Illinois, Minnesota, Wisconsin and Indiana by hog disease, while the high cost of corn in Ohio and other eastern states has caused heavy liquidation of hogs of abnormally light weight during the past four months."

The Chicago and other western sheep markets have shown sensational fluctuations in prices in recent weeks, and owners intending to make early shipments should study market conditions carefully and at the same time obtain the advice of a reliable commission house dealing extensively in sheep. Much always depends upon the eastern mutton markets as to the demand or lack of demand in the Chicago market, and at such times as the Buffalo market is overstocked, a bad Chicago market is witnessed usually, provided the supplies are on a liberal scale. Before many weeks the Colorado lambs will come forward freely, but until that time there should be a good outlet for flocks fattened in the corn belt, always provided they are good and fat and are marketed conservatively. More lambs were put on feed in Colorado than was at first expected, many sheepmen deciding late to do some feeding, and when these get well started marketward, corn-belt sheepmen will have to make their holdings prime in quality to stand the competition. It is no time to market half-fat sheep or lambs, either now or later on.

Recent advices report heavy losses of mules and horses in southern Illinois and stoutheastern Missouri, where the stock had been running in corn fields. The deaths were caused by worms in the corn husks, and the worm probably had been generated by the long period of mild and wet weather that prevailed previous to the late cold wave.

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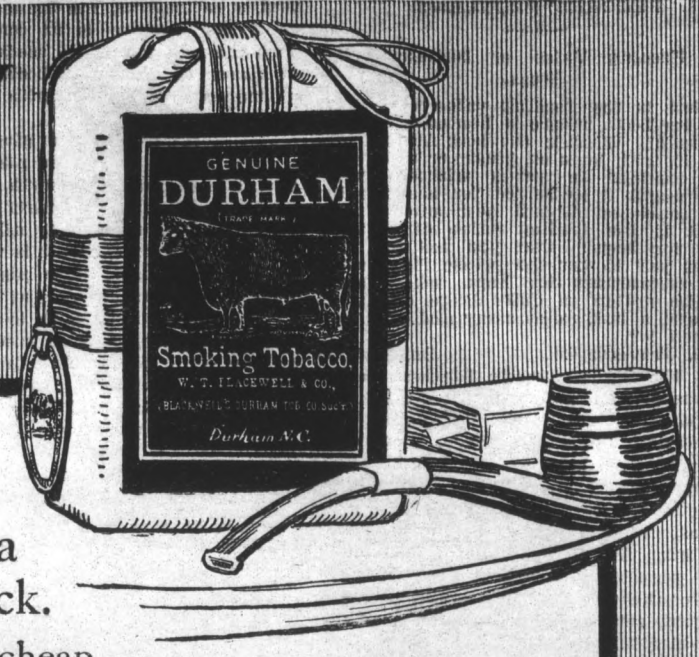

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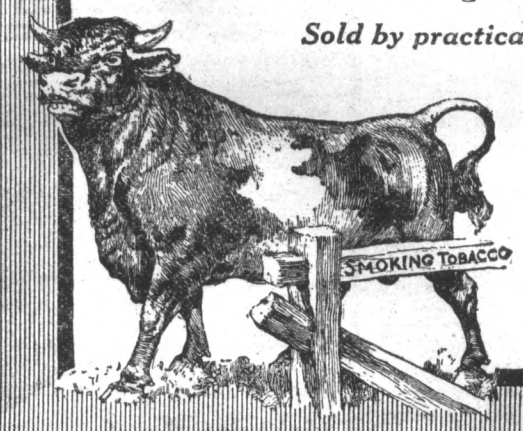

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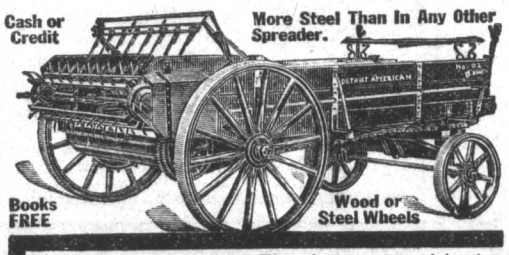

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A Whole Pint of it Easily Made at Home and Saves You $2. Safe, Pleasant and Does the Work Quickly.

For quick and positive results, the pint of cough syrup that you make at home with Pinex and sugar syrup, cannot be equalled. It takes hold instantly and will usually stop the most obstinate deep-seated cough inside of 24 hours. Even croup and whooping-cough yield to it quickly.

Get a 50-cent bottle of Pinex and mix it in a pint bottle with home-made sugar syrup. To make the best sugar syrup, mix a pint of granulated sugar with ½ pint of warm water and stir for 2 minutes. This is no trouble, and gives you a full pint—a family supply—of better cough remedy than you could buy ready mixed for $2.50.

Pinex, used in this way, soothes and heals the inflamed membranes with remarkable rapidity. It stimulates the appetite, is slightly laxative, and tastes good—children like it. Excellent for hoarseness, asthma, bronchitis, and other throat troubles, and has a wonderful record in cases of incipient lung trouble.

Pinex is a special and highly concentrated compound of Norway White Pine extract, rich in guaiacol and other natural healing pine elements.

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 gladly get it for you. If not, send to The Pinex Co., 232 Main St., Ft. Wayne, Ind.

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23½c. a rod for 47-in. farm fence.
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$1.40 for 80 rod spool of Ideal Barbed Wire. Large free Catalog showing 100 styles of Farm, Poultry and Lawn Fence.

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STRONGEST FENCE MADE

FROM FACTORY DIRECT TO FARM

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Wires	Inches high	Medium Weight	Extra heavy (all No.9)
9	39	23c per rod	36c per rod
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Special rates beyond this territory.

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Will wrap with ease the largest hardwire in the narrowest space in a woven fence. Sample by mail post paid for 50 cents. Agents wanted. Free illustrated circular.

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Tonic Tablets

Will purify your blood. **50 cents per Bottle.**

THE SPECIFIC MEDICINE CO.
Box 212, KERHONKSON, NEW YORK.

The remarkable manner in which corn prices have been maintained month after month is telling forcibly in inducing farmers everywhere to ship their cattle and hogs to market earlier than usual. Notwithstanding the increased marketings of corn of late at primary western points, the visible supply is by no means heavy, the offerings going into consumption rapidly, with the southwest absorbing liberal amounts Furthermore, enormous amounts of feed have been necessary this cold winter to maintain animal heat in holdings of live stock, and it now looks strongly as though farmers would be in a position to obtain extremely high prices for their surplus corn supplies for months to come. Within a short time corn for May delivery has been selling in the Chicago market around 68c per bushel, prices ruling about 18c higher than a year ago, while oats have shown an advance of around 17c over last year's prices. Hay, too, is such a short crop as to force prices extraordinarily high, with sales on the Chicago market as high as $23 per ton for the best grade of timothy, while best Kansas and Oklahoma prairie hay sell at $19 and best Iowa, Minnesota, Nebraska and Dakota prairie hay at $17.-50. Straw sales are made at $10.50 to $11 per ton for rye; $9.50 to $10 for oat and $8.50 to $9 for wheat. Alfalfa hay has become an important article of commerce, and it is selling in the Chicago market at $20 per ton all the way down to $15 for prime to common offerings.

Clay, Robinson & Company's Chicago Live Stock Report has the following in a recent issue: H. A. Reed, a successful farmer and feeder of Peoria county, Ill., was here Monday of last week with short-fed cattle at $7.10 and a load of mixed hogs Thursday of that week at $6.20. "One and two years ago, when corn was costing 40c per bushel, I sold hogs at $8," remarked Mr. Reed. "This year corn is costing 56c per bushel and my hogs brought $6.20. One and two years ago I sold cattle at $6 and $5.25 respectively, and this year at $7.10. One and two years ago hay cost $15 per ton and this year $20. I never like to compare my sales of cattle and hogs with the previous year, but endeavor to strike a five-year average. In this way one can arrive at a fairer average when comparing the cost of preparing the stock for market and the selling price, and it will generally be found that those who feed a few carloads of cattle and hogs every year will come out with accounts on the right side of the ledger."

In recent weeks premature selling of cattle that required longer feeding has been as marked in the east as in the western feeding districts, and prices have suffered accordingly, marketings consisting chiefly of light and medium weights. The best heavy beeves hold up well because of their limited supplies everywhere.

Late reports from Minnesota say that sheep and lamb feeding is materially checked by the dearness of feed, to say nothing of the unusual severity of the winter. Screenings are hard to get and sell at $12@17 per ton for poor to choice grades.

Word comes from Madison county, Ia., that there are very few cattle on feed in the southern part of the county, with corn bringing 60 to 68 cents a bushel and hay only half a crop. Farmers are marketing their hogs when they weigh from 160 to 200 lbs. because of the dearness of feed, and there is a good deal of hog sickness in the northern part of the county.

As is apt to be the case, losses of cattle reported in the Texas Panhandle country this winter have been a good deal exaggerated, and this is also true regarding western Kansas and southern and western Oklahoma. Losses of native cattle were relatively small, the ones to suffer most being the cattle brought in from Arizona, New Mexico and Mexico. These were easy marks from not being acclimated.

The total sheep and lambs in the United States in 1910 stood at 52,000,000 head. Of this number 29,558,000 were grown in Texas, Arizona, New Mexico, Colorado, California, Nevada, Utah, Wyoming, Montana, Idaho, Washington and Oregon. Since then the holdings have been materially lowered.

Reports from Pennsylvania are that fewer cattle and sheep are being wintered than for years, and stockmen will be forced to come west for restocking their lands next spring.

Dairy products are selling extraordinarily high, with short production, and eggs are bringing the highest figures recorded in many years, the best lots wholesaling in the Chicago market for 37c per doen. Prime creamery butter brings 36c per pound, with a general shortage everywhere. Holdings of butter in the principal cold storage warehouses of the country are given as 26,-677,700 lbs. less than a year ago.

Last year's prices for western range cattle in the Chicago market averaged higher than in 1910, while native beeves averaged lower. The receipts from western ranges aggregated 248,600 head, a decrease of 71,100 from 1910, in which year many steers, cows and heifers were forced on the market by the great drought.

It is stated that the American packers have large quantities of lard stored in European continental cities which were shipped on consignment and are not readily salable except at a considerable discount below prices now prevailing in cities of the United States. It seems that marketings of hogs in Ireland, Denmark and Russia for the last few months have been very much larger than during the same period in previous years, and the lard and provision situation abroad is hardly such as to develop a bullish sentiment. It is stated that Germany has yet to receive considerable quantities of lard which were bought some time ago and which are now out of line with present continental prices.

VETERINARY

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

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

Cow Leaks Milk.—My six-year-old cow leaks milk and at times milk is stringy. F. McC., Marion, Mich.—You had better use teat plugs on her and if you are not supplied, The Lawrence Publishing Co. can send them to you by mail.

Lump Jaw.—I have a cow that has had lump jaw for the past four years and I have been advised to get rid of her for fear of this cow infecting others of my herd. Is the meat of this cow fit for food? Can you tell me if it is a crime to dispose of such meat? J. J. P., Scottville, Mich.—If she has chronic lump jaw without any suppuration and bunch has not increased in size lately her carcass, less head, will be fit for food. I am not familiar with Michigan criminal law but imagine it is prohibited and if from no other than moral reasons, it would be wrong.

Constipation.—For past three months one of my cows has been troubled with constipation and our local Vet. has treated her, with only fair results. He gave her one pound doses of epsom salts daily and when not given she remains bound. She is fond of cornstalks and does not chew her cud. F. V., Sr., Holland, Mich. —Feed her more roots and silage, if you have it. Epsom salt is the best laxative you can give her, but if you will salt her well she will drink more water and this will loosen her bowels.

Foreign Body in Stomach.—I am feeding a bunch of steers this winter and one of them seems dull, has a slight cough, eats fairly well, but does not thrive. He has better food than balance of herd. W. B., Ellsworth, Mich.—It is possible that your steer has swallowed some foreign body and it has lodged in his stomach causing more or less irritation, he may not recover. However, he may only have indigestion and if so give him 1 oz. ground gentian, 1 oz. ginger, 1 oz. cooking soda at a dose in feed three times a day.

Spasm of Larynx—Choking.—Have recently lost five young pigs that showed the following symptoms before death and after. When they reach the trough and take a swallow of food, they quickly stagger back in a sort of fit, falling over and kicking for a short time, then appear to either get over it or die. Some of them wander about the pen as if lost and try to hide away from the others. I opened one of the pigs that died and thought I discovered the cause of death. One side of stomach was a deep cherry red color and the rest appeared normal. I have been reading the Michigan Farmer for several years and find it invaluable to me. T. B., Bad Axe, Mich.—Your hogs die the result of choking. They do not show symptoms of gastritis. Liquify their food and scatter it in order to prevent them taking in such large mouthfuls and this will prevent their choking.

Indigestion.—During the fore part of January seven of my fall pigs died. They were fed middlings and ground feed mixed with cold water for morning meal and fed corn at night. When opened after death the stomach contained sour, bad smelling food and I thought stomach was inflamed. Have been feeding them salt, sulphur, copperas and wood ashes. B. P., North Adams, Mich.—Your pigs will do better if you feed them warm food and all the better if it is cooked. The weather has been extremely cold and the mortality in hogs has been great. This comes from lack of care and proper feeding. Mix together equal parts gentian, ginger and quassia, give each pig a teaspoonful at a dose twice a day.

Vertigo.—I have seven pigs about three months old that have been kept in a small pen, fed milk, corn meal and beans. These pigs seem to have fits and I have thought feeding them beans brought it on. W. N. P., Sunfield, Mich.—Your pigs should be fed less feed and exercised more. Give those that have fits a full dose of either castor oil or epsom salts.

Weakness.—We have a seven-year-old mare that I bought in Detroit last fall. I was told she came from Indiana, is some nervous, has a heavy coat and perspires when standing in stable. N. C., Durand, Mich.—Give her 1 dr. ground nux vomica, a dessertspoonful powdered nitrate potash and two tablespoonfuls ground gentian at a dose in feed three times a day.

Thrush.—Having read lots of good advice in the veterinary column, I come to you for advice regarding a horse that is troubled with thrush in front feet. Have been advised to try several remedies, but I find they fail to effect a cure. F. R., Gagetown, Mich.—The common cause of thrush is wet and filth, therefore I advise keeping the feet dry and clean. Apply peroxide hydrogen twice a day. Ten minutes after each application dust in calomel and wedge cleft of frog full of oakum, leaving it in until you dress foot again. This treatment generally proves effectual.

Enlarged Hock—Wind Galls.—Have a horse that has been troubled with a swollen hock for the past two weeks, causing him great pain and lameness. He is also troubled with wind galls. A. T.,

Allcock's PLASTERS

Rheumatism in Shoulder can be relieved and cured by them. Also invaluable for *Pains, Stiffness or Soreness* of joints or muscles.

Apply Wherever There Is Pain.

Constipation, Biliousness, Indigestion, etc.

Brandreth's Pills

Entirely Vegetable.

3 Minutes to Sharpen Dull Ax

"Took just 3 minutes to put a very dull axe in perfect order," writes J. A. Sudan, Newark, Del. Sharpens plows, sickles, and all tools amazingly quick. 25 times faster than grindstone. Will not draw temper. The **Luther Farm Tool Grinder** has shaft drive, enclosed bearings. Low price. 5 yrs. guarantee. 30 attachments to select from.

30 Days Free Trial One Year Approval

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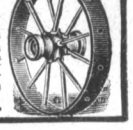
Only $1 to have a set of Empire Low Steel Wheels on your farm wagon for your heaviest hauling.

End your drudgery of high lifting at once by sending only $1 a wheel! Pay balance after 30 days' trial. Your money right back if the wheels are not as represented. We pay the freight both ways. You are not out one cent. Write us today for our "Dollar-a-Wheel" offer.



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(Sold with or without elevator)

CRUSH ear corn (*with or without shucks*) **GRIND** all kinds of small grain. **Have Conical Shape Grinders. Different from all others.**

LIGHTEST RUNNING

(Our Circular Tells Why)

Handy to Operate. 10 Sizes— 2 to 25 h.p. Capacity 6 to 200 bushels. **We Also Make Sweep Grinders.**

FREE Booklet on "Values of Feeds and Manures."

D. N. P Bowsher Co., South Bend Ind.

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Wheels that Last ELECTRIC

Steel. Unbreakable. Nothing to dry apart. No tires to set. **Buy just wheels** and make your old wagon good as new—a low-down labor-saving handy wagon for all work. Fit guaranteed. Broad tires, lighter draft, no rutting. Send for free book today.

Electric Wheel Co., Box 35, Quincy, Ill.

Grind Your Corn—Husks and All

Alfalfa, Clover Hay, Wheat Screenings, sheaf oats, rye, Kaffir corn, wheat, barley, shell corn, cotton seed, wet, dry or oily are all ground to meal on the "Bull Dog" Grinder.

Highest Grade of Corn and Buckwheat Table Flour in One Grinding

And you can prove it. 10 Days' FREE Trial Given. State size of engine and write for catalog and samples today.

Letz Manufacturing Company
133 E. Road, Crown Point, Ind.

Hardy's Hog House

"It's Portable," made of the best Corrugated Galvanized Steel with an all-steel frame. Guaranteed.

Protects the Sows and Saves the Pigs!

A warm, dry, sanitary, ventilated house, 5 ft. wide, 6 ft. long and 4½ ft. high. Pays for itself every season.

Write for Special Introductory Price!

Hardy Manufacturing Co., 303 Union St., Pendleton, Ind.

Port Huron, Mich.—Apply equal parts spirits of camphor and alcohol to entire hock joint four times a day.

Weakness.—We left the mercantile business about four years ago to engage in farming. We keep eight cows. Every year we lose most of the calves, although our neighbors rarely lose any. We feed our cows better than most of the farmers around here. We have tried raising spring calves, also fall calves but they always come dead, or die within a few hours after birth. We feed our brood sows the milk from these cows and lost four litters of pigs last summer. Could you offer a suggestion of what is the trouble Mrs. J. J. S., Copemish, Mich.—If your cows carry their calves full time, it must be on account of mismanagement of the calves after birth, or the cows shortly before calving. I can think of nothing to suggest better than exercising your cows regularly before calving and not overfeed them. The navel of calf should be tied with silk linen or tape after it is soaked in one part carbolic acid and ten parts glycerine or olive oil. Then apply boracic acid to navel twice a day. Perhaps your sows met with an accident or had eaten infected food which poisoned their pigs.

Barren Cow.—For the past two years my cow has failed to get with calf and I would like to know what you think I had better do for her. C. K., Lansing, Mich.—Such a cow must prove unprofitable for dairy purposes, therefore all things considered, I believe you will find it to your financial benefit to fatten her.

Sore Teats.—The skin of my cow's teats seem to be hard and tender, making it difficult to milk her. In the summer of 1910 she first showed it and last summer she was worse than the year before Now what I would like to know is if she can be cured. J. T. O., Lake, Mich.—Apply one part tincture benzoin and four parts glycerine every day or two. It is doubtful if she will ever be perfectly well.

Partial Paralysis of Hind Quarters.—I have a sow weighing 400 lbs. that has nine pigs eight weeks old. They are kept in basement barn, been allowed to run out pleasant days and she seemed to be healthy until a few days ago when I found her in nest unable to use her hind quarters. F. D., Park Lake, Mich.—Feed her oats, oil meal, a few roots and a teaspoonful air-slaked lime at a dose three times a day. Also give her 20 drops fluid extract nux vomica at a dose in feed three times a day. Apply equal parts aqua ammonia, turpentine and raw linseed oil to back every two days.

Coffin Joint Lameness.—We have a 3-year-old grade Clydesdale filly that went lame in left fore leg last Christmas. She walks fairly well, but trots quite lame. Some two weeks ago our Vet. looked her over, located lameness in coffin joint, prescribed liniment with strong odor of turpentine and it has a white appearance. This filly is unbroken and ran out until middle of November. F. J. D., Burton, Mich.—I am inclined to believe your Vet. made a correct diagnosis and doubtless prescribed proper treatment. I suggest that you continue on with him, but give your filly absolute rest until she goes sound. It would be good practice to blister coronet with cerate of cantharides, if she is no better in two or three weeks.

Dropsy.—I have a 13-year-old mare due to foal April 30, that has a swelling under belly and she also jerks up right hind leg as if in pain. A. N. S., Lake Odessa, Mich.—Your mare should have a little more exercise and fed enough well salted bran mashes or roots to keep her bowels open; also give her a teaspoonful of powdered nitrate potash and two tablespoonfuls ground gentian at a dose in feed twice a day for a week, then give her 1 oz. ground gentian and the same quantity of ground ginger at a dose in feed two or three times a day.

Infectious Abortion.—Have a grey mare 15 years old that lost her colt a month too soon, two years ago; last year she lost it four months before time; now this year she is in foal again and seven months pregnant. Can I give her anything to prevent a miscarriage? She is working nearly every day. This mare is ugly to another horse in the barn, but we are keeping them from her this winter. N. E. W., Davisburg, Mich.—Working her moderately, avoid purging her, avoid fast driving or heavy pulling and give her 30 drops carbolic acid in a pint or two of water mixed with feed twice a day. The history of this case indicates contagious abortion; however, it may have been accidental.

Chronic Grease Heel.—Some two years ago my eight-year-old mare had an attack of scratches which she partially recovered from, but her legs have never been right. Her legs are now stocked and the skin is rough. J. S., East Tawas, Mich.—Apply equal parts tincture benzoin and glycerine to sores on legs and give a dessertspoonful powdered nitrate of potash twice a day for a few days, then give her ½ oz. Fowler's solution at a dose three times a day for three weeks.

Irritation of Stomach and Bowels.—Our 14-year-old mare had a severe attack of inflammation of bowels last summer, since then she has not thrived. Her coat is rough, legs stock and she walks stiff. With exercise the swelling almost leaves her legs. G. R. P., Fenton, Mich.—Your mare should have good care, groomed well twice a day and her bowels kept open by feeding some oil meal and roots. Give her 1 oz. doses of cooking soda and 1 oz. ground gentian in each feed and salt her well.

Weak Back.—Would like to know what to do for 12-year-old mare that is unable to get up without help; her legs stock and she is very thin; she has scours, but I checked it by giving her flour and soot. She has poor use of hind legs, but when up can walk fairly well. She seldom lays

(Continued on page 203).

MORE MONEY

Prominent and successful dairymen the world over use KOW-KURE, the great cow remedy—not a food, but a medicine. It makes cows thrive on nature's food by assisting the digestive organs and removing disease germs from the system. When a cow fails to produce as much and as good milk as she should, try

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The wonderful improvement will convince you of its worth. A sure cure for BARRENNESS, ABORTION, LOST APPETITE, CAKED UDDER, RETAINED AFTER-BIRTH, and all other diseases peculiar to cows. Our free book, "More Money from Your Cows," is a valuable treatise on diseases of cows. Every farmer should have it. Write for your copy today.

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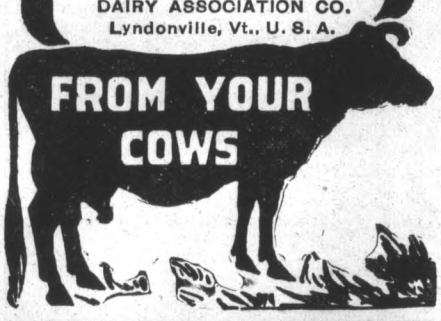

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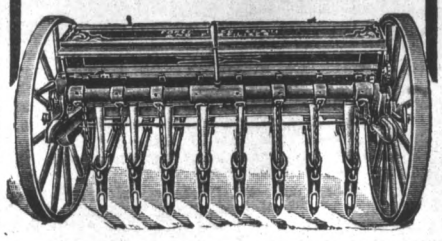

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On Feb. 27th, 1912,
of my whole herd of
SHORTHORN AND POLLED DURHAM CATTLE.
20 head, consisting of Cows, Bulls, Heifers, Heifer Calves and Bull Calves. Herd headed by famous bull Springport Lad 38th; weight, 2,200 lbs. Farm, ½ mile from village of Oxford, where sale will be held.
L. W. SUTHERLAND, Oxford, Michigan.

Wanted—4 registered Red Polled young cows or heifers, due to calf this spring. State prices. J. G. Pierce, R. F. D. No. 2, Manchester, Mich.

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CATTLE.

ABERDEEN-ANGUS.
Herd, consisting of Trojan Ericas, Blackbirds and Prides, only, is headed by Egerton W. a Trojan Erica, by Black Woodlawn, sire of the Grand Champion steer and bull at the International in Chicago, Dec., 1910. A 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.

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

GUERNSEYS FOR SALE—Cows and heifer 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.

BULLS-HOLSTEIN-BULLS
One $50 Bull
One $60 Bull
One $70 Bull
One $80 Bull
We have some very choice ones a little higher.
Write for description and pedigree.
Long Beach Farm, Augusta, [Kalamazoo County] Mich.

"Top-Notch" Holsteins.
A fine young bull from an Advanced Registry dam.
Beauty Pietertje Korndyke King No. 78950.
Born Nov. 26, 1910.
SIRE—Willowbridge Bos, who is a grandson of Beauty Pietertje, 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—Anna Houwtje Lenore, who has an official record as follows: Milk, 1 day, 84 3 lbs.; milk, 7 days, 546.2 lbs.; butter, 7 days, 20.25 lbs. She gave 14015 lbs. milk last year in 312 days at 10 years old. She has given 101675 lbs. milk in 9 milking periods averaging 326 days each. She has 2 A. R. O. daughters. One has a record of 23.22 lbs. butter in 7 days at 4 years 3 mo. old. He comes from large producers on both sides, is a good individual, nicely marked, with a little more black than white. Price $100.
McPHERSON FARMS CO., Howell, Michigan.

I Did Not Sell 20 Holstein Bulls in Nov. 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.

Holstein Bulls from 4 to 9 months old. Their sire is of the present most popular advertised breeding. ROBIN CARR, Fowlerville, Mich.

HOLSTEIN BULL calf, sired by best son of **Pontiac 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.

Registered Holstein Cattle—Special prices on two bulls, 5 and 13 months old. FLOYD F. JONES, R.F.D. 3, Oak Grove, Mich.

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.

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

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

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Also Ten Rams and Ram lambs for sale, must be sold at once cheap. A. L. WRIGHT, Bad Axe, Mich.

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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 ready for service $25. Gilts safe in pig to Handsome Lee Jr., a Mich. State Fair Prize Winner $35. Registered and transferred. Express prepaid in lower Michigan. C. C. COREY, New Haven, Mich.

FOR SALE, BERKSHIRES—2 boars & 3 gilts farrowed in June also a choice lot of Aug. and Sept. pigs, sired by Handsome Prince 3d & Marion King. A. A. PATTULLO, Deckerville, Mich.

Berkshires—Buy a service Boar now, cheap Other stock also for sale. C. S. BARTLETT, Pontiac, Mich.

O. I. C. Service Boars, Gilts bred for April farrow Aug. and Sept. pigs, large, smooth and prolific. Glenwood Stock Farm, Zeeland, Mich. Phone 94

O. I. C. SWINE—Males weighing from 175 to 250 lbs. each. Also a very choice lot of gilts GEO. P. ANDREWS, Dansville, Ingham Co., Mich.

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.
A. J. GORDON, R. No. 2, Dorr, Michigan.

O. I. C's—30 bred sows, headed by 3 herd boars. Some fine gilts of last March and April farrow, 300 to 350 lbs. 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, Marlette, Mich.

O. I. C's—All ages, growthy and large, sows bred. Males ready, 100 to select from. Attractive prices on young stock. H. H. Jump, Munith, Mich.

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

OUR Imp. Chester Whites and Tamworth swine won 245 1st at Fairs in 1911. Service boars, also sows bred for spring farrow of either breed that will please you in quality and price, Adams Bros., Litchfield, Mich.

Improved Chesters—Young breeders of March, April and May farrow, either sex. A few tried sows for sale when bred. Also Holstein cattle. W. O. WILSON, Okemos, Mich. Both phones.

Duroc Jerseys for Sale—Boars and Gilts, also Fall pigs (both sexes) bred from State Fair winners. Prices reasonable. Write or call and see. R. G. Vivian, R. 4, Monroe, Mich.

For Sale—Duroc Jersey Gilts bred for last of March and April farrow also a few fall gilts. J. M. PARK & SONS, R. No. 5, Coopersville, 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.

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

LARGE TYPE P. C.—Largest in Michigan. Pigs from mammoth sires and 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 I advertise. W. E. LIVINGSTON, Parma, Mich.

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

Butler's Big Type Poland-Chinas—size, bone, quality. We are headquarters 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 Farmers 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 bred to Big Bone Junior.
A. 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.

MULEFOOT 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 Champion 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 few bred sows. Also sows bred for August and September farrow. Pairs and trios not akin. Satisfaction guaranteed.
COLON C. LILLIE, Coopersville, Mich.

THE DAIRY

CONDUCTED BY COLON C. LILLIE.

EXPERIENCE WITH A RATION CONTAINING CORNSTALKS AND STRAW.

Seeing so many inquiries in the Michigan Farmer for rations for cows where the roughage was cornstalks and straw, and being in the same class, thought perhaps a statement of what my cows are doing would be of interest.

I cut my stalks in one-half inch lengths every week or so. Have a windmill for power so have to cut when the wind blows. I feed the stalks night and morning and straw at noon and feed quite close, there not being enough left in their mangers for bedding.

The grain ration consists of equal parts of ground corn and oats by bulk, 10 lbs., dried brewers' grain 3 lbs., cottonseed meal 3 lbs., and linseed meal 1 lb. This is the ration for the heaviest milkers fed in three feeds. I feed the others according to the amount of milk produced.

I have seven cows, one a heifer that freshened the fourth day of June last at 21 months of age. The other six came in in October from the first to the last of the month and two of them are young cows with their second calves.

Milk and calves sold for the three months to January 1, 1912:

	Lbs. milk sold.	Value.
October	3,064	$43.50
November	8,196	128.68
December	8,370	131.41
Six calves vealed		62.99
Total		$366.58

The calves were all bulls. The value of the milk is what I received after paying for the hauling, 18 cents per cwt.

Then there was the milk used in the family of six, which is not included. The corn and oats were raised on the farm and ground there. I paid out $50 for the other grain fed.

If not taking too much space I will give a record of the two best milkers. No. 1 came in the 12th day of October. Her best day's milk weighed 68 lbs. and she is now giving 54 lbs. No. 2 came in the 26th of October, best day's milk 73 lbs., now giving 56 lbs.

No. 1.

	No. of days.	Lbs.	Value.
October	16	1,015	$16.24
November	30	1,777	31.09
December	31	1,659	29.02
January	20	1,053	17.37
Totals	97	5,504	$93.72

No. 2.

	No. of days.	Lbs.	Value.
November	30	1,740	$30.45
December	31	1,782	31.18
January	20	1,138	18.78
Totals	81	4,660	$80.45

I will place no value on the home-grown grain, each reader can place their own price. The other grain cost me as follows: Brewers' grain, 4½c; cottonseed meal 4½c; linseed meal 2c; total, 11c a day per cow, or for the 178 days, $19.58.

The value placed on the two cows' milk is what the condensary pays for milk delivered.

Livingston Co. J. T. R.

CAN WE AFFORD TO FEED OATS?

Would like to ask your advice as to whether you think it pays to feed oats to cows at present prices. If not what could I feed instead with as good results at less cost? We are feeding corn silage with a good allowance of grain, oat straw wet down with boiled beans, very sloppy, night and morning and would average up per cow two quarts of beans before boiled per day, and for grain 4 qts. cottonseed meal, 8 qts. ground oats. Could I feed gluten feed instead of oats? Figuring on the protein content only, would get nearly three times as much at the same cost.

Huron Co. H. S. T.

With the roughage and the other kinds of grain which H. S. T. has I do not believe he can afford to buy oats at the present price and neither do I think he needs them in this ration. With plenty of oat straw and corn silage for roughage and with boiled beans and cottonseed meal you can make a good enough ration for any dairy cow, providing you can get them to eat the boiled beans. If they like the beans so that they will eat them readily, I don't see how you can get a better ration. By feeding each cow two pounds of cottonseed meal a day (four quarts of cottonseed meal is too much for a cow), and then feed them their boiled beans, I should say that was enough for a dairy cow. Give them all the corn silage and oat straw that they want. I would cut out the oats entirely. It strikes me that you can get just as good results as you would to feed a higher priced food. But the boiled beans and cottonseed meal are rich in protein, sufficiently so that they will balance up the oat straw and the corn silage which are rich in carbohydrates.

TUBERCULAR CATTLE.

In case of tubercular trouble among cattle, is there any way of disposing of them and getting some percentage of their value from the state? If there is any way of lessening the loss to the owner in such a case, please tell me to whom to apply and the necessary steps which must be taken.

Ionia Co. J. T. B.

I am not so well posted on this question, perhaps, as I ought to be, and cannot give you exact information. I know, however, that under certain conditions cattle which show tuberculosis are allowed to be sold for beef, depending upon the advancement of the disease and upon the parts affected. In our state, however, we have no law which allows the killing of these cattle and the state to pay for them. It has been talked several times by the leading stockmen of the state to have such a law, or attempt to get such a law before the legislature, but it never has been done. The trouble is that one cannot see where this will lead to. If we had a law compelling the testing of tuberculosis and the state to pay even a nominal sum for the value of the animal when slaughtered, if we would believe all that we hear some veterinarians say about the number of cattle infected with this dread disease. It would simply swamp the state, and so everybody dreads to tackle the proposition. I would request that he write to the state live stock sanitary commission, and he will be able to get the specific information which he desires.

CHAMPION DAIRY COWS.

Will you kindly give me information as to what cow holds the world's championship record for milk and butter? Am especially interested in the Holstein and Guernsey.

New York. W. S. W.

The champion dairy cows of the three leading breeds are as follows Cloantha's 4th Johanna, a Holstein, Jacoba Irene, a Jersey, and Dolly Dimple, a Guernsey. I have mislaid the data so that I cannot give the exact yield of these different cows, but Cloantha's 4th Johanna is the champion dairy cow of the world up to date, having yielded a little over 1,000 lbs. of butter in a year. Jacoba Irene is second with only a few pounds less, and Dolly Dimple third. It is only fair to say, however, that Cloantha's 4th Johanna was sterile the year before she made this test and has not produced a phenomenal yield since, while Jacoba Irene made almost as good a record the year before the test and the year following, having three years in succession of a wonderful production.

A SILO CONSTRUCTED OF 2x4's.

What do you think of the plan of constructing a silo by using 2x4's and nailing them one upon the other, making the wall four inches thick? Each layer will lap over the preceding one to give strength to the silo. The outside is to be painted and the inside tarred. Will build the roof in sections so it can be removed to make addition when my herd increases. What do you think of the scheme?

Osceola Co. A. L. S.

I don't think it would be possible to make a real good silo of 2x4's laid one on top of another and spiked together as suggested by A. L. S. Air would get in between the 2x4's as I don't believe you could nail them tight enough together. Then I think it would be well nigh impossible to get it smooth enough on the inside so that the ensilage would settle well, and besides this, it would be a very expensive silo compared to a stave silo or other kinds. Now, making a silo here with the staves four inches thick, it takes twice as much lumber as would be necessary. Then this shaped silo, an octagon, is not as good as a round silo. The silage will not pack and settle in the corners as well as it would in a circular silo, and I am quite positive that the labor would be more to construct this sort of a silo than to make some other silos. To be sure, the silo can be built any height, and then, if one wants to build it higher later on all he has to do is to take off the roof and put on some more 2x4's, but the same can be said of a lath and plastered silo, or a cement block silo, or a cement silo. If I was going to build a silo out of 2x4's in this way I would plaster it on the inside.

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Does it not mean a great deal to YOU, the prospective buyer of a Cream Separator, that such men as

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Henry C. Wallace, editor of "Wallace's Farmer"
Philip Moen, the great wire manufacturer
F. L. Daggett, manager Fairbanks, Morse & Co.
Prof. W. H. Caldwell, Sec'y Am. Guernsey Cattle Club.
U. S. Senator Knute Nelson, of Minnesota

and many others like them, good dairy farmers as well as great leaders in every sphere of human endeavor, each of whom is possessed of much personal experience and a thousand authoritative sources of separator information, are among the 1,375,000 satisfied users of DE LAVAL Cream Separators?

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Victor Sitts, of Holt, Mich., writes: "For quality you certainly make a price on your separator that is right, and I will say that I saved from $25 to $30 by ordering from you. I will always have words of praise for the Galloway." Let me show you how much I can save for you. I just want a chance to show *you* a cold cash saving of $20 to $45 on the cream separator you need. And I want to *prove* that you'll get a *better* separator at this big saving than if you pay agent or dealer the high prices they ask.

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HOLSTEIN-FRIESIAN RECORDS IN MICHIGAN.

The following compilation which was presented at the recent meeting of the Michigan Holstein-Friesian Association, was compiled and read by H. W. Norton, Jr., of the Agricultural College, and is given here to show the splendid work done by this breed of cattle during the past four years, and more particularly to illustrate that, through the process of selection and careful handling, there is a definite advancement in the merits of the animals for the successive years. Where the tables below state full age is meant animals five years of age or older. All the records given are for seven consecutive days. The compilations are as follows:

1908.				1909.			
Age.	Full age.	4 yrs.	3 yrs. 2 yrs.	Full age.	4 yrs.	3 yrs.	2 yrs.
Tot. records	39	23	36 39	63	42	60	112
Av. rec. fat	.....15.35	13.88	12.61 9.86	15.30	14.24	12.58	10.19
Highest rec. fat	....22.077	18.462	22.931 13.686	21.952	19.429	18.445	16.015
No. above 20 lbs. fat.	1	.....	1	2	.....	.....	.....
No. above 16 lbs. fat.	12	4.....	2	20	11	4	1

A resume of the tests of Holstein-Friesian cows in Michigan for the years 1908 and 1909 shows the cows to average as follows:

One hundred and two full aged cows averaged 15.31 lbs. fat, or 19.14 lbs. 80 per cent butter.

Sixty-five four-year-old cows averaged 14.11 lbs. fat, or 17.64 lbs. 80 per cent butter.

Ninety-six three-year-old cows averaged 12.59 lbs. fat, or 15.74 lbs. 80 per cent butter.

One hundred and fifty-one two-year-old cows averaged 10.10 lbs. fat, or 12.63 lbs. 80 per cent butter.

1910.					1911.			
Age.	Full age.	4 yrs.	3 yrs. 2 yrs.	Full age.	4 yrs.	3 yrs.	2 yrs.
Tot. records	95	50	55 155	141	66	93	202
Av. rec. fat	.....15.97	14.64	14.07 10.77	16.05	15.13	14.43	10.98
Highest rec. fat	.....23.717	20.218	20.205 16.498	24.452	20.631	24.084	18.102
No. above 20 lbs. fat.	8	1	1	12	4	5	.....
No. above 16 lbs. fat.	39	12	9 2	57	22	24	8

A resume of the tests of Holstein-Friesian cows in Michigan for the years 1910 and 1911 shows the cows to average as follows:

Two hundred and thirty-six full aged cows averaged 16.02 lbs. fat, or 20.03 lbs. 80 per cent butter.

One hundred and sixteen four-year-old cows averaged 14.91 lbs. fat, or 18.64 lbs. 80 per cent butter.

One hundred and forty-eight three-year-old cows averaged 14.30 lbs. fat, or 17.88 bls. 80 per cent butter.

Three hundred and fifty-seven two-year-old cows averaged 10.88 lbs. fat, or 13.60 lbs. 80 per cent butter.

SOY BEAN MEAL FOR DAIRY COWS.

Soy bean meal, made by grinding up the entire soy bean plant, is giving excellent results as a feed for dairy cows on the farm of T. B. Foster, Warren county, Ohio. Mr. Foster, who is a graduate of the Ohio College of Agriculture, raised over 20 acres of soy beans last season. A part of the crop was planted with corn and put into the silo. The remainder, following sweet corn, was allowed to ripen and ground into meal. Ths bean meal is being fed in the ration with corn-and-cob meal, cottonseed meal and distillers' grains. Mr. Foster expects to put out about 75 acres this coming season. According to present plans he will sow oats and Canada field peas as a soiling crop and then follow with the soy beans. He has over 300 acres of land and keeps about 60 head of Jersey cows from which he sells milk at retail in Cincinnati.

VALUE OF FEED NOT ALTOGETHER DEPENDENT UPON FOOD NUTRIENTS.

What has long been the general opinion of feeders that the value of feeds cannot be measured always by the amount of the food nutrients contained therein, and that certain physical effects of the feeds which have generally been overlooked in the compounding of grain rations, add or detract from certain grains or feeds, has been positively set forth as facts that must, in the future, be reckoned with in feeding, by work covering a period of four years at the Wisconsin college of agriculture.

Rations of wheat, corn, and oats, containing exactly the same amounts and kinds of food constituents, or digestible nutrients, were fed to a number of young heifers. Oats were used for one lot, wheat for another, corn for another, none of the animals receiving more than one of these grains. These animals, when they reached maturity and underwent the physiological action of individual feeds themselves and not merely to the balancing of rations from the point of view of their digestible food constituents.

The heifers which received only wheat as a grain produced weak, undersized calves, either dead at birth or dying shortly after; and the cows themselves were in a low state of health.

Those fed only on corn produced large, vigorous calves and were in good condition throughout the experiment. Those fed on oats were better than those fed on wheat but not so good as those fed on corn.

Those fed on a mixture of oats, corn and wheat, were in nearly as poor condition as those fed on wheat, a result contrary to the popular belief that a varied ration produces the best results.

These experiments prove conclusively that due consideration must be given to strain of reproduction, showed plainly the effects of being fed on one grain only.

MORE EXERCISE AND BETTER VENTILATION.

Now, in these days we are hearing and reading much about tuberculosis, not only in the human family, but in the bovine family, and ever so much is published about "open air" exercise, and a lot of it, too. Some of our cities are now building open air schoolhouses for children that are classed as, or inclined to, tuberculosis, and speak of their being improved in health or cured by this treatment of plenty of fresh air. Now, it has occurred to me, as probably it has to many others, that it is not improbable or unreasonable to think that tuberculosis has been developed in our cattle by the extreme intensive farming, of keeping many cows on the farm and many in one stable without proper ventilation and but little exercise either winter or summer. So many are kept that they have little pasture range, perhaps let out in a small yard or field, where they get or take very little exercise as they are wont to do when there is not much inducement for them to move about. Even if they are driven a short distance to a pasture, but have been kept, many of them in close stables, especially in the warmer weather, would it not have a tendency to develop this disease, that we are having some herds slaughtered to eradicate. From thirty to sixty years ago, when our cattle had plenty of range we heard or knew nothing of this sort of disease, and I think it would be well for us to consider these conditions in connection with this malady and correct it in a sanitary system of more open air exercise for our milch cows, instead of having to slaughter them to eradicate tuberculosis.

Allegan Co. H. H. GOODRICH.

MEETING OF HOLSTEIN BREEDERS.

The West Michigan Holstein Breeders' Association held its first annual meeting in Grand Rapids, February 7, and elected officers for the year as follows: President, W. M. Millard, Grand Rapids; vice-president, P. Buth, Grand Rapids; secretary-treasurer, W. R. Harper, Middleville; executive committee, H. H. Stroud, Hopkins; John Lambertson, Belding; J. J. Nyenhuis, Hudsonville; E. W. McNitt, Grand Rapids; B. E. Hardy, Owosso.

Secretary Harper was voted $50 for his valuable services during the past year. The association now has more than double its charter membership of 37.

Fred R. McDonel, of Ingham county, and Chas. P. Reed, of Livingston county, president and secretary respectively of the Michigan State Holstein Breeders' Association, and G. A. Dimoc, of Kalamazoo county, read valuable papers.

Kent Co. A. GRIFFEN.

MICHIGAN DAIRYMEN MEET.

The four-day annual meeting of the Michigan State Dairymen's Association will be held at Kalamazoo, February 20-21-22-23. Readers interested in the different phases of dairying will find much of help and inspiration at this session of the organization.

ONE GOOD FEATURE OR EVERY FEATURE GOOD WHICH?

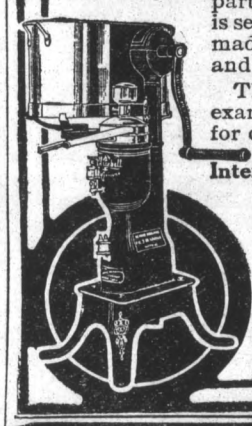
AS long as a cream separator skims close, it is a good investment. But one good feature or a few good features do not make a separator that will skim close for any length of time.

A good separator is one in which the minor parts have been just as carefully designed and just as well made as the most important parts. A defect in a minor part will, by throwing the entire machine out of adjustment, offset all the perfection attained in any other part of the machine. In the

I H C Cream Harvesters
Dairymaid and Bluebell

one feature does not overtop all others because the same I H C standard of quality in design, material, and workmanship is maintained throughout.

They are the only separators with dust-proof and milk-proof gears which are easily accessible. The frame is entirely protected from wear by phosphor bronze bushings. These separators have large shafts, bushings, and bearings; the flexible top-bearing is the strongest and most effective found in any separator. The patented dirt-arrester removes the finest particles of dirt from the milk before the milk is separated. I H C Cream Harvesters are made in two styles—Dairymaid, chain drive, and Bluebell, gear drive—each in four sizes.



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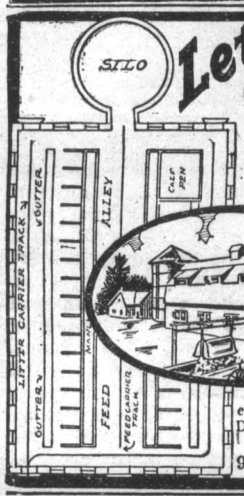

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THE OLEO STIUATION IN WASHINGTON.

Two Phases of Opposition to the Present Oleomargarine Law, Particularly to the Ten Cent Tax.

For months the oleomargarine interests have been working assiduously to discredit and defeat the ten-cent tax on imitation butter. Misleading statements have been sent to women's clubs, labor organizations and other societies to create a prejudice against the law, and to induce, if possible, resolutions against it. Many such resolutions have been adopted and many individual protests against the law have been written, all based on deceptive literature emanating from the oleomargarine people. Erroneous statements have also been made in magazine advertising and in newspaper articles. As a result of all this persistent sophistical agitation considerable opposition to the existing law has been created. Meanwhile there has been an attack on the law from an entirely different source, of entirely different nature, and based on different motives. This opposition criticises the law for not being stringent enough, for not protecting against fraud as it should, for giving opportunity for perpetrating great wrong to both consumer and producer, for failure to accomplish what was intended, for promoting deception. This latter attack on the law is largely based on facts furnished by the internal revenue department, and is therefore entitled to more than ordinary consideration. Some of the points of criticising the present law are given below. In the first place some of the courts have held that many of the administrative provisions of the general internal revenue laws—right of search, etc.,—do not apply to the oleomargarine laws. This has materially weakened their enforcement and done much to nullify them. A recent decision of the supreme court removes some of this trouble, but the fact remains that the law has intrinsic weakness in this direction. Secondly, the law has been further emasculated by action of the courts in holding that "essential ingredients," no matter how yellow, are not "artificial" color; therefore much oleomargarine of a high color is made from ingredients which the manufacturers claim to be "essential" or "necessary," but such stuff is "uncolored" oleo and pays only a quarter cent tax. A third fault which the internal revenue department finds with the present law is that the ten-cent tax, forty times as much as the tax on uncolored oleo, is so high as to stimulate deception rather than prevent it, just as an excessive tariff stimulates smuggling. Out of 115,000,000 pounds of uncolored oleo which paid a quarter-cent tax last year the commissioner of internal revenue estimates that 80,000,000 pounds were stealthily colored and subsequently reappeared on the market as imitation butter, much of it being sold as butter at near-butter prices to the swindling of the consumer as well as the government.

With these two lines of attack upon the present law in mind the congressional agricultural committee appointed a sub-committee to draft a new law. The sub-committee first of all agreed upon this basic principle: that they unanimously favored all reasonable restrictions tending to promote the honest sale of oleomargarine and any effective checks on dishonest practices; that butter men are entitled to their legitimate market and to be protected in it, and that the same principle should hold as regards oleo; that the weak features of the present law should be strengthened with such additional restrictions as shall cause oleomargarine to be sold for what it is.

The committee seemed to wish to deal fairly by all parties and was influenced much by advice from the internal revenue department. The result is a conservative bill that ignores the extremists on both sides and may displease both. It drops the color line and the ten-cent tax on imitation butter, but requires oleo to be sold only in half-pound and pound prints, which are made the manufacturers' original packages and must be sealed by a long narrow revenue stamp which must remain on the print till it is sold by the retailer. The oleo interests asked for five and ten pound prints but the committee refused the request. The oleo interests asked for a fifth of a cent tax, but the committee multiplied this by five and provided for a cent tax, which is more than double the average tax for the past year and which on last year's production will bring in a little over a million dollars revenue. In several instances penalties for violating the law are increased and more teeth are put into it in matters pertaining to its enforcement. The special taxes on manufacturers and wholesalers are increased above what the oleo people asked for. The name of the commodity is changed to margarin to conform to foreign nomenclature and to get something shorter than the old six syllable word. The committee felt that regulating sales in hotels and restaurants should be left to the states, rather than made a part of a revenue law.

The bill may be materially changed by amendment in the full committee and in the house and senate.

G. M. WHITAKER,
Sec'y Nat'l Dairy Union.

HEATS TANK FROM BOILER—OTHER DAIRY NOTES.

I am working a farm of 80 acres and am what you would call a diversified farmer, although I am working towards dairy farming. Now, in a recent issue the question was asked if it would pay to pipe 150 feet for steam to heat a tank. It most assuredly would; it would cost about $3.75 for half-inch pipe and one coil around bottom of tank letting the steam pass into the water. I have a small boiler in my creamery and have used it in this way very successfully. This winter 10 or 15 minutes in the morning will be all that is needed.

We intend to sow enough peas and oats this season to grind and mix with our corn and oats to give us a balanced ration, or use it instead of cottonseed meal, as we have a four-horsepower gas engine and grinder to grind our own feed.

We also make our own butter and we think right here is a good place to speak of new methods; we bought a one-pound print a year ago and put our butter in one-pound cartons with our own name on them and it makes a neat package, as each one weighs one pound and the grocer don't have to weigh it, or tie it up, while the consumer knows just where it comes from, the same as he does his coffee, tea, etc. It pays to place your goods in a nice, clean package, as we should learn by observation and not follow the steps of our fathers and great grandfathers. Farming these days is a case of brains against brawn. You can hire the brawn but not the brains. The man that makes a thorough study of every detail of farm work is a busy man, winter and summer alike, and he does not need two or three hundred acres either. What this state needs most is farmers that will try and see how much one acre can be made to produce instead of how many acres they can run over in one day.

GEO. BIGNALL.

RAISING DAIRY COWS.

It probably costs on an average from $18 to $25 to raise a calf until it is two years old. The cost, of course, will depend largely upon the price of feeds as well as upon their selection, but successful dairymen contend that they can raise calves at a lower cost than the maximum figures given above up to the age specified.

While the matter of cost is an important consideration, still the man who has set out to build up a business dairy herd is not likely to succeed well unless he produces his own cows. This is a fundamental factor in successful dairying and it is certain to be more true in the future than it has been in the past, and the progressive man can afford to expend twice the amount stated above to raise calves from his best cows to an age when he can test their individual merits.

A very important element, however, in the production of one's own cows, is whether he has proper foundation stock. The calves from cows that do not make a reasonable profit upon the feed given them, are not likely to prove successful, and under such circumstances, the only wise course would be for the dairyman to go out and purchase one or more high-grade or thoroughbred cows of merit with which to start. Then, too, a good sire should be available, for without the qualities that can be transmitted by such an animal one will not attain the success he should.

But neither of these conditions are impossible, and since it is the only business way one should provide himself with such animals and then conserve their merits in their offspring that the future herd may not only be equal to, but an improvement upon the present one. This can only be done by saving the best heifer calves from the best cows of the herd.

Wayne Co. A. H.

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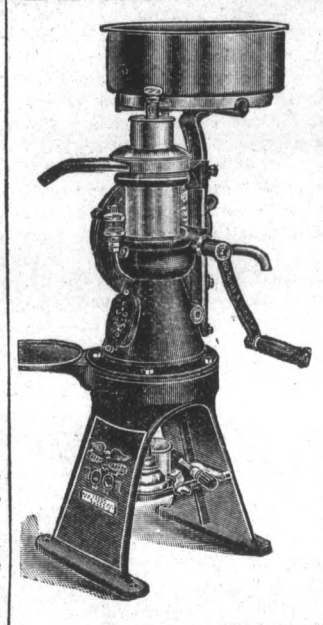

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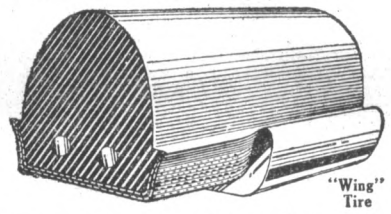

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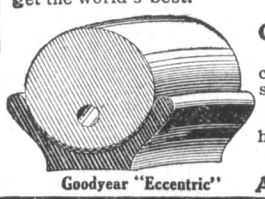

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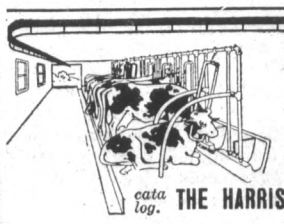

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DETROIT, FEB. 17, 1912.

CURRENT COMMENT.

Saving Time and Labor on the Farm.

The discussion of a phase of the above topic, to which space has been given in recent issues of the Michigan Farmer, relating particularly to how large an acreage of corn one man could produce by his own efforts, has brought out many conflicting opinions on this subject. Whatever the reader's opinion may be with regard to the merits of this discussion, which is completed in this issue, there are valuable suggestions in the various articles which should not escape his attention.

The writer of the article which caused this discussion apparently became impressed with the necessity of saving time and labor in the conduct of farm operations through an experience in the manufacturing business, where the details of the cost of production are scrutinized much more closely than is the case upon the average farm. Many readers will believe that he carried his ideas with regard to saving time to the extreme, and yet there is no doubt that the value of time is not sufficiently appreciated by many farmers, and any method which can be inaugurated upon the farm whereby time can be saved in the busy season of farm work, in the accomplishment of labor incident to crop growing, will result in a proportionate increase in the profits derived from the farming campaign. There is great room for improvement in this direction upon the average farm, and the reader who has become impressed with that fact through the discussion above referred to, has profited not a little thereby.

Other ideas brought out in this discussion are of hardly less importance. It is equally important that the farm work should be well done as that it should be done with a view to economy of time and labor. Opinions will differ materially as to whether intensive or extensive methods of agriculture are more profitable on the average farm. It is probable, however, that a point between the two extremes will be most profitable for the average farmer. Not all can have big farms; neither can all be satisfied with small farms, or so conduct them as to meet their requirements. But the average farmer who takes a middle of the road course between extensive and intensive farming; who applies the principle of saving time and labor to the greatest possible extent, without the sacrificing of thoroughness in the doing of farm work; who devotes a proper amount of mental effort to the planning of the farm campaign, and a like degree of initiative in carrying it out, will come nearer to the correct definition of a successful farmer than will either the man who does not give this proposition the necessary thought, or who becomes an extremist in any one of these several directions.

But the first point at which every producer should begin in an attempt to secure better profits is in lowering the cost of production wherever possible. The next, and scarcely less important point, is the raising of the quality of the product. When these two elements of success are combined with wise marketing methods, the whole to be in accordance with a well considered general plan of farming to which the farm and the location is adapted, the result will be a living definition of a successful farmer in the best meaning of the word.

Cold Storage and Cost of Living.

The public has gotten a well fixed impression from the columns of many city dailies that the present high cost of living is largely caused by the speculative holding of large quantities of perishable food in cold storage. Only last week a Detroit daily published a long article which would give the casual reader that impression, although a careful analysis of such facts as were presented and the elimination of the misstatements, apparently due to the ignorance of the writer on the subject which he sought to elucidate, would remove that impression. But the average reader is not of an analytical turn of mind, hence the impression will probably remain.

In the article above referred to it was stated that there are 150,000 lbs. of butter stored in Detroit cold storage plants, notwithstanding the fact that butter is selling at retail above 40 cents per pound. While 150,000 lbs. of butter may seem like quite an amount when considered in a lump sum it would in reality be only about 1½ lbs. for each family in Detroit, and, when so considered, is anything but a big surplus.

In speaking of the egg situation this article stated that there were but comparatively few crated eggs in storage, but large quantities of eggs which had been broken and stored in cans. Here the ignorance of the writer was manifested in that the statement was made that the bulk of the eggs placed in cold storage are stored in this manner. The fact is that only checked and dirty eggs are so stored, and these are used by bakers. The first quality eggs are all stored in the shell and these alone are sold to the public for general consumption. Reference was also made to the large amount of fresh meats and poultry in storage and the ridiculous statement was made that this poultry would show up next Thanksgiving, selling as strictly fresh. As a matter of fact, turkeys are available at only about Thanksgiving and Christmas seasons, and any which are carried for future consumption until the next crop arrives must be carried in cold storage, but the storage charges, if nothing else, would make unprofitable the carrying of poultry from one year to another, to say nothing about the impracticability of storing for so long a time, so far as the effect upon the quality of the product is concerned.

A parallel statement was also made with regard to fruit storage, reference being made to strawberries which were placed in storage last summer and would be put out as a Florida product next spring. The fact is, fruit is now carried frozen in cold storage by pie bakers, since it can be carried in this way for immediate use when taken out of storage better and cheaper than by any other process. In this case as in others, when the situation is analyzed it is found that instead of cold storage being largely responsible for the increased cost of living, it has a tendency to make food more plentiful in periods when it would otherwise be out of the market entirely or so high in price as to be unattainable by the average family.

Cold storage has banished the seasons of glutted markets when perishable products sell so low as to make their production wholly unprofitable, and likewise has done away with the period of greatest scarcity when the same perishable food stuffs are obtainable only by those who could pay exorbitant prices for them. At the same time in evening up the market the producer has been benefited while the consumer has been afforded a more dependable and constant supply of these perishable products which are delivered to him in better condition than was possible before the cold storage era.

It is true that in some seasons speculators profit by the opportunities offered for holding food stuffs in cold storage warehouses, but this profit is not dependable, and in some seasons their losses are as great in proportion to the volume of business done. For this reason speculative holding is not as common as was the case a few years ago, and the cold storage warehouse is now used more as an adjunct to legitimate distribution of perishable food products than as a means to the end of holding such food stuffs simply as a speculative proposition. It is possible that the advent of the cold storage warehouses has increased the average cost of perishable food stuffs to consumers to some extent. This would naturally be the case, since the building and operation of these large warehouses is an expensive proposition, and the interest and operation charges must necessarily be passed on to the consumer by adding this charge to the price of the commodity stored. But the consumer gains a benefit thereby in a more staple and constant supply and a better quality of the product than could be secured were it held from seasons of flush production to seasons of marked scarcity in any other manner.

There is no comparison between the butter which is held at low temperature in cold storage warehouses and that which was formerly packed in crocks and kept in farmers' cellars. Nor is there any comparison between cold storage eggs of good quality and the packed product which was formerly placed upon the market each winter. There is unquestionably room for improvement in the quality of products now available, but there is also no doubt that it is much better than the product which was formerly available. Instead of cold storage warehouses being a detriment to the consumer or producer they are unquestionably a benefit to both classes, and while reasonable regulations will do not harm, the drastic measures which have been proposed as a result of the agitation on this question in the manner above referred to will do great harm to producers, and would also be felt by consumers in the greater cost of perishable food stuffs during the season of low production.

The Farmer's Fiscal Year.

When the question of farm profit is being considered the reader will do well to make some provision for knowing just what profit he is making from his farm. This can only be done by some method of bookkeeping which will take into account the value of his farm equipment, the stock and feed on hand and any marketable produce which may not have yet been sold. There is no time of the year more suitable for the taking of such an inventory than in the early spring, when many items which are hard to estimate are reduced to the lowest point. At the same time it is not well to delay this work too late in the spring, else it is more than likely not to be done at all when the rush of the spring work begins.

There is probably no better time than early in March to take such an inventory and then by the keeping of a simple form of farm accounts during the ensuing year, when another inventory is taken at a similar time next year, it will be possible to tell accurately just what the profit in conducting the farm has been. There is no need of waiting until the beginning of another calendar year for inaugurating this work. In fact, the farmers' fiscal year may better be dated some other time, and there is no time like the present to make the necessary preparations for carrying out this line of work in a manner which will prove of the greatest possible value and benefit.

Keep Out Fungous Diseases.

A bill has been introduced in congress providing that whenever it is ascertained by the secretary of agriculture that any potatoes grown in a country infested by the so-called wart disease or black scab, eel worm, or any other serious disease, he shall have authority to quarantine against the importation of such potatoes until danger of the transmission of the disease to this country has passed. Through the provisions of this bill the secretary is also empowered with authority to cause an inspection of any potatoes similarly infected which may be shipped from one state to another and, if need be, may cause the potatoes so infected to be destroyed or placed under quarantine until the infection is removed.

This is an important bill and is in line with other proposed legislation which has failed of passage in other sessions of congress because it contained quarantine regulations which were offensive to American nurserymen. Slight changes in the proposed quarantine law have, however, been made to meet these objections, and previous opposition has been withdrawn, and it is entirely probable that the bill will become law at this session.

This disease is said to be a very destructive fungous disease which should be kept out of the country if possible. Already Canada has put up the bars against the importation of potatoes from the United States on account of the fear of importation of this disease. Notwithstanding the fact that the disease does not exist here, the fact that there is no quarantine law by which infected stock could be kept from American ports, from which they might find the way into Canada, has caused Canada to take this precaution. Fortunately, this is a year of potato shortage abroad as well as in this country and there is less danger from this importation than would otherwise be the case, but we have enough pests which have already been imported from Europe and it is the part of wisdom to prevent additions of this kind as long as possible.

The Round-Up Institute.

The State Round-Up Institute, which will be held at the agricultural college February 27 to March 1 will be an attractive meeting throughout. The program just received, to which space cannot be given in full in this issue, lists a number of noted speakers from other states as well as a good list from Michigan. Outside speakers include Dr. C. G. Hopkins of the University of Illinois; Prof. J. C. McDowell, United States Department of Agriculture; Prof. O. F. Hunziker, of Purdue University; Prof. A. G. Hammar, United States Department of Agriculture; Prof. H. G. Bell, of The Soil Fertility League, and others of similar note who together with the members of the college faculty and leading institute speakers of the state, will give addresses on a variety of agricultural topics ranging from soil fertility to farm crops and live stock including dairying. There will also be a road session and a women's congress as usual. This meeting is one which should attract a large number of farmers from all sections of the state, as the array of talent presented insures a program which will contain much profitable material in the way of new ideas to all who can arrange to attend.

HAPPENINGS OF THE WEEK.

National.

Extreme suffering was caused last week by the continuation of the low temperature over practically the whole of the United States and Canada. At many places the lowest temperature of the season was recorded on last Friday and Saturday. The inability of transportation companies to deliver coal at remote points from mining sections has enhanced the suffering and inconvenience of the public. The weather bureau promises a change to milder temperature during the coming week. Three car ferries that had become stuck in the ice in Lake Michigan Saturday morning finally succeeded in arriving safely at Frankfort. No attempt has been made since to send out the ferries.

Gov. Osborn, of Michigan, has issued an order calling for a special session of the Michigan legislature for the purpose of securing action on a bill providing for a presidential primary election for this state.

The demands of the city of Saginaw for better freight transportation service over certain roads into that city are made in a complaint filed with the state attorney-general. It appears that the heavy issue of bonds causes such a drain upon the income of the roads to meet interest that it is impossible for the management to maintain the roadbed, keep up the equipment as it should be and make the improvements demanded by the increased traffic.

The war department at Washington is making every preparation to hurry troops to the Mexican border to protect American interests and prevent the rebels from taking advantage of American territory in the war that is now on between them and the Mexican government. Practically all of the military posts in the United States have been notified to be ready to move their troops upon an hour's notice.

The Polish Catholic Priests of America held their annual convention in Detroit last week.

The Alleghany river is said to be frozen solid to the bottom. It is apprehended that much damage will result when the ice breaks in the spring.

The presidents of the University of Michigan, Michigan Agricultural College and the Michigan College of Mines met at East Lansing last week to go over the

(Continued on page 197).

Magazine Section

LITERATURE
POETRY
HISTORY *and*
INFORMATION

MICHIGAN FARMER
AND LIVE STOCK JOURNAL.
PUBLISHED WEEKLY. ESTABLISHED 1843.

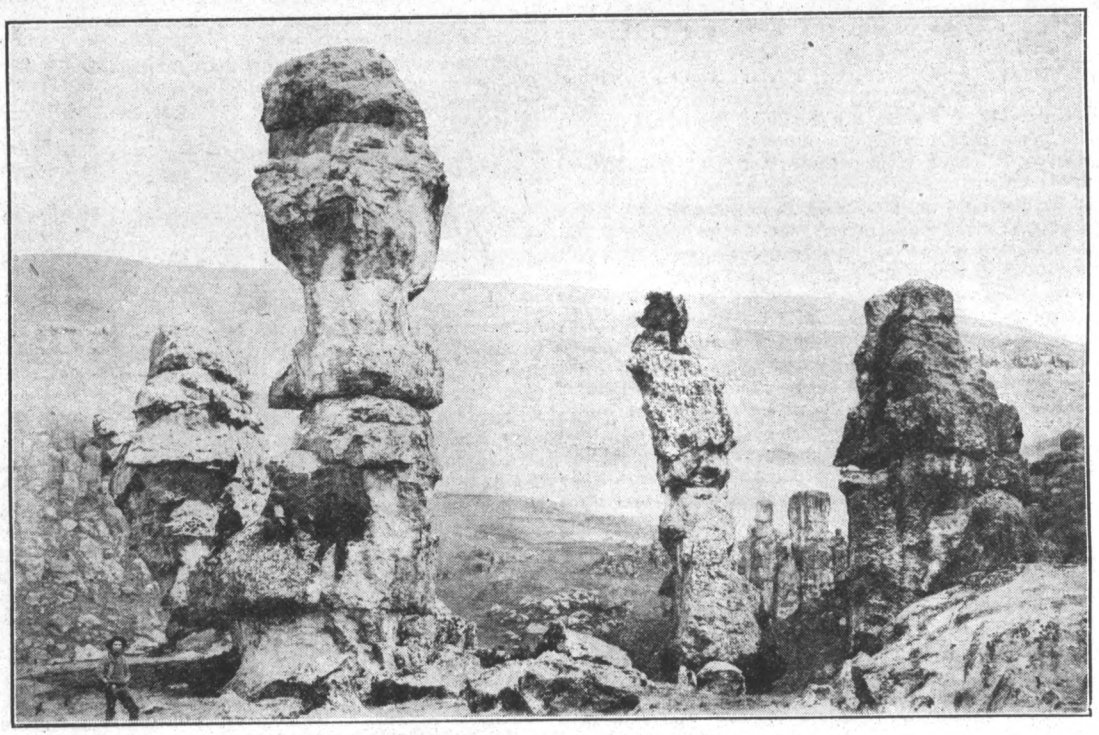
The FARM BOY
and GIRL
SCIENTIFIC *and*
MECHANICAL

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

At the Sources of the Amazon.

By Wm. B. Alford.

IF the reader will open a good atlas to the map of Peru he will see that the Maranon river heads in the Andean range just west of Cerro de Pasco, and flows north for seven hundred miles, then turns east. The Mantaro heads at almost the same spot (only a narrow ridge between them that one can toss a stone over) and flows to the south for two hundred miles, then turns to the northeast forming the Rio Tambo, and later the Rio Ucayali, which with the Maranon forms the Amazon just above the town of Iquitos. From the point where it is possible to step from one river system into that of the other, down one river and up the other would be a distance greater than from New York to San Francisco, and the time no man knows. As an illustration, for the first sixty-five miles of the Maranon the river drops 8,200 feet. On the Mantaro, which we have followed for 150 miles, the drop is even greater than this, simply one seething, foaming mountain torrent for miles at a stretch. In one place where we made a cross-section and measured the flow, the river would develop fully twenty thousand horse-power in less than one and one-half miles, and this was in the latter part of the dry season when the water was lowest.



A Small Section of the Wonderful Rock Forest of Peru.

Our camp is on the very edge of a canyon four thousand feet deep. Standing in the tent door we can, through the telescope of our transit, watch the barefooted and barelegged children playing in the Indian pueblo three miles down the canyon. Farther down the canyon, eight and a half miles as the bird flies, we can see distinctly the people in the plaza of another pueblo and can distinguish the men from the women and the dogs from the cats. But, to better illustrate the perfect clearness of the air, we have taken photographs that plainly show iron telegraph poles three inches in diameter which are over two and one-half miles distant, while the focus of the camera was on an object less than a hundred yards away. Another picture shows the lettering on an ordinary store sign over a mile away.

It must be remembered that this camp is at an elevation of 14,500 feet, several hundred feet higher than Pike's Peak. It is at this elevation that we eat, sleep and work month in and month out, and often our work calls us to elevations ranging up to 16,000 feet. Not one in a thousand can work at this elevation. The limited supply of oxygen compels the heart and lungs to work more than twice as fast. At 14,000 feet it is an effort to drink a glass of water without stopping two or three times to breathe; and to climb the almost vertical walls of the mountains, from a thousand to two thousand feet, requires lungs far above the ordinary capacity and strength. It is so high that an ordinary kerosene lamp burns with much less illumination than at sea level. And, what seems strangest, a tallow candle will often go out for want of oxygen to keep up combustion and melt the grease around the wick. On the top of the highest mountain, in sight of camp, water boils at 180 degs. F. This is our only way of determining with accuracy the elevation of the highest peaks, as no aneroid barometer is reliable above sixteen or seventeen thousand feet.

As we stand on the edge of the canyon walls in front of the camp our eyes take in a scene of surpassing and rare beauty. Looking down the canyon four thousand feet below us, all the flowers of a hothouse are growing wild. Geraniums with stocks as large as one's arm cover the mud walls; pinks, pansies, roses and lilies of the valley are growing wild like weeds. The balm of perennial spring is in the air. Turning our eyes upward, we look on the glaciers and eternal snow of the mighty Andes, whose peaks pierce the clouds at an elevation of 22,000 feet and over. The range of vision is over two miles in vertical hight. We have wandered over the Rockies and traversed the deserts of Arizona and climbed the volcanoes of Central America, but a grander and more inspiring picture has never unrolled before us than this.

The two extremes meet here. With all this beauty, it is the storm center of the world. Blizzards, appalling lightning and thunder, snow, rain and hail, sunshine and April showers make this their playground. Often all are fighting with titanic energy for supremacy. It is a battle of the giants and when the battalions of thunder and lightning swing into action, it seems as if the granite walls of the Andes would be shattered and roll down into the Pacific. The play of lightning is sometimes so violent that the flesh prickles as when holding the handles of a battery. In five minutes the sun is shining as fiercely as on the sands of the desert; yet, though the tailend of the storm is more than a mile down the canyon, above the level of the eye the walls and jutting rocks are shrouded under a veil of snow. As the storm sweeps on down the canyon, we turn our eyes to the west and there stands the tombstone of departed races covered with glaciers and snow, cold and silent, reflecting the rays of an afternoon sun in rainbow tints.

Explorers' Camp in the Andes, 14,500 feet above the Sea—A place of Eternal Snow and Ice.

The reason that this is the storm center of the world is not hard to find. The prevailing winds are from the east. The clouds are filled with moisture to the point of saturation as they drift up the valley of the Amazon from the Atlantic. Climbing higher and higher, getting colder and colder, they finally come in contact with the icy walls of the Andes that are from three to four miles high. There is nothing to do but to discharge their cargo and go back after another load. This continues incessantly from November until April, then as the sun swings to the north, the air is chilled and the clouds break before they reach this elevation. From April to November, which is the winter season here, the days are usually cold and clear, although it often storms at night. The mercury will drop to eight or ten degrees below freezing. Sometimes it gets as high as sixty but only for a few hours in the middle of the day. A fair average for the year would be thirty-five to forty-five degrees, F. On first thought one would not consider this cold, but with the little oxygen in the air more and warmer clothing is needed than in Michigan in the middle of the winter. Sometimes for a few minutes the vertical rays of the sun seem to burn but it is dangerous to take off any clothing, as a cloud may change the temperature from 40 to 60 degrees in half as many minutes. If thinly dressed, the chances of a cold are as nine to ten, and a cold means pneumonia and pneumonia means a pine box on top of the Andes. As our pine comes from Oregon at a cost of $98 per thousand, it is cheaper to wear good, warm clothing at all times than to invest in a pine box.

Often stratum after stratum of lime-stone stands perpendicular. Not a hundred yards away they will stand tipped at an angle of forty-five degrees and in the opposite direction will be bent like a huge ox-bow with a solid wall of sandstone or granite overlapping them. Under the sandstone are great deposits of bituminous coal. Not a half mile from our camp there is a vein of fine coal probably sixty to seventy-five feet in thickness.

The tumbled-up stratification of the Andes has formed some wonderful freaks in rock architecture. The most wonderful is what is known as the Rock Forest. At a distance of ten miles it looks like a huge city of cathedral spires, chimneys, sky-scrapers, ship masts and trees. The famous Garden of the Gods, of Colorado is not worth mentioning beside this wonderful place. It is a story in itself but the feeble words of man can but roughly portray the beauty of the spot.

Within a few miles of the camp there are a hundred lakes varying in size from an acre to a mile long and a half mile wide. They are fed by springs. Some

are the craters of small volcanoes and how deep they are can only be conjectured. But, judging from the slope of the banks as one looks down into the clear, cold water, it would take a sounding line hundreds of feet long to reach the bottom. The water stands at a temperature of 42 to 46 degrees day and night, too cold for bathing and too warm to ever freeze over. The highest lakes in the world are up here. Lake Junin, which is 36 miles long and 12 miles wide, is 14,000 feet above the ocean. There are hundreds of small lakes 1,500 to 2,000 feet higher than Junin.

Animal life is very scarce, owing probably to the scarcity of food. Now and then we see a deer and quite often a viscacha, which appears to be a cross between a woodchuck, rabbit and fox squirrel. It has a body as long as a rabbit with a woodchuck's head and a long bushy tail like the squirrel. In color it resembles a squirrel, and is fine eating. The only animals that have been domesticated are the llama and alpaca. The llama is a beast of burden, but will not carry more than a hundred pounds good-naturedly. The alpaca is raised only for its long wool, and is becoming scarcer every year. At a distance of a few hundred feet the two animals look very much alike. The lakes have both ducks and geese and there is a species of woodcock that is nearly as large as a chicken and as black as a crow. The enormous condor is peculiar to the Andes. Almost every day one, and sometimes a dozen, will sail overhead, often so close that we can see the color of the eyes and the tips of the wings, which differ from all other birds. Taken as a whole, Peru, and especially in the mountains, is almost destitute of animal life. The reason seems simple. There is absolutely no vegetation to give shelter, food is scarce, and the weather too cold and dreary, even for animals.

THE BACHELOR UNCLE

BY EVERITT McNEIL.

It seemed utterly impossible for me to get away from the thought that Harry Rodney was back of that rifle shot; and I gritted my teeth and clinched my hands when I considered that even here he had protected himself. I had no legal proof; and yet I felt as certain as if I had seen him, that behind Red Murdock's act stood the influence of Harry Rodney. He knew that fear of the hangman's rope would keep Red Murdock silent and his own neck safe. I waited in Black Man's Hollow until seven o'clock for Rodney to appear, but my waiting was in vain.

That night I slept but little. I tried to think out a clear and definite plan of action, some way of bringing about the discomfiture of Harry Rodney before the fatal wedding day; but, in whatever manner I looked at the matter, I could see no clear line of action for me to take. I was a puppet in the hands of fate. Still there was one thing I could do. I could go to Rodney in the morning, and ask him to explain why he had not met me in Black Man's Hollow; and this I determined to do. I would do even more than this. I would boldly accuse him of villainy in winning his bride, of cowardice in fearing to meet me, and of attempted murder through the hands of Red Murdock. I would have, at least, the satisfaction of telling him exactly what I thought of him and of his conduct, and of making him understand that I intended, if possible, to prevent his marrying Elsie Lamont.

Another thing, that rifle shot had told me that Rodney feared me, feared desperately; and this thought gave me hope, and yet I could not see anything on which to hang that hope. Alas, if I could only see and talk with Belle Murdock! I felt certain that she held the key! But here again the cunning of Harry Rodney had forestalled me. It was maddening to feel so sure of his vallainy; and yet not be able to discover a single proof that would give me the legal right to interfere. A multitude of thoughts, such as these, tortured my mind and kept sleep far from me for the greater part of the night.

Chapter XV.—Under the Bridge.

My first thought when I awoke the next morning was, "This is Wednesday and Sunday Elsie Lamont is to wed Harry Rodney."

Four days is a very short period in a man's life; but things can happen in four days, aye in four minutes, that will make or mar a man's happiness for all time. I felt that I was nearing such a crisis, that any moment of these four days might be the fateful instant. The man is a sentimental coward who will permit a love disappointment, however keen, to blast his life; and yet there is something so sweet and ennobling in the love of a good woman, that its loss is a serious handicap to any man. Strive as bravely as he may he can never reach the hights of noble manhood he might have attained with the woman he loved by his side.

In my loss of Elsie I felt all this, how keenly no one else can know. Her love seemed a part of my very being—the better part. Without her, life took on somber colors, and the future looked drear and lonesome, but there was more than this. I had been villainously tricked out of her love; and the scoundrel who had planned the trick was to be rewarded with her hand. It was this thought that made me desperate, that added gall to the bitterest sorrow the human heart can know, and determined me to prevent the marriage of Harry Rodney to Elsie Lamont—and yet what could I do? How could I stop the marriage? I had no convincing proof against him; and I was Elsie's rejected lover. Again I wished that I might do as grandsire had done, and rescue my bride at the sword's point and the pistol's mouth.

But Harry Rodney feared me. There was hope in that. If he was back of the rifle shot he feared me desperately; and this must mean that I was pressing him close to the danger point—aye, that I had reached the danger point for me—that he would stop at nothing, not even murder, to win his bride and shield himself. I thought of Belle Murdock, helpless and in his power. Evidently she was the weak spot in his defense. How easily he might remove that danger! Who would question the manner of her death? She was thought to have been fatally injured, and if he hastened her death by a day or so who would know that a crime had been committed?

And such a man was to wed Elsie Lamont!

And I had but four days in which to prevent the outrage!

In my excitement I leaped out of bed so suddenly that Teddy awoke with a yell of fright.

"O, Uncle John," he cried, "I was dreaming that a great elephant was climbing a church steeple, and I was looking up at him, and he fell right down on top of me with an awful bang; and I guess I yelled. It was you jumping out of bed who made the bang, wasn't it Uncle John? Dreams are funny. Hurrah! Day after tomorrow is circus day! And you are going to take Ellen and me aren't you, Uncle John? I'm going to get up, too," and he tumbled out of bed.

What a joyous thing youth is!

As I was about to enter the house for breakfast a lad rode into the yard and handed me the following note:

John Delvin:—

A word of advice. Don't play the baby act longer. There is no more despicable coward than a jilted lover without manhood enough to accept his defeat gracefully. It seems to me that Elsie Lamont has made her contempt for you plain enough for any fool to see; yet you persist in thrusting yourself into her affairs. I, as her rightful protector, warn you to desist from further persecutions of her. Another thing. Don't attempt to push that big nose of yours any further into matters that don't concern you. You are making an infernal ass of yourself. Can't you comprehend that Elsie prefers me to you? Do you wish everybody in the neighborhood to know that she has thrown you over for me? There was nothing mysterious nor criminal in all this; and your contemptible suspicions are a cowardly and cruel persecution of the girl whom you profess to love. If I hear any more from you in this affair I will not do you the honor of knocking you down, but will give you a horsewhipping, such as a cur like you deserves. I could not dishonor my manhood by meeting you in Black Man's Hollow last night. The horsewhip is the only fitting answer to your insulting insinuations and it is the only answer that I am prepared to give you.—H. R.

I crushed the paper savagely in my hands. Every word in it was like fire to the heat already in my blood; and if Harry Rodney had been before me at that moment I think I should have killed him. At any rate I am very thankful now that there was something over a mile of space between us, that my wrath had time to cool before I could reach him.

"Jake," I called to the hired man, who was washing his hands just outside the kitchen door, "tell Mary Jane that I shall not be in for breakfast. I am called suddenly away," and I started down the road, almost on the run, with only one thought in my mind, that of confronting Rodney at once.

It would have been impossible to have sent a more insulting note, or one better calculated to stir up the wrath of a man of any spirit and cause him to commit violence against the sender, than the one I had just read; and before I had gone a half a mile I was convinced that that was the object Harry Rodney had in writing thus to me. He wished to drive me to commit some overt act of violence that would enable him to appeal to the strong arm of the law, and which would alienate the sympathies of the neighbors from me. This latter he would have had little difficulty in doing; for Harry Rodney, young, handsome, and wealthy, was very popular, and the average man or woman is loath to believe ill of your pleasant-speaking, fine-looking gentleman.

"Well," I thought, grimly, "if that's his game he'll find that he's running down the wrong quarry. I'll put my temper in a vice and hold it there; but he has got to answer certain questions that his horsewhip can't answer; and if he strikes me first again—" My blood tingled and my muscles swelled at the thought of the one blow he had struck and which I had not returned— "I'll fight him if the whole town is looking on."

Harry Rodney was a gentleman farmer. He never soiled his hands with manual labor. There was no need. He had inherited some two thousand acres of good land, a large bank account, and the grandest country house in this part of the state.

As I entered the beautiful grounds surrounding the house Harry Rodney came out of the door, and, mounting his horse which the groom was holding, rode down the driveway directly toward me. When he saw me he pulled up his horse with a savage jerk, and waited for me to approach, an insolent leer on his handsome face. Then, as I drew near and before I had said a word, he turned to the groom who stood a short distance behind him, and, pointing his finger at me, said: "Call Jake and Bill and throw this man off my premises, unless he goes at once. If you allow him to come in my gateway again I will discharge the three of you," and with a look of vindictive hatred showing back of the leer on his face, he struck his horse a quick blow with his whip. The animal leaped by me; and Harry Rodney rode rapidly away in the direction of Judge Lamont's home.

Not until he had passed over the brow of a hill and out of my sight did I move. Then I turned to Harry Rodney's three men, who stood close together about a rod from me, regarding my huge frame apprehensively.

"E's th' strongest man 'ereabouts, an' 'e walluped three good men to once down at Plumville last Fourth of July," I heard the English coachman telling his two companions. I took a step toward them, and each of the three men tried to get behind the other two.

"My good fellows," I said, "I comprehend how your anxiety to obey your master's command conflicts with your native kindness, and causes you to hesitate before you do so rude and discourteous a thing as to throw me off the premises, and I will save you all that trouble if you will promise to deliver to Harry Rodney a short message from me."

"That's hit," answered the coachman, his face showing the relief he felt. "Our 'earts went against th' master's command; but orders is orders, an' hif you'll go peaceable like 'twill oblige us greatly an' save our 'arts pain—" I saw the man's eyes twinkle as he said this, and I liked him the better for it, "an' I'll take hit on myself to deliver your message to the master, sir."

"Tell him," I said, "that I am in this game to the finish, and that I hold the winning cards," and I walked away.

About midway between my home and Rodney's place the road crosses a small stream of water by means of a wooden bridge. When I reached this place I sat down on the railing of the bridge to think over the situation and to plan what to do next. But hardly had I seated myself when I saw Red Murdock hurrying down the road. He had not seen me and I quickly determined to prevent his seeing me if I could. I would do a little detective work and watch him. The bridge is built some eight feet above the water, and the space beneath afforded a speedy place of concealment. In another moment I was under the bridge, intending to wait there until Red Murdock passed and then follow him at a safe distance. I wished to see if he went to Harry Rodney's. Presently I heard Red Murdock's feet trampling on the planks above my head; and then I could tell by the sound that he had stopped and seated himself on the railing. Ten or fifteen minutes passed in silence, except for the shuffling of Red Murdock's feet above my head, and I was beginning to get uneasy and to wonder if he was going to stop there all day, when I heard him exclaim, impatiently: "Wonder what in thunder can be keepin' him. He'd come at the devil's own pace if he knew what I've got!" and he gave the railing an angry kick with his heel. "Tain't safe to leave Belle so long."

Red Murdock was to meet Harry Rodney on the bridge!

With difficulty I repressed my excitement. It looked as if fate at last had played into my hands, and was about to enable me to be present at the secret council of my enemies. But I must guard against discovery. I glanced quickly around, searching for a more secure place of concealment. There was a dark opening between the bank and the end of the bridge under which I stood; and, moving with extreme caution, I gradually worked myself into this opening, where I found a sufficient depression to entirely conceal my body, even from one looking under the bridge, and I could hear the horse I heard the sound of a horse galloping down the road. The rider drew rein on the bridge, and I could head the horse stamping his feet on the planks directly over my head.

"What the devil is the matter now?" the voice of Rodney demanded savagely. "Don't you know it is dangerous for us two to be seen talking together?"

"Well, I reckon it would have been more dangerous if I hadn't seen you." Red Murdock answered sullenly "Belle's—"

"Wait a bit," Rodney interrupted sharply. "Then in a lower tone he asked: "Have you looked under the bridge?"

"No."

"Then look. I'm not taking any chances."

A moment afterward I heard Red Murdock scrambling down the bank, and I forced myself down as far as possible in the depression where I lay. There was little chance of his discovering me, unless he thrust his hand into the opening. He came down under the bridge, and my heart almost stopped beating when I saw had only to look in my direction to see me. But, just as he turned his face toward me, I heard a slight hissing sound, something like that made by an angry cat; and Murdock gave a yell that almost lifted the bridge from over our heads, and clapping both hands to his face, made for the opening; but, before he reached it I saw a little black and white animal dart by him; and I did not need Rodney's exclamation, "A skunk, you fool!" to tell me the nature of the beast Murdock had stirred up. Fortunately not a drop of the "perfume" touched me. It must all have hit Murdock in the face, judging from the way he swore and tore around and dashed his head in and out of the water. This ended the search under the bridge.

Rodney returned to his horse and mounted; but it was fully ten minutes before Red Murdock could quit swearing long enough to give an intelligent answer to his reiterated question as to why he had been summoned to meet him on the bridge. In the meantime I crept out of my cramped quarters and made myself more comfortable. At first the stench had been almost unbearable, but it soon wore away, Murdock and the skunk having taken the greater part of it with them.

At last Red started up the bank, but was stopped by Rodney yelling: "Stay where you are! One whiff from you would be enough to turn my horse inside out. Now tell me what is wrong with Belle, and tell it quick. I want to get out of this."

"Last night," began Murdock, "when I got back from seein' you about the fierce time I had in Black Man's Hollow (here Murdock paused for a moment to ease his feeling by swearing at me) I found Belle sensible an' settin' up in bed writin' a letter to Elsie Lamont. When she saw me she tried to hide th' letter under her pillow; but I got th' letter, though I had to fight for it," and the brute chuckled. "Now, what do you suppose was writ in that letter, Mr. Rodney?"

"How in the devil should I know! Some insane ravings I suppose," Rodney answered, but I could hear the fear and anxiety in his voice.

"No, 'twont no insane ravin's," Mur-

(Continued on page 188).

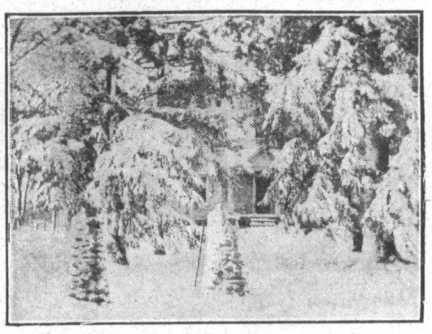
THE FIR TREE'S NEW GOWN.

BY DORA H. STOCKMAN.

"I've worn this gown for years and years;
Why can't I have a change?"
The fir tree sighed and moaned one night.
"It seems to me quite strange

My sister Maple, and Miss Elm,
That stand on either side,
Have, every spring, a new green suit
As fresh as any bride's.

"And each fall Autumn 'broiders
Their dresses red and gold,
While I must wear this same dull green
Too faded to behold."
Old Winter, stern, cold fellow, smiled



And whistled soft and low;
Next morning all the fir trees wore
Gowns of the whitest snow.

HOW THE PETS BECAME RECONCILED.

BY RUTH RAYMOND.

Carlo was a shepherd dog who loved a warm place by the fire and was very happy until his master, Frank, brought home a blue kitten named Tatters.. Her fur was white under the blue, and Frank declared she was a beauty, though Carlo did not agree with him as he lay there on the rug and looked at her through his half-closed eyes. Frank was smoothing and petting her when she discovered Carlo. Up went her back like a camel's, and her tail was elevated and seemed larger than the rest of her body. "Spit! Spit! Z, z, z," was her greeting as she backed into the farthest corner of the room.

Carlo lifted his head and thumped his tail, looking into his master's face and whining questioningly as though he were saying, "Is she gone? Shall I shake her?"

"No! No!" answered Frank, "leave her alone, Carlo; she is our pet." Carlo dropped his head upon his paws and remained passive, while Tatters crept under a chair and watched him out of green eyes.

Thus their acquaintance began and it seemed that they would never be friends, for every time they met Tatters arched her back and spit, and Carlo looked as though he were laughing at her while he was saying to himself, "If she is our pet I do not think she is very pleasant. I'd rather have a little puppy that would play with me."

He did not give up his rug but, sometimes, when he was away on a hunting expedition, Tatters crept up by the fire and took a nice nap with one eye open, fearing he might return unexpectedly.

One day when she had been out for a walk and was nearing home she was pounced upon by a long lank hound who was laying in wait for her. She went down with the force of his heavy body upon her. Then something happened. There was such a growling and snarling as she had never heard before and, feeling herself free, she rushed to a tree and mounted to the top before pausing to take breath. Then she looked down to discover Carlo battling with her enemy, the big hound. His ear was bleeding and he was really getting the worst of the fight, as he was so much lighter than his opponent. Tatters set up a cry that was heard by Frank, nearly a block away. Hastening to the scene he beat off the hound with a heavy stick and called to Carlo to come home. The dog whined and pointed his nose to the frightened pussy in the tree.

"Oh, you are the one that all this trouble was about," said the boy, holding up his hands and calling Tatters to descend, which she quickly did, snuggling down on his shoulder with a delighted purr, while Carlo trotted home by his side, wagging his tail though his ear was still bleeding. Frank washed and dressed the wound and then the tired animal lay down upon the rug and was soon sleeping soundly. When at last he awoke, what was his surprise to feel something very warm against his side and, behold, there was Tatters, just as close as she could get, purring away in a most contented manner. Carlo reached out his paw and touched her; she began to pur louder and to wash his paw with her rough tongue. Frank, entering just then, was surprised at the scene and called his mother to witness the reconciliation.

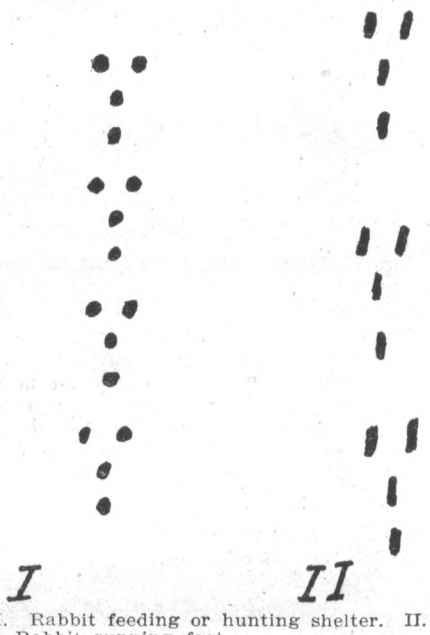
After that Carlo had a playmate in Tatters. They slept on the same rug, and when Tatters went for a walk her friend was always near to protect her from stray dogs that might wish to tease her.

ANIMAL TRACKS.

BY V. P. GOKEY.

If one takes a walk across the meadows and fields after a light snow, he cannot but notice the myriad of tracks. It is safe to say that the most numerous, perhaps, will be that of the rabbit—running here, there, and everywhere. One can easily tell when the rabbit is feeding or hunting shelter by studying the tracks as indicated by the illustrations.

The rabbit is found almost everywhere in America. There are several species,



I II

I. Rabbit feeding or hunting shelter. II. Rabbit running fast.

but the most numerous is the Cotton Tail. These little animals do a great deal of damage to property. They gnaw the bark off trees and at times completely girdle them. Farmers and fruit growers often wage war against the rabbit.

Their food consists of berries, roots, grass, etc. They eat no animal food whatever. The pelt of the rabbit is now used quite extensively in the manufacture of cheap furs.

The red squirrel is a lively little creature, very easily tamed. It lives in small numbers in the beech and fir woods, or near great oaks. The size is that of an overgrown kitten, with eyes very bright and ears very small and upright. The tail is large and bushy. When engaged in eating they sit on their haunches with the tail thrown upwards on the back, grasping the eatables with their fore-paws and gnawing with their powerful teeth.

The nest is made of woody fibers, leaves, and moss, usually situated in the fork of a tree. The young, of which there are three or four, are born generally in June. The tracks made by this animal when jumping are shown above.

The squirrel subsists on nuts, acorns, seeds, etc., of which they lay up for the winter in hollow trees, others in the ground. The animal is hunted and is considered excellent eating. One or more are often found about the farm.

The raccoon is a member of the bear family and is found in the western hemisphere. It is a pretty animal, about the size of a cat, but much stouter. The animal has a long brown grizzled coat, a ringed and bushy tail, and a turned-up nose. The paws are hand-shaped, useful for digging and climbing. It is very clean in its habits, usually washing all its food thoroughly before eating it.

The color of the raccoon varies. In some places it has a dark pelt; in others it has quite a light one. Different local-

I II III

I. Raccoon walking. II. Raccoon trotting. III. Raccoon jumping.

ities also seem to affect the size of the animal. The pelt of the raccoon is valuable, thousands each year being killed for their fur. The flesh of the animal is considered good eating. 'Coon hunting is a favorite sport in some localities. Hounds are usually employed.

The raccoon is always hungry. It will eat apples and corn, and is especially fond of honey. A family of 'coons will sometimes completely destroy a field of corn. This animal is a dangerous enemy of poultry.

It is a very powerful animal with sharp teeth, is both carnivorous and nocturnal in its habits, and exceedingly swift in its movements. The raccoon is quite hard to catch with traps. The illustration shows the tracks it makes.

The mink is one of the most important of all fur-bearing animals, and quite difficult to trap. It is found throughout America, near rivers, lakes, and small streams. Tiles, stone bridges, and similar places are used as its home. The animal has a fondness for fresh running water and is seldom found near ponds or pools which are at all stagnant.

Like the rest of its family, it is a fierce fighter and a mighty hunter. Everything of its size in the forest flees before it. The color of the mink is dark brown, but it often varies many shades lighter. The mink is very fond of poultry and will kill dozens of fowl in one night. The pelt is very valuable. The mink leaves a peculiar track when jumping, as indicated in illustration.

The weasel belongs to the same family as the mink, resembling it very closely, and having similar habits. It is the smallest, commonest and most dangerous member of its family. No animals are more bloodthirsty and carnivorous than the weasel tribe. They have a slender round body, with a long neck which gives the animal the appearance of having the fore-legs set back too far. The legs are very short.

When the weather is warm the weasel has a brown coat. As it becomes colder it turns, until the snow flies, when it is difficult to distinguish it from snow, even at very short distances. When its fur is prime it is white all over, except the extreme tip of the tail, which is black. The weasel is known to the fur trade as the ermine. The illustration shows the track it makes when jumping.

The skunk is related to the weasel even though they are very different. The pelt of the animal is very durable and is of great importance to the American fur trade. The color of the fur ranges from black to nearly white, the pelts of the former color being more valuable. Occasionally freak specimens of light brown color and sometimes of a drab are met

A TROUBLE MAKER

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"Then I thought I would try coffee again, and did so for a few weeks. The punishment for deserting my good friend, Postum, was a return of my old troubles.

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with. The animal is very easily trapped.

Skunks are strictly American animals. They are not found in the extreme north. Alaska and Labrador furnish no pelt of this animal.

A small hole or opening is generally the home of the skunk, and sometimes as high as seventeen are found in one den. It will eat both animal and vegetable food and is extremely fond of milk. The animal is nocturnal, seeking its food at night.

In the north, they den up during the cold weather. In the south they do not

I. Skunk walking. II. Skunk jumping.

den up at all, but seek their food throughout the whole winter. In the central portions, the animals den up during the colder weather, but hunt for food during the milder nights. The trail of the skunk is shown in the above illustration.

THE BACHELOR UNCLE.

(Continued from page 186).

dock answered. "An' if it should get into th' hands of Elsie Lamont there wouldn't be no weddin' next Sunday, leastwise if there was you wouldn't be th' bridegroom. Now, what'll you give me for that letter?

For answer Rodney threw himself off his horse and leaped down the bank. "Give me that letter, and give it to me quick; or I'll choke the life out of you, you infernal cur! What will I give you for it? I'll give you your life, Red Murdock; and if ever a cowardly villain deserved to be hanged it is you. The letter."

Chapter XVI.—The Nurse.

I heard Murdock backing away and whining out some unintelligible answer. With an oath Rodney leaped forward and caught him by the throat. I knew he had him by the throat by the choking sound that came from his mouth. There was a short struggle, a yell of deadly fear; and Red Murdock was begging for his life, promising to give up the letter, to do anything, if Rodney would not kill him.

My first thought, in the excitement of the moment, was to rush out and seize the letter, if I could; but a moment's consideration told me that this would be a very foolish thing to do. I might not be able to get the letter, I would expose myself to the fury of two men who hated and feared me, and I would betray my presence. My best plan was to remain in concealment and learn all that I could. I was all of a tremble and my heart was jumping so that it nearly suffocated me. At last I was beginning to see my way clear to do something. If I could only get hold of that letter! If I could only find out what it contained before Sunday!

For a few minutes all was silent without. Rodney was reading the letter. Presently I heard the crumpling of stiff paper in the hand, then the sound of a lighting match, which was soon followed by the smell of burning paper. Rodney had destroyed the letter.

"Red Murdock," Rodney spoke in a tone of such fierce wrath that I hardly recognized his voice, "if you wish to keep that infernal carcass of yours out of prison you go home and give Belle a dose of that medicine the doctor left that will put her to sleep and keep her to sleep until after Sunday is passed; and if she never wakes up again I'll give you one thousand dollars, providing you start for Australia the next day after the funeral, and stay there. What is your answer—yes or no?"

For a moment Red Murdock was silent, and I could fancy the struggle going on in that brutal heart; but his selfishness and avarice soon conquered, as I knew they would, and he answered slowly, and with brutal frankness: "Rodney, I'll do it. Belle's sure to die anyway, an' it would be a mercy to put her out of her pain; but," and his voice became threatening, "if that one thousand dollars in good gold is not in my hands before noon of the next day after th' funeral, I'll let th' world know what a black-hearted scoundrel you are, if I hang for it."

Rodney laughed. "See that you keep your word and a still tongue in your head and I'll do my part," he answered. "Now, get back to your house as fast as your legs can carry you, and keep that precious daughter of yours out of further harm. Phew! I don't believe a barrel of rotten eggs could smell worse than you do," and he strode back to his horse mounted, and galloped rapidly away.

Red Murdock climbed the bank, and I knew by the sound of his footsteps that he had started for home on the double-quick.

I waited some five minutes, and then cautiously came forth from my place of concealment. Murdock and Rodney had both vanished, and there was no one else in view. As soon as I saw that the road was clear I started on the run for home. There was need of great haste. The horrible thing that Red Murdock and Rodney had planned to do must be prevented. I determined to drive to Plumville as fast as horse legs could take me, get the two doctors who lived there, and return with them to Murdock's house. Then, if backed by the two doctors and I felt sure I would be when they saw the condition Belle was in, I would secure trustworthy persons to care for the sick woman and guard her from her unnatural father. If Murdock attempted to interfere I would have him arrested at once. The time for hesitation had passed; and the time to fight for the life of Belle Murdock and the happiness and honor of Elsie Lamont had come.

When I reached the house Jake was hitching the horses to the wagon to go to work in the field. "Quick," I called to him, "hitch Fan and Bess to the buggy. I must get to Plumville just as soon as horseflesh can take me," and I ran into the house to wash and change my clothes, for I was covered with dirt.

"Land sakes, John Delvin!" Mary Jane called from the kitchen, as I hurried to my room upstairs. "Do come an' eat. I've kept things hot for you; an' th' ham an' eggs, an'—"

But I had no time for eating nor for Mary Jane. I could think only of Belle Murdock and her peril. Red Murdock might give her the fatal dose before I could reach her. She was at his mercy, and the mercy of Harry Rodney's creatures, the nurse and the doctor. Whatever was done must be done speedily. I shuddered when I thought of the horrible crime. It was so unnatural, almost unthinkable, that a father with his own hands would give his own daughter the death poison, while she lay on her bed of sickness. Her very helplessness should appeal to the fatherly instincts in him, and prevent so cowardly and villainous a deed from the one of all men to whom she had the right to look for help and protection. And Harry Rodney! He must, indeed, be in desperate straits to descend to such low villainy. The more I thought of the matter the greater became my indignation against the two men, and the stronger my determination to save the poor girl. And back of it all pounded and burned the thought: "Belle Murdock knows. She, and she alone, can save Elsie Lamont from Harry Rodney."

The moment I came down stairs Mary Jane rushed out of the kitchen and seized hold of me. "John Delvin, whatever is th' matter of you!" she cried. "Boy an' man I have knowed you for nigh onto twenty-five years, an' this is th' first time you have missed breakfast. March right in there an' eat," and she began pulling me toward the dining-room door.

"Mary Jane," I said sternly, "let me go. I have that to do which can not wait an instant, if I would prevent murder. Let go of me."

"Heavens an' earth!" and Mary Jane sank down into the nearest chair and

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stared at me in helpless amazement and horror, as I rushed out of the house.

Jake was waiting for me. As I leaped into the buggy the thought struck me that I had not seen Teddy and Ellen. "Where are the children?" I asked.

"Can't say," Jake answered. "'Bout 'alf an 'our ago I saw them sneakin' along behind th' currant bushes carryin' a basket atween them. I reckoned they were off for a little lark, an' didn't want Mary Jane to know what they had got in th' basket. They're a pair, ain't they?" He came up close to the buggy and half whispered: "Can't I help you, John?"

I turned angrily toward him; but I saw only honest anxiety on his face, and my wrath vanished. He knew that I was in trouble and wished to help me. "No, Jake," I answered; "at least, not now; but I thank you for the proffer. When the children return keep an eye on them. I can't tell when I'll be back." I struck the horses with the whip and drove rapidly away.

The road to Plumville, as I have already stated, passes by Murdock's house. I did not intend to stop there until I returned with the doctors; but, as I approached the place, I slowed up. When directly in front of the house I heard a scream, a child's scream. Great heavens it sounded like Ellen's voice! The scream was repeated again and again. I struck the horses a violent cut with the whip, and driving into the yard, leaped from the buggy, rushed to the door, and burst it open.

On the floor, near the center of the room, white and still, lay little Joey; and over him stood Teddy, his eyes flashing, his face breathing wrath and defiance, and every muscle of the little form tense. And in front of him stood Red Murdock, his face red with anger and his hand raised to strike. At the moment I entered the heavy blow fell, beating down brave little Teddy's upraised arm and knocking him senseless to the floor. With an oath Red Murdock swung back his foot to kick the prostrate form; but, before the kick could be given, I had him by the throat. Never shall I forget the look of deadly terror that leaped into his face when he felt the grip of my hand and saw my face. I did not speak. My wrath was too great for paltry words. But, gripping him by the collar, I dragged him out of the house, away from the sick woman and the sight of the children. In my right hand I still carried my heavy whalebone buggy whip, and when I had him outside of the house, I whipped him until his shirt was streaked with red, while he wept and begged and cursed and threatened; whipped him until Ellen, white-faced and trembling, caught hold of my arm and begged me to stop. Then the whip dropped from my hand.

"I'll have th' law on you, John Delvin; I'll have th' law on you," Red Murdock snarled, as he staggered away, his face contorted with wrath and black with the hatred of a fiend.

"Red Murdock," and I caught him by the shoulders and held his face close to mine, "Red Murdock, go. If you delay a moment I'll have you arrested for—murder! For murder, do you hear? Go; and if you value that neck of yours, don't stop long enough to warn Rodney nor to collect that one thousand dollars. Go," and I pushed him violently. "If I find you here when I come out of the house I'll take you to Plumville and give you up to the authorities. Now, go, you contemptible, cowardly murderer of your own flesh and blood; go, or I'll—" and I took a step toward him.

Red Murdock's face had grown a ghastly white at the mention of Rodney and the one thousand dollars; and I saw by the look in his eyes that if nature had given him a little more courage he would have killed me where I stood if he could, so deadly was his hatred, and have taken the consequences; but he was a coward, and, at my words, all his bravado left him; and when I stepped toward him, with a low cry of fear he whirled about and fled, turning his face toward me with so livid a look of dread and horror on it that it remains in my memory to this day.

"My God, he must have already given Belle the fatal dose!" I cried, for the horror and the guilt of murder looked out of his eyes.

(To be continued).

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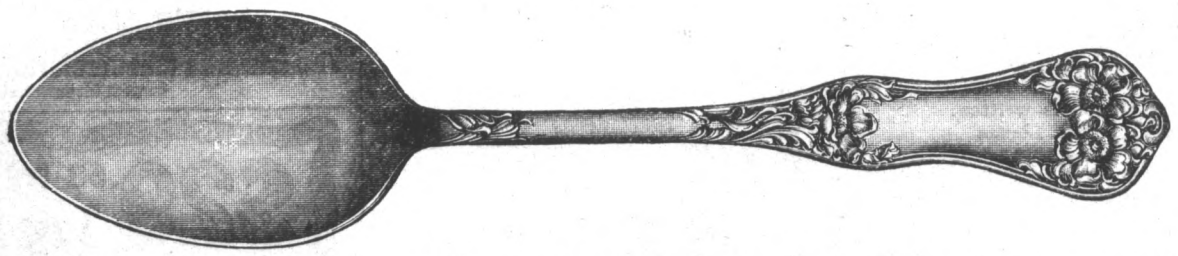

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THE TEACHER OF LOUISA MAY ALCOTT.

BY RUBY BAUGHMAN.

To the boy or girl accustomed to thinking of an education in terms of the routine and regularity of the usual eight-graded schools and the four years of high schools, supplemented by four or more years of university training, the education of Louisa May Alcott seems erratic and incomplete, even desultory and insufficient. And so it was.

For Louisa's father, Amos Bronson Alcott, was her teacher, and he tried out on his children many of the educational hobbies which he had adopted with little result in the various schools which he tried to model after his own notions. These theories of his, it is true, were immensely superior to the practice in most of the schools of his generation; but a dreamer like Alcott was not the man to translate these theories into powerful realities.

Miss Alcott says in her journal that she never attended any other school than her father's; but there seems to be no doubt that she went for a few months to a little district school in Still River village, a thoroughly old-fashioned institution which gave Miss Alcott material for much of the fun in "Under the Lilacs." Later a Miss Ford taught a small group of children in Mr. Emerson's barn in Concord, and the Alcott children were surely of this number. It is recorded, too, that at eight or nine years of age, Louisa attended a school kept by Miss Mary Russel. All these seem, however, to be mere incidents in the process of her training at the hands of her father.

To Mr. Alcott his children were the object of tenderest devotion. When they were yet tiny babies, he took a great share of the care of them. One of his delights was the "children's hour." Then he put the small ones to bed, using the opportunity to instruct them in lessons of love and wisdom. He enjoyed as much as the children the evening frolic, memories of which furnished his daughter for more than one picture for her stories, notably that of Jo's father in "Little Women," where he makes compasses of his long legs with which to draw letters and diagrams as he lies on the floor. Mr. Alcott won the children's reverence without the usual accompanying element of fear. Their lives lay open to him and he was thus enabled to make their daily experiences the basis of both mental and moral training.

He very frequently used writing as a means of instruction. From this early habit of writing freely, Louisa was able, at the age of nine, to write a pretty, childish rhyme on the death of a pet robin, without calling forth family comment over it as an especial accomplishment. Louisa preserved many lists of words which her father assigned to be spelled, written and understood. Their lessons were often in the garden or yard and were based on nature and her interpretations. Her father's pen and pencil sketches, hastily drawn, illustrative of this or that lesson, were found among Louisa's papers at her death. For instance, one drawing shows a child playing a harp, another holding an arrow. Below the sketch is written:

For Louisa
1840.

Two passions strong divide our life—
Meek, gentle love, or boisterous strife.

Below the child playing the harp is written these words: Love, Music, Concord. Below the incipient warrior and his weapon appears: Anger, Arrow, Discord.

Small wonder that at eight years of age the little Louisa is able to print a carefully composed letter to her father in which she speaks of her conscience as a force with which she has already begun to reckon. This letter she preserved until late womanhood, when the gray-haired Louisa wrote below the youthful Louisa's effort the comment: "Louisa began early, it seems, to wrestle with her conscience."

The Alcott children were requested to keep their daily journals regularly. These were always open to the father and mother for inspection, but the freedom of feeling and the absence of barriers between parents and children made the little books a frank open record of their struggles, hopes and accomplishment. Both Mr. and Mrs. Alcott frequently wrote little notes to the girls calling attention to any fault or quality in need of attention or correction.

In a sketch of her childhood, written for an autobiography which she at one time hoped to write, she says:

"I never went to school except to my father or such governesses as from time to time came into the family. Schools then were not what they are now; so we had lessons each morning in the study. And very happy hours they were to us, for my father taught in the wise way which unfolds a child's nature, as a flower blooms, rather than crammed it, like a Strasburg goose, with more than it could digest. I never liked arithmetic nor grammar, and dodged these branches on all occasions; but reading, writing, composition, history and geography I enjoyed, as well as the stories read to us with a skill peculiarly his own.

"Pilgrim's Progress, Krummacher's 'Parables', Miss Edgeworth, and the best of the dear old fairy tales made the reading hour the pleasantest of our day. On Sundays we had a simple service of Bible stories, hymns, and conversation about our little consciences and the conduct of our childish lives which will never be forgotten."

Domestic science was included in the Alcott curriculum, perhaps as much from the necessity due to the slimness of the Alcott purse as to deliberate intent. "Walks each morning around the Common while in the city, and long tramps over hill and dale when our home was in the country, were a part of our education as well as every sort of housework, for which I have always been very grateful, since such knowledge makes one independent in these days of domestic tribulation with the 'help' who are too often only hindrances. Needlework began early, and at ten my skillful sister made a linen shirt beautifully; while at twelve I set up as a doll's dressmaker, with my sign out and wonderful models in my window. All the children employed me, and my turbans were the rage at one time, to the great dismay of the neighbors' hens, which were hotly hunted down that I might tweak out their downiest feathers to adorn the dolls' headgear."

Even our modern physical culture is antedated, as it were, for she continues: "Active exercise was my delight, from the time when a child of six I drove my hoop round the Common without stopping, to the days when I did my twenty miles in five hours and went to a party in the evening. * * * No boy could be my friend till I had beaten him in a race, and no girl if she refused to climb trees, leap fences, and be a tomboy. My wise mother, anxious to give me a strong body to support a lively brain, turned me loose in the country and let me run wild, learning of nature what no books can teach, and being led, as those who love her seldom fail to be,

'Through nature up to nature's God.'

That the leading was sane and safe and sure in Louisa's experience is seen in the words: "I remember running over the hills just at dawn one summer morning, and pausing to rest in the silent woods, where I saw, through an arch of trees, the sun rise over river, hill, and wide meadows as I never saw it before. Something born of the lovely hour, a happy mood, and the unfolding aspirations of a child's soul seemed to bring me very near to God; and in the hush of that morning hour I always felt that I 'got religion,' as the phrase goes. A new and vital sense of His presence, tender and sustaining as a father's arms, came to me then, never to change through forty years of life's vicissitudes, but to grow stronger for the sharp discipline of poverty and pain, sorrow and success."

These the unusual teachers, then, and this the unusual teaching of the great story-teller. Not ineffectively, surely, for at eighteen she was teaching a small school of her own; at twenty she saw her first story printed and received into her fingers its precious price of five whole dollars; at twenty-two she had well begun her career of authorship—not a half bad record.

Mayer Martha Washington Comfort Shoes

Learn to enjoy genuine foot comfort by wearing Mayer Martha Washington Comfort Shoes. Tired, aching, sensitive feet get relief from these wonderful comfort shoes.

SOLID COMFORT—NO BUTTONS OR LACES

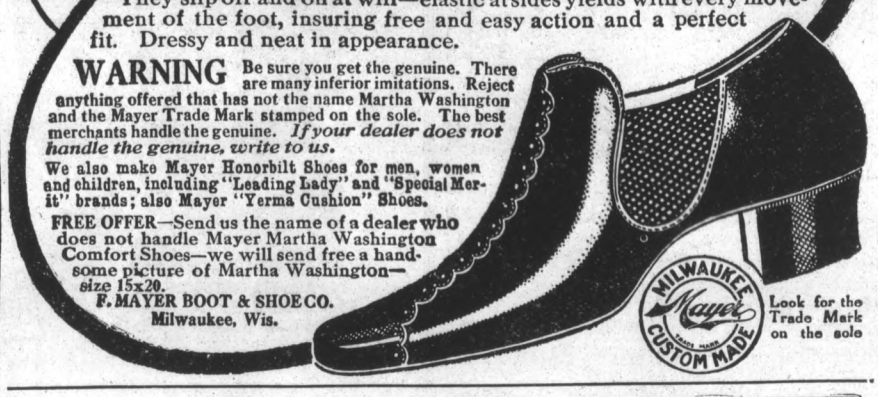
They slip off and on at will—elastic at sides yields with every movement of the foot, insuring free and easy action and a perfect fit. Dressy and neat in appearance.

WARNING Be sure you get the genuine. There are many inferior imitations. Reject anything offered that has not the name Martha Washington and the Mayer Trade Mark stamped on the sole. The best merchants handle the genuine. *If your dealer does not handle the genuine, write to us.*

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

FREE OFFER—Send us the name of a dealer who does not handle Mayer Martha Washington Comfort Shoes—we will send free a handsome picture of Martha Washington—size 15x20.

F. MAYER BOOT & SHOE CO.
Milwaukee, Wis.



Look for the Trade Mark on the sole

The Famous Rayo Lamp

The best part of the day is the evening, when the whole family is gathered together around the lamp.

The old days of the smoky fireplace and flickering candle are gone forever. In their place have come the convenient oil stove and the indispensable Rayo Lamp.

There are to-day, in the United States alone, more than 3,000,000 of these Rayo lamps, giving their clear, white light to more than 3,000,000 homes.

Other lamps cost more, but you cannot get a better light than the low-priced Rayo gives. It has become so popular we may almost call it **"the official lamp of the American family."**

The Rayo is made of solid brass, with handsome nickel finish—an ornament anywhere.

Ask your dealer for a Rayo lamp; or write for descriptive circular to any agency of the

72 W. Adams St. Standard Oil Company Chicago

Galvanized Here

As Heavily as Here

Edwards "REO" Steel Shingles
"Tightcote" Galvanized

No other steel shingles in the world are Edwards "Tightcote" Galvanized. It is our own special process and it makes Edwards "REO" Steel Shingles wear as long as the building.

Each and every Edwards "REO" Steel Shingle is dipped in molten zinc after the shingle is made. Each of the four edges is as heavily galvanized as the two sides.

Not a microscopic point of Edwards "REO" Steel Shingles is exposed to the weather. They are rust-proof and acid-proof. They last three times as long as shingles cut out after the galvanizing has been done, and thus leaving raw edges open to rain and snow.

Edwards Interlocking "REO" Steel Shingles are made of high grade Bessemer Steel in sheets 5 to 12 feet long and 24 inches wide. Either painted or galvanized. All ready to put on. Hammer and nails all that is required. Anyone can do it. Can be applied over wood shingles or on sheathing 12 inches apart.

We agree to refund the amount paid in every case where a roof covered with Edwards Interlocking "REO" Steel Shingles is destroyed by lightning.

This guaranty is backed by our $10,000 Ironclad Bond and stands forever.

We have a special cash money-making proposition for the man who writes for it, in each community. If any of your buildings need roofing, you are the man. Send dimensions of your building and we will quote you cost of an Edwards Roof, freight prepaid. Write for offer now.

Send for Free Roofing Catalog No. 267.

The Edwards Manufacturing Company, 217-267 Lock St., Cincinnati, Ohio
Largest Manufacturers of Steel Roofing Material in the World (62)

$29.50 Buys This Elegant Top Buggy.

WARRANTED FOR Five Years.

Retail Price $60.00. Buggies, Surreys, Spring Wagons, Farm Wagons. We have cut out our Jobbers, our Wholesalers and our Retailers and offer YOU their profit. Write today for our

Free Catalog and Delivered Prices.

Mutual Carriage & Harness Mfg. Co.
Station 51-G, East St. Louis, Ill.

Overland

This Car for $900 Means Much to Practical Farmers

Equipped with Self-starter only $20 extra

THAT the farmer needs a car in his business is no longer an argument. It enables him to get more out of an hour's work than ever before. It makes everything on or around the farm move faster. So, if more work can be accomplished in any given time, more clear profit is bound to result.

But the farmer need not pay more for an automobile than his work requires. It should be bought, first of all, as a utility—not as an ornament or vehicle of pure pleasure. It should be bought to work for him—not to amuse him as, for instance, a piano does. After the work is done you can have all the fun in the world with it.

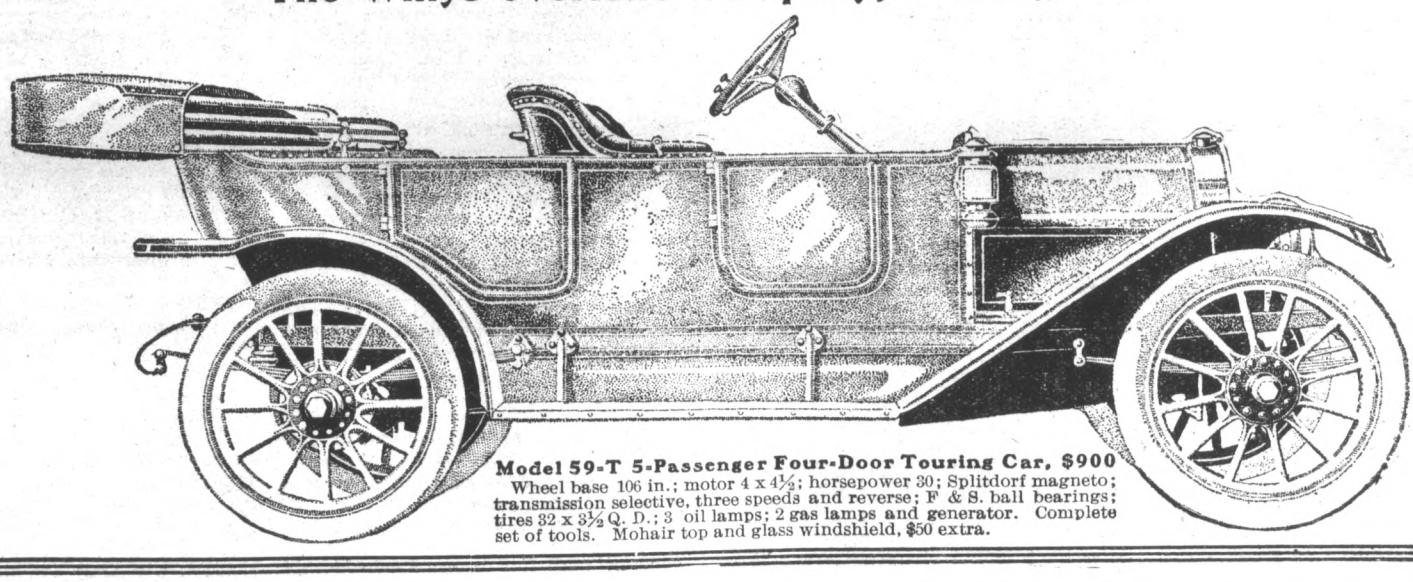
This Overland (Model 59) at $900 is absolutely all anyone would want in a car. It will make your whole family happy. Compare it with any $1250 car on the market, and you'll find but little difference. You know that most of the $1250 cars are of the 30-horsepower type. This $900 car has a 30-horsepower motor. Seats five people comfortably. It is big and roomy. Has a staunch pressed steel frame, selective transmission with F & S annular bearings—the best made. Has strength, power and speed—more than you will ever care to use. The body design and finish is simple, graceful and beautiful. Upholstery is of good leather, hand stuffed with fine hair. In every respect it is a thoroughly high-grade machine.

If you wish we will equip the car with a self-starter for only $20 additional. This starter is the most practical made. On continuous tests, under all conditions it will crank a car ninety-nine times out of a hundred. It is simple and safe. All you have to do is to pull a little lever and your motor spins. Use the same gas tank as you do for your headlights.

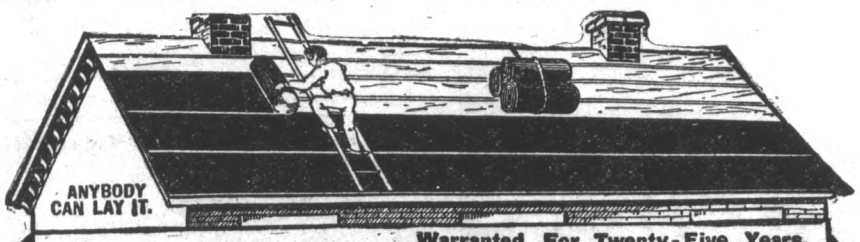
And it is a fact that no other maker in the business can build this car and sell it at this price without losing money. This is due to our enormous manufacturing facilities—the largest in the world. The manufacturer who turns out but 5,000 cars must have greater production costs, for each car, ***than we who make 25,000 cars.***

We have published a very interesting and simply written book which explains why the largest automobile factory in the world can give more car for less money than the small factory. Write for a copy. It will show you how to save money when you buy a car. This also explains in detail the remarkable value of this $900 touring car and illustrates with handsomely colored plates the complete 1912 line. Write and ask for copy AG 32

The Willys-Overland Company, Toledo, Ohio



Model 59-T 5-Passenger Four-Door Touring Car, $900
Wheel base 106 in.; motor 4 x 4½; horsepower 30; Splitdorf magneto; transmission selective, three speeds and reverse; F & S. ball bearings; tires 32 x 3½ Q. D.; 3 oil lamps; 2 gas lamps and generator. Complete set of tools. Mohair top and glass windshield, $50 extra.



Rubber Roofing

Warranted For Twenty-Five Years.
FREIGHT PAID To Any Station East of Rocky Mountains, except Texas, Okla., Colo., N. D., S. D., Wyo., Mont., N. M., La., Ga., Ala., Miss. and Fla., on all orders of three rolls or more. Special Prices to these States on request.

ONE-PLY .... Weighs 35 lbs., 108 Square Feet, $1.10 per roll.
TWO-PLY ... Weighs 45 lbs., 108 Square Feet, $1.30 per roll.
THREE-PLY . Weighs 55 lbs., 108 Square Feet, $1.50 per roll.

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. 138, East St. Louis, Ills.

$225 an Acre from Potatoes

Early potatoes are one of the best-paying crops raised in Southern Alabama, Western Florida, Tennessee and along the Gulf Coast. Good prices are always obtainable and demand for same beyond the supply. Read what a farmer at Summerdale, Ala., has to say on this crop:

"My yield of salable potatoes this year, per acre, was 150 bushels, which sold readily at $1.50 per bushel, this being the first crop on the land. I followed this crop with sweet potatoes and sweet corn and then planted cow peas. I *raised three crops* on the land in one year, all of which brought good prices."

Sweet potatoes produce big returns and are usually planted after Irish potatoes have been dug. Two to three hundred bushels an acre are produced and bring from 50 cents to $1.75 per bushel. Let me send you our illustrated booklets and learn what can be done in a country where fertile land can be purchased cheaply and where there are 312 working days a year. Low round-trip fares 1st and 3rd Tuesdays each month. (203)

G. A. PARK, Gen'l Imm. and Ind'l Agt., Louisville & Nashville R. R., Room 256 Louisville, Ky.

Woman and Her Needs

At Home and Elsewhere

A Return to Low Prices. Who Would Want It?

Wheat (white)	$1.00
Wheat (red)	.85
Bacon, per lb	.08½
Peaches, per bu	1.00
Flour, per bbl	4.37
Chickens, alive (per dozen)	1.25
Cheese, per lb	.07
Eggs, per dozen	.08

THIS is a copy of prices existing in Detroit markets, September 3, 1859. They were brought to light a few days ago when the old First Baptist church in Detroit was razed and the tin box found in the cornerstone gave us a copy of the old Daily Commercial bulletin, a paper printed in those "good old days."

To be sure, "dollar wheat" is not so bad, but what farmer's wife of today would waste her time raising chickens if she only got a shilling a piece for them and eight cents a dozen for her eggs? Or what dairyman would make cheese for seven cents a pound? Butter isn't quoted, but you can imagine what reward your grandmother got for her hours spent pounding a dash churn, and working her butter two or three times, by a glance at the price of cheese.

Of course, city folks would be glad to go back to the days when eggs and bacon could be bought every week instead of once in six months as a special treat. But hold a moment. Would they, if salaries went down in proportion to the price of food? I trow not. For even if you can't buy a bit more with it, think how much better it sounds to say you get $100 a month than to say you get $18.18, which is just what the difference would be if salaries were reduced in proportion to the price of eggs.

On the whole, those of us who are decrying the high prices of these days had better "stop, look and listen," as the railroad signals warn us. The cost of living has undoubtedly gone up. Shoes, rubbers, dress goods, kitchen ware, everything we use, has been steadily boosted in price, and many of us have sighed for a return to the good old days. But if a return to cheaper clothing and household goods meant a return to seven cent cheese, 12 cent butter and eight cent eggs, would the farmer's wife want to return? And if a return to cheap eggs, bacon, and butter meant a return to 50 cents a day for the working man, would the town dweller cry so hungrily for cheap food?

Each age has its problems, and none are to be solved by a return to old ways. Today is ours, and it is for this generation to solve its own problems by wise thinking and honest living. We are fond of crying against the great corporations, but may there not be something dishonest in our own lives which helps to swell the current of dishonesty in the body politic? We are prone to cry, "What's the use of my doing right when everyone else is doing wrong?" But if each one set himself to think of the other fellow's rights as well as his own, regardless of what the other fellow might do, can you not see how the social revolution we are talking about might be affected?

DEBORAH.

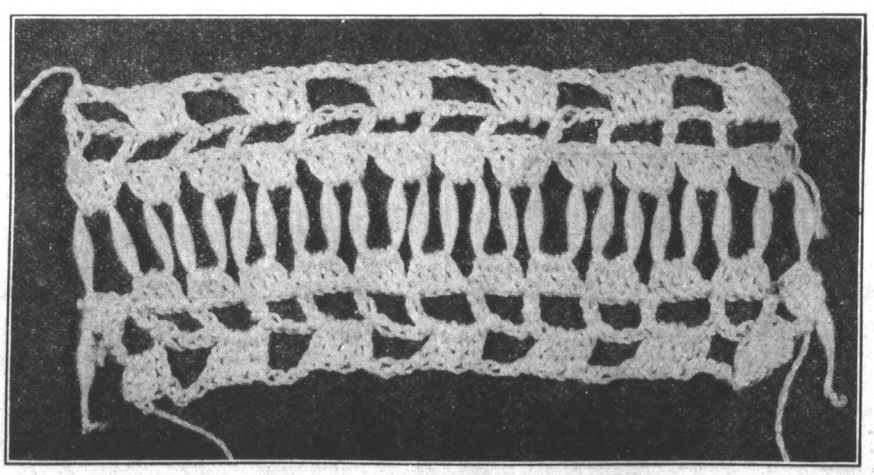
Coronation Braid Insertion—By Mae Y. Mahaffy.

HOUSEWIVES seldom have too many pretty guest towels; even if their own supply has been amply replenished there is usually a call sooner or later for some bridal gift, some birthday or other anniversary offering, and nothing else seems quite so practical and attractive, considering the expense incurred. One of the daintiest and most durable effects is secured by darning in borders, using the small huckabuck towels already hemstitched, or making the towels from material purchased by the yard. The darning may be run in zig-zag fashion just above the double hemstitched end, with a washable blue cotton floss, and an initial embroidered just above the border on one end. Various darning patterns are permissible; namely, the Greek key design, interlaced squares, diamonds, etc. The work is easy and speedy, the needle being run under the loosely woven threads of the huck.

Two pretty crochet patterns are shown for insertions in towels, both incorporating coronation braid with crocheting. These are in white, although one sometimes notices colors for the braid. The narrow one has two double crochet stitches taken at each narrow point of the braid, with two chain stitches between. This rule is followed along both edges of the band, the strips being made as long as the towel is wide.

The wider band has four double crochet stitches in each curve of the braid for the first row. In turning to make the second row crochet chain of five to make a square turn; then place one double crochet between the first and second groups of former row; chain three, and make another double crochet between next groups, etc. For the last row chain three and double crochet three times in first opening of the second row; chain three and double crochet four times in third opening, and proceed thus across the space, crocheting four double crochet stitches in alternate openings, and chaining three between.

These insertions are used with equal propriety on bed linen, and often edgings are made to correspond, just a simple shell pattern being added to one edge. Some of the smart summer gowns also show insets of this insertion.



The Wider Braid is Desired by Some.

WOMEN WHO ARE DOING THINGS.
No. 6.

M. Cora Dow.

To start a crusade which is reaching round the world, this is the work of Miss M. Cora Dow, of Cincinnati, Ohio. Her work in behalf of the better treatment of the working horse, launched two years ago, is already known practically everywhere. The literature was first printed in the Queen City of Ohio, with its appeal, "A Square Deal for the Horse," but it is now circulating in hundreds of thousands of copies in foreign countries as well as in the United States. The "Cincinnati Horse Folder," as it is called, has been printed recently in Spanish and Turkish, and, in fact, it would be difficult to mark the present limits of this movement which was inaugurated in such a modest way two short years ago.

Miss Dow is not alone a worker along humane lines; she is a successful young business woman as well. As proprietor of a big business enterprise she is, of course, the owner of several horses. It is needless to state they are well cared for—indeed, they are given every possible attention—since Miss Dow's love of horses is quite equal to most women's love of children. An employe who mistreated his horse would be discharged almost as unceremoniously as a clerk who might make an error.

Three years ago Miss Dow conceived the idea of sending her work horses to the country for a vacation. Each one of the animals was given two weeks in pasture—the idea being that a horse which is accustomed week in and week out to haul a wagon over hot, dusty, city pavements needs a vacation in the country where it can "get close to nature" quite as truly as its master does when he goes to the woods or mountains for an outing. The experiment seemed so far justified by the results attained that a year later Miss Dow asked several hundred business firms in Cincinnati to follow her example. A generous response followed and "horse vacations" have now become quite the usual thing in this Ohio city. It should be noted also that one of the early results of Miss Dow's crusade for the horse was the adoption by the government of her vacation idea. Every horse now in the employ of Uncle Sam receives 30 days' vacation each year in pasture.

Believing that an idea will spread most rapidly if put into the form of an attractive "catch phrase," Miss Dow proceeded to map out a campaign with this in view. She chose the slogan, "A Square Deal for the Horse," as the sentiment with which to win the support of the masses. Being a business woman it was natural for her to use advertising methods. Accordingly she caused the following appeal to be printed on the firm's letterheads and envelopes:

A SQUARE DEAL FOR THE HORSE.

We believe every horse deserves three ample meals daily; water frequently; proper shoes; a blanket in cold weather; two week's vacation annually.

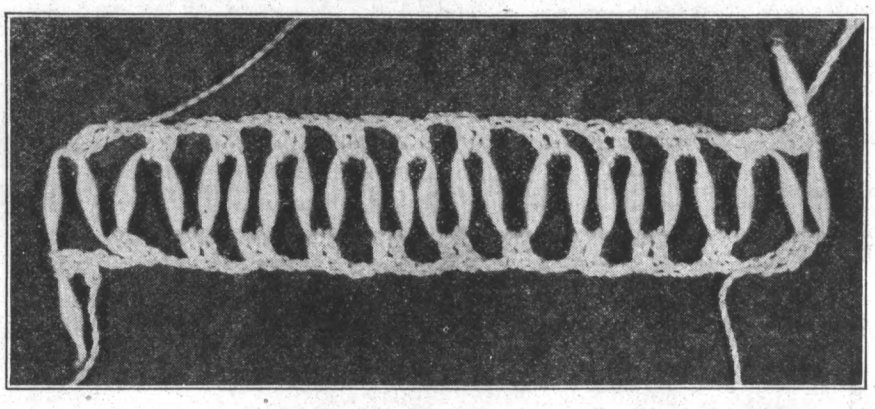
THROW AWAY THE WHIP.

Finding that this aroused considerable interest she increased the effectiveness of the appeal by interesting several hundred other Cincinnati firms to do the same. This year she has asked 2,500 of the leading corporations in the country to give publicity to her "Square Deal for the Horse" in the same way. From replies received Miss Dow estimates that no less than 50,000,000 pieces of business correspondence will circulate this month bearing this slogan.

Miss Dow is by nature an optimist and her optimism is always in evidence.

"We mix optimism with business," she says.

She treats her help with as great consideration as she treats her horses. Their hours are short enough to give everyone time for rest and recreation, and their pay averages better than other stores.



Narrow Coronation Braid for Guest Towels.

A PLEA FOR THE GIRLS AND BOYS.

One of the most interesting and best received addresses at the convention of the New York State Horticultural Society was delivered by Mrs. H. M. Dunlap, of Savoy, Ill. She said there is but one science and that is the science of living rightly on this earth. We spend pitiful sums to learn how to grow boys and girls, but to learn to grow plants and animals, we spend $7,000,000. A scrub animal was bought for $60, by a man who fed it scientifically for a few months, after which he took it to a live stock show and received first prize. He then sold the animal for $1,000. If the boys and girls were as scientifically fed, what would be the result? The human body is made up of 12 elements, and we must have them all for normal development. Fruit growers are interested in the balanced ration from the market point of view, for a balanced ration makes better, stronger men, who will eat more fruit.

Only four per cent of the American people die of old age, while 96 per cent die of disease. We call this a dispensation of Providence, but it is not, it is ignorance. There is a cause for every result. Mal-nutrition is one great cause of disease. There is need of a balanced ration for the boys and girls as well as for plants. Nine-tenths of all disease comes through the American kitchen.

Shall not the American girl be compelled to be educated in domestic science as well as in primary studies? There is need of an awakening of the American parents and educators. One of the greatest mistakes of our people, that will be most far reaching in results, is that we do not spend as much money for educating the girls right as we do for the boys. This is not a square deal for our girls. Teach the boys and girls how to think right and you start them right. Are they rightly educated when they often go out of our educational institutions physical wrecks?

A great need of the day is a different education for both boys and girls, that will make a better manhood and womanhood. Through a financial partnership between men and women, generally, we are spending $12,000,000,000 for food, shelter and clothing. Women sometimes have not their right place in this partner-

$14.68 PER DAY

Dear Sirs:

I am pleased to say that through a friend of mine I secured the opportunity of becoming a traveling salesman for the Saginaw Medicine Co.

I find that it is a money-making proposition, as well as pleasant work, for it certainly gives a man a satisfied feeling when he knows that the line of goods he is handling is securing a lot of good, warm friends for him all over his territory.

To a greater or less extent I believe that the line of goods I handle are responsible for the cordial reception I receive wherever I go. The goods give such good satisfaction that the people are glad to see me come again so that they can obtain another supply. All I had to do was to introduce the goods on the first trip and now they sell themselves.

The S. M. CO. PLAN, I find is the only successful plan to do business and I think it is complete. I also wish to add that the Saginaw Medicine Company has proved to be both honest and reliable.

Very truly yours, J. W. WRIGHT.

THE MICHIGAN LINE

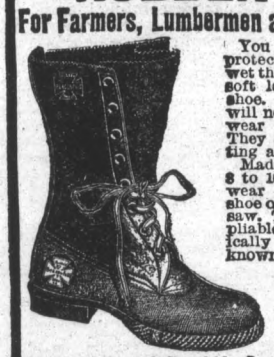
Mr. Wright's sales amounted to $954.10 in his first 65 days on the road, and he attributes some of his success to the fact that he was supplying the people of Michigan with a reliable line of **Household Remedies, Stock and Poultry Remedies, Extracts, Spices and Toilet Articles** manufactured right here in the State of Michigan. We want our line represented by a hustler in Eaton, Washtenaw, Hillsdale, Barry, Jackson and Branch Counties, Michigan.

If interested, write for terms. **Don't miss this opportunity.**

THE SAGINAW MEDICINE COMPANY
SAGINAW, MICH.

Mention this paper.

A LEATHER TOP RUBBER SHOE
For Farmers, Lumbermen and Sportsmen.



You can't find a better protection from snow and wet than the **Manitoba** soft leather top rubber shoe. After a trial you will never be satisfied to wear heavy felt boots. They are neat, close fitting and light in weight.

Made in all heights from 8 to 16 inches. Will outwear any high rubber shoe or pac that you ever saw. The Top is of a soft, pliable, durable and practically waterproof leather known as Special Chrome. Beware of cheap imitations made of split leather. Such shoes will wet through quickly. The tops are fitted with Copper Klondike Eyelets and Rawhide Laces.

The Over is made of the purest Rubber. There are two distinct vamps of heavy duck with layers of rubber between, fastened together under great pressure.

The Sole is made to stand the hardest wear. The Manitoba is an honest made Shoe that will give honest wear, because the right kind of material and workmanship is put into it.

When you want any high grade, satisfactory rubber boot or shoe ask for the Beacon Falls Brand, made by a company that is "not in a trust." Illustrated Booklet free.

The Beacon Falls Rubber Shoe Co. Trade Mark Look for the Cross
New York Chicago Boston

TRAVELING MAIL BOX

For those who have from 300 ft. to 1½ miles to go for their mail. Easily placed on telephone poles or 2 x 4's fastened to fence posts. The

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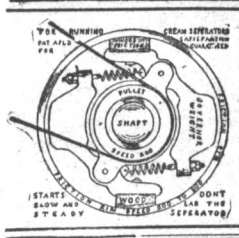

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A LOOK INTO FOOD VALUES.
No. 3.

BY MRS. ALTA L. LITTELL.

Have you ever tried that mistaken economy, going without meat and eggs in order to cut down bills? The human body needs just so much protein to keep it at its best and this is found in its cheapest form in meat and eggs. If you do not get them, you must eat just that much more of vegetable proteids to satisfy your hunger and keep up your strength, and where is the saving of money? The money must be spent for sufficient food to keep you going. How much better than to spend it for the best foods, for animal protein is better and more easy of digestion than vegetable.

We all need meat at least once a day, and the workers should have it twice. Even children past two years of age are the better for well cooked beef, mutton and the white meat of fowls, and up to that age they should be fed plenty of fresh eggs and good rich milk. Fresh meats should be used, salt takes much of the nutrition out of the meat and continued soaking in brine renders it more difficult of digestion.

The ideal breakfast would include both a well-cooked cereal with cream, and fresh eggs, either poached or boiled. And as most of us have to get along without the cream for the cereal we should make an extra effort to get the eggs. The salts and acids needed by the body may be supplied by fruit, grape-fruit and oranges if you prefer, and can get them. Nothing is better, however, than good stewed prunes, a couple of prunes in a dish of rich juice. As an aid to digestion and the proper elimination of the waste from the body it would be hard to find anything better than a small dish of prunes every morning.

Dinner at 12 o'clock goes without saying in the country, and for children it is always best. For brainworkers a light lunch at noon and dinner at 6 p. m. is preferable, as a heavy dinner, followed by a quick return to office or school room always means a heavy head and a fight with drowsiness for an hour or so. For dinner let us have soup if there is time, if not, a good piece of beef, mutton, fresh pork or fish to give us the protein we need, potatoes, well-cooked, which means dry and mealy, a vegetable or two, good bread, either white or brown, and butter, and one simple dessert. If we have eaten heartily of plain, simple foods we will not need rich pie, cake and doughnuts nor will we crave them.

Too much cannot be said in favor of eating plenty of vegetables. Corn, peas, beans, beets, onions, tomatoes, lettuce, spinach, squash, the despised rutabagas, turnips and carrots, each have a place in the adult dietary, though they are of little value to children. Indeed, children under 12 invariably dislike them all except lettuce and tomatoes, a pretty good hint that their system does not need them. Besides containing valuable phosphates and mineral salts they furnish the bulk we need in food and are a foe to constipation.

The supper should be lighter, cold meat or chops, potatoes or boiled rice or macaroni, simple cake and fruit, fresh, stewed or preserved. Jellies, jams and marmalades are good foods as they are rich in sugar and furnish needed carbohydrates, but just where pickles and relishes, such as chili sauce, catsup and chowchow may be classed as foods I have not yet learned.

THE KITCHEN BOILER IN COLD WEATHER.

BY FRANK H. SWEET.

In cold weather care should be taken, immediately after lighting the range, to see that the water pipes attached to the boiler are not frozen. This can be ascertained by feeling the pipes close to the range. If they are both of the same temperature and hot water cannot be drawn from the nearest tap, the fire should be drawn at once; otherwise steam will be generated and an explosion may occur in the water-back. When the water is circulating freely, one pipe will always be hotter than the other, and after kindling the fire the difference in temperature will be considerable.

Where it is desired to empty pipes, after shutting the main supply stopcock, which should have an opening to allow the water in the pipe to escape, it will be necessary to open the various taps in order that the atmospheric pressure may act on the water and cause it to run out. Should there be a depression in any part of the pipes, the water must be blown out by placing the mouth to one of the taps or faucets and blowing forcibly into it several times. In case of a burst in the water pipes stop the water at the supply stopcock, which should always be easy of access. The position of this stopcock should always be ascertained on moving into a strange house.

Careless plumbers sometimes connect the sediment waste pipe from a boiler below the trap of the kitchen sink instead of on the house side. In that case when the stopcock valve is opened to empty the boiler when the house is closed, sewer gas may find a direct path into the house from the cesspool or sewer.

USING CARPETS AND LOCATING BEDS WITH REFERENCE TO SUNLIGHT AND AIR.

No house can be made an ideal place to live in without giving much thought and attention to these very important considerations. Shall we use carpets, and if so, what kind? And where shall we locate our beds so as to have sunlight and air.

First, I will say that all readers may not agree with me on the carpet question, and also that they may consider me somewhat radical about their use. But let me make this statement, get rid of your rag carpets. They could not be placed on my floors free of charge. My mother used them, but that does not make me want them. I must say that I firmly believe that the use of rag carpets is one of the great causes of so much consumption. They are a dust harbor, a germ harbor. No one living on them is free from either, and therefore they cannot be healthy.

On the bedrooms, which are not used except at night, and thus they can be kept practically free from germs and dust, I use only straw matting. They are not bad about holding dust, and are easily swept with the carpet sweeper or broom. I use the carpet sweeper owing to the ease of sweeping and the better work done.

On our sitting-room we have no carpet at all. Our floor is matched flooring, and is kept as perfectly clean as possible, with but few things in the room to catch and hold dust.

I would say, if you wish to use carpets, try in some way to get the straw carpets. They are about the same, or something near the same in cost, if bought, but, of course, the straw must be bought and the rags can be tacked and woven at home, but I do not care to weave and use something that endangers the health of my children.

As to the location of the beds with reference to sunlight, air, etc., we have our beds located where we can have the early morning sun shine right down upon our beds. Our house faces the north, with the public road running a short distance in front. The house is two stories high, and we sleep in an upper room. In winter we sleep in an upper southeast room. That is, a room on the southeast corner of the house. Thus we get the early morning sun and it is not shaded out during the midday.

Our beds are located with the head toward the north, and two large windows on the east and south are arranged so they can be lowered or raised as desired. and the air in the room kept fresh to sleep in.

Can't stand the cool fresh air at night? We do, and find it a great tonic. For summer we have a hall-way running through the upper part of the house, east and west, in which we usually sleep as it is cool and nice.

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If your teapot has become blackened on the inside in spite of its washings after each meal, try putting two heaping teaspoons of baking soda into it, filling up with hot water and allowing it to boil on the stove for an hour or so. Then empty out the water, take in a pan of warm suds and wash thoroughly. Here is the most important point. I could never get the spout absolutely clean on the inside until I conceived the idea of placing a handful of shot down the spout, placing a finger over the end of it and shaking vigorously in the suds and it worked like magic.—Mrs. A. V.

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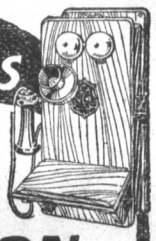

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SPRING SEWING.

Now is the time when the really wise woman is beginning her spring sewing. The bad weather makes us all want to hug the fireside, and housework nowadays doesn't keep us busy from morning until night, so that this is the ideal time for fixing up for spring. Then, when the first warm days come in March and we are just dying to get out we will not have to stay in and finish up that dress for Mary or those blouses for Johnnie.

There is another reason for doing the sewing now, and that is that it is more than likely you can get your cotton goods cheaper than you can a little later. The stores want the shelves emptied to make room for new goods and you can often pick up bargains at this time. To be sure it will be last year's goods, but what is the difference so long as it is pretty and durable? The new things are seldom new in anything but name, anyway, and why pay a few extra cents for a name? There are only a certain number of colors, and a certain number of designs, and cotton is always cotton, so how manufacturers can get out a half dozen absolutely new things every year, year in and year out, is somewhat of a puzzle.

City housekeepers now are stocking up on table and bed linens, too, this month. The shopkeepers count on starting their mid-winter "white goods sale" on January 2, as religiously as they do on starting Christmas advertising the day after Thanksgiving. Every store has napery and sheeting and toweling marked down, not to mention napkins, lunch cloths, tray cloths, guest towels, and everything else included under the rather loose term, "linen."

The long winter evenings offer just the time for the hem-stitching, embroidering and working of initials which general usage decrees should add finish to our linen. Initials of pasteboard may be bought by the dozen, basted on the article and worked over and over, thus saving stamping and padding.

When drawing threads to straighten your tablecloths, do not forget to save some of the ravelings for darning later. Never sew the hems in table linen on the machine. If you cannot hemstitch, first lay the hem in, then turn it back on itself and sew with an over and over stitch. This is the method taught by all sewing teachers for table linen, and by following it your hem looks alike on both sides the cloth.

POTATOES IN VARIOUS WAYS.

BY ALICE MAXSON.

In most farm homes the potato forms a staple article of diet. Without stopping to discuss its right to this prominence, we wish to suggest some ways of serving that will relieve the monotony.

Plain boiled potatoes are not so attractive at this season as when first ripened, and from now until fresh ones take their place they will continue to deteriorate. They may still be served "plain boiled," with the meat course. If they are likely to turn dark in the cooking, add a little butter or a slice of fat pork to the water in which they are boiled.

Mashed potatoes need plenty of butter, cream, and a vigorous beating to make them look well and taste good. A potato ricer helps greatly in the matter of appearance.

Escalloped potatoes are a favorite dish in our family, but when we used the raw ones we did not often indulge, as it required two or three hours of oven heat, but we like them just as well, or better, made from left overs. Prepare in the usual way, alternating slices of cold potatoes with bread or cracker crumbs, using plenty of butter, pepper, salt, and enough milk to come just to the top. Bake until the milk is absorbed and the top layer of crumbs is a rich brown. It will require about an hour. We have prepared them on top of the stove when there was reason for haste. Mix the ingredients in the frying-pan instead of the baking dish, only do not use quite so much milk. Cover closely until the crumbs are well moistened and the seasoning thoroughly blended. Remove the cover, lift and turn frequently until slightly browned. Bits of cold meat, the brown gravy left from the roast, and if the flavor is liked, a finely minced onion or a pinch of sage may be added.

Fried potatoes, too often, means that they are dumped into the skillet with a quantity of grease, chopped, more or less, then allowed to get brown, sometimes quite too much so, sometimes not enough. We usually cook enough at noon to last until the next day. If we want fried potatoes we select those that do not fall to pieces. Have some salt pork dripping or ham gravy melted in the pan. Slice the potatoes thin, sprinkle generously with pepper and salt, then with a thin-bladed case knife turn often, taking care not to break the pieces, until they are a delicate brown on both sides.

Potato omelet makes a good breakfast dish. Chop very fine, stir about in the pan until well blended with the seasoning, pour in a little water, and set back where they will heat slowly and brown slightly. Keep covered so that the steam will prevent drying out. When done fold over and serve on a hot platter.

Potato soup is a good supper dish for hungry school-children. Put water into the kettle cold. Slice in two or three small onions. Let the water come to a boil while you peel the tubers. Small ones do just as well for this dish. Slice thin and add to the water, but do not forget the salt. It makes a great difference whether the salt is in while the vegetables are boiling or added after. In about 20 minutes they are ready to drain. Put in a generous piece of butter, more salt (as the milk will require some), pepper, and enough milk to come up above the potatoes. Pour onto a cupful or two of stale bread cut into cubes. Bring to the table hot.

Potatoes with butter gravy is another way of serving. Chop cold potatoes dice-shaped. Heat thoroughly in a well-buttered pan, with a generous sprinkling of salt and pepper. When hot remove to a covered turneen. Now make a gravy with a tablespoonful of butter (do not brown it), a dessertspoonful of flour and about a teacupful of water. Pour this over the potatoes boiling hot, toss them about in it, and send to the table covered. A cream sauce may be substituted for the butter gravy if preferred.

Of course, there are more dainty and delectable ways of serving this vegetable, but the recipes found in the cook books and up-to-date magazines are usually too elaborate for the busy farmer's wife. These here given are intended for common everyday use, and have the merit at least, of being quickly and easily prepared, and provide a variety.

LETER BOX.

Home Study from the Teacher's Viewpoint.

Editor Michigan Farmer:—I am a school teacher. I was very much interested in reading the article, "Studying School Lessons at Home," by Laurel Cameron, which appeared in the Michigan Farmer of December 23.

I sincerely agree with the article in so far that it is not right for the younger children to work at their studies outside school hours. But I decidedly disagree with the writer as to the cause.

It is true that parents toil and sacrifice, that their children may have an education, and most parents wish their children to obtain this at the earliest possible date. Nine parents out of ten are not willing for their children to take more than one year for any one grade. When a child cannot master his lessons within a reasonable length of time it would be far better for him, both mentally and physically, if he would take another year for his schooling.

Our writer says that a dire calamity (in way of no recesses, etc.), awaits pupils, the next day, when the assigned work has not been completed.

And why, pray, does a teacher keep pupils in at recess and after school? For punishment? Sometimes, yes. But many times to give them much needed individual help. If the parents take the liberty to do this at home, many times, instead of lessening the teacher's work, it is increased. For methods change from year to year, and what has been explained to the child at home, must all be gone over again in school. This causes confusion and more time must be expended by teacher and pupil than would have been necessary, had the parents kept quiet. Therefore, the mother is not compelled to help her child with his studies nor is it her duty to do so. For in so doing she does herself, her child, and the teacher an injustice.

In answering the question, "Why does the teacher require such long lessons prepared?" I shall open the "Course of Study for the District Schools of Michigan," and turn to the outline given for seventh grade arithmetic: I read, "Fall term: Prepare pupils for quick and accurate work in each application of percentage by doing corresponding work from some mental arithmetic. Review decimals.

"Winter Term: Cover the subjects of commission, insurance, taxes, interest, partial payments, bank discount, besides have pupils make out notes and bills of various kinds.

"Spring Term: Cover the subjects of exchange, occupations, trade discount and review previous term's work."

According to the arithmetic used in our district this means that a person wishing to finish the work outlined for seventh grade arithmetic, must cover about seventy pages (besides mental and blackboard work) in 36 weeks.

In my school I have a pupil in the seventh grade who wishes to enter the eighth grade of the city schools next September. (His parents are also very anxious for him to do this). Furthermore, he was about 60 pages behind at the beginning of this school year. (By the way, this state of affairs is by no means because of lack of intellectual powers on his part. Neither is it uncommon in our schools for pupils to be behind in certain subjects). This means, then, that 130 pages must be covered by this pupil in 36 weeks. Will he have to do any work at home?

Therefore, it does not seem to me that this revolves itself into the question of "Who is to blame for this study at home—the teacher who gives out the lessons, or the parents who allow it to be done?" as our writer has said, but "Who is to blame for this study at home—the parents who so earnestly wish their children to cover a grade each year, the teacher who faithfully tries to have all pupils cover the work placed before them, or the persons who make out the 'Course of Study?' "

I wish this question might be discussed. —M. G., Owosso.

Studying School Lessons at Home.

Editor Household Department:—After reading Laurel Cameron's article in The Farmer of December 23, I decided to tell her my experience, having raised a family and never having allowed home study.

The children began bringing their books home to study evenings for lessons next day. I simply told them not to bring them home again, that I could not help them, that we hired the teacher for that purpose. I told them if they studied six hours each day for five days each week for nine months in the year I would have no fear but they would pass the eighth grade at 14 years, which they all did with high standing.

Fourteen years of age is plenty young enough for any child to pass the eighth grade. Our children, after they passed, thought they did not care for more schooling. We said "all right." We let them work and rest their brain for two years. Then, of their own accord, they wanted to go to school again, taking special work.

I am not an advocate of high school graduating. A good practical education with special courses is good enough.

A child's brain and mind must have rest and where are they going to get it if they pore over their books 10 or 12 hours each day?

The boys should help father with the chores. The girls get supper and wash dishes after school. In the morning they should assist with the morning work and thus lighten the day's work for father and mother and enter the schoolroom with a clear brain and bright eye, ready for six hours of hard study.

The evening at home is the time for pleasant intercourse with parents, brothers and sisters, with games and music, or reading some good paper, but never studying.

If all parents would put a veto on this home study the health of our children would not be broken down before their school days were over. It may take two or three years longer, but what is that compared to a healthy mind and body?

Take it slower, teach them to work along with their schooling. The girl at 16 years ought to be able to keep house if her mother has done her duty toward her. It is much easier for her to learn these things in her younger years gradually. The boys should learn how to tend stock, handle horses, do farm work of all kinds, (of course, I am a farmer's wife), but if I were a city boy or girl I would go to the country through the summer vacation and learn to work and get good health, if I could, and be better fitted for another year of study.

I understand the city children take music lessons while going to school and rest during summer vacation. My children always did just the opposite, they never had time for music while attending school. They might if they had nothing else to do. Education and music are

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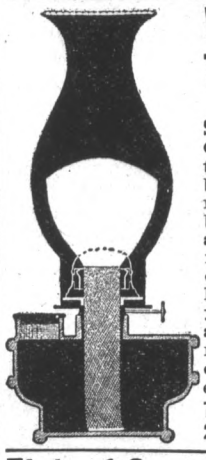

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all right, providing a child learns to work, too.

We pay our teacher's good wages for teaching our children. Why should they not do so? They should have good sense and judgment not to give lessons longer than can be learned at school. There is altogether too much cramming, hurrying, skimming over lessons. Take more time, thorough explanations, be sure the pupil understands a lesson before they are allowed to take up the next. If the teachers would do their duty towards our children and all parents take a firm stand to stamp out this home study it would soon be a thing of the past.—Mrs. A. W. S.

GLEANINGS FROM A YOUNG MOTHER'S EXPERIENCE.

BY ELLA E. ROCKWOOD.

"My baby," said a young mother who is trying to bring up her little one along modern hygienic lines, "loves to play on mamma's bed, yet I am afraid to leave her there alone even for a few minutes for fear she may creep near the edge and fall off. So I pull her own little iron bed with its high railing, along the front of the larger one. This gives absolute safety since the back of the latter is against the wall. Her bed is not quite so long as mine so I fill in at the end with a high-backed chair from the dining-room, which is so heavy that she cannot move it. The bed, with its firm, smooth surface, makes her a fine play-room, much better than the floor, which soils her skirts so quickly.

As to food to supplement nature's supply for a growing child, this mother finds a gruel made by boiling a handful of rolled oats in a quart of water for several hours, both satisfying and nourishing. The gruel is strained, slightly salted and sweetened. Her nine-months-old babe has one feeding each day of this, given with a spoon. She is nursed at three-hour intervals through the day, omitting one for the gruel.

She is now facing the problem of keeping baby out of mischief as it creeps about the room. Whether to "spat paddies" and thus teach her to leave things which she should not have, alone; or to remove her to another part of the room and say nothing, is the question. She is convinced that it is going to require a good many spats to accomplish the purpose if that is the course to be taken. This she naturally dislikes to do, although firm in the conviction that baby shall not be allowed to become a little tyrant and always do as she pleases.

Baby is now at the age where everything she gets into her tiny fingers goes into her mouth. In spite of watchful care this sometimes happens with bits of paper or other small objects which are not swallowed but which cling to the roof of the mouth and cause the child to choke.

Mother has found out that the best way to dislodge such things is to wind a bit of absorbent cotton around her finger, wet it with the boracic acid solution always at hand, and with this remove the offending object. Anything like a scrap of paper, or bit of thread attached itself to the wet cotton and is readily removed from the mouth. Baby is used to this operation as it is a regular part of her daily health to have her mouth swabbed out in this manner. Her mother thinks this keeps her free from the various forms of sore mouth peculiar to infancy.

The question of a place in which to keep baby's wardrobe was solved by having made a long, low box provided with a hinged cover. The box is divided into two crosswise sections, one of which holds her best things, the other such as are worn every day. Here they are laid out flat, one upon another, easy to reach and separated for convenience, so that when in a hurry there is never any difficulty in finding what is wanted in the way of clean clothes. The box is lined inside and out with cretonne of a dainty pattern and the cover is padded. The dimensions are, length, 50 inches, width, 12 inches, height, 12 inches.

TRANSPARENT SUMMER DRESS GOODS BROUGHT OUT WHILE MERCURY DROPS.

In spite of the fact that marquisette was declared "out" late last summer, it is very much in evidence in the new goods which are already being shown for this spring. For, although the mercury was away below zero the most of January, enterprising shopkeepers shook out their airy summer muslins and flaunted them before women who were shivering in pony coats and furs.

Sheer goods, it is said, are to be leaders, marquisettes, cotton voiles and our other old favorites. Indeed, in some of the largest stores, they solemnly declare they have only three pieces of heavy linen in all the stock, while diaphanous white goods of many names are offered for your inspection. Pure white bordered goods are much liked, the body of the cloth being sheer and the border of heavier weave, either white or in colors.

UNCLE SAM'S WORK FOR THE AMERICAN HOUSEWIFE.

No branch of the general government comes so near to the life of the people as the department of agriculture, which deals with the cotton and other fibers of which our clothes are made, the flocks and herds we raise, the crops we produce, the food we eat, and the timber of which our houses are built.

The closeness of the relation between the department and the people is in great measure due to the fact that the use which is made of agricultural products receives as much attention as their production, and the great bulk of these products are used in the home. Commenting on this phase of the department's work, the secretary said recently: "Commercial industries were long ago studied by scientific methods, since it was found that gaining knowledge by experience was much more costly than gaining it by systematic study. It is only lately that we have come to realize that it is equally profitable to study the housekeeper's problems. Fifty years ago few such questions had been taken to the laboratory and few schools gave instruction in such subjects. Today very many men and women of scientific training have taken the home problem to the laboratory and are finding ways of helping the housekeeper to solve her problems satisfactorily. More than 100 agricultural and other colleges in the United States now offer courses in home economics, as this general subject of the study of home problems is called, and cooking or some other branch of the subject is taught in hundreds of high schools in the United States. The department of agriculture has studied many questions which relates to the use of agricultural products on the farm and in the home, but perhaps none of them has a closer relation to the household than the nutrition investigations of the office of experiment stations, which have to do with the use of agricultural products as human foods, and whose object is to help the housewife in her efforts to provide good living at reasonable cost, without undue labor."

The results of the work have been summarized in Farmers' Bulletins, 24 in number, on a great variety of topics, such as the food value of milk, sugar, bread, meats, fruits and vegetables; methods of preparing food for the table, and the care of food in the home. The first edition of Farmers' Bulletins on food topics, as is the case with all Farmers' Bulletins, is relatively small and reprints are issued only as they are needed to meet the popular demand. That the information presented has been appreciated is shown by the fact that a total of 9,968,000 copies has been required up to date to meet the demand, or one bulletin to every ten persons of the ninety odd millions making up the population of the United States. In the case of every one of these bulletins over 100,000 copies have been needed to meet the request for them, and in the majority of cases three or four times this number, the demand, apparently having a direct relation to the subject-matter, the bulletins dealing with the commonest food materials being the most popular. Thus, over 700,000 copies have been published of the bulletins on bread making. Of "Eggs and their Uses as Food," 555,000 copies have been distributed, and of "Beans, Peas and other Legumes as Food," 420,000 copies. The publications which deal with the preparation of food have been particularly sought after, 762,000 copies having been issued of the bulletin on "Canned Fruit, Preserves and Jellies—Household Methods of Preparation," and 740,000 copies of the one on "Preparation of Vegetables for the Table." The bulletin which heads the list in the demands which have been made for it is entitled "Economical Use of Meat in the Home," which discusses the preparation of this staple food material with reference to economy as well as palatability. In the two years since this bulletin was published 18 regular editions, aggregating 1,420,000 copies have been issued by the department and, in addition a special reprint of 500,000 copies ordered by congress, making a total of 1,920,000 copies.

Royal Fence
AMERICAN STEEL POSTS & GATES

LIVE stock, protected with woven wire fence, is the rock foundation of profitable farming.

Sheep on the meadow—sheep on the stubble make good use of wasted grain and the volunteer crop of weeds. When the clover is cut turn in the sheep. They use it to good advantage and with profit to you. The cost is nothing. Sheep on the meadow mean money in the pocket. The sheep, like the hog, is a farm machine, used to work over products on the spot where they are produced. One acre of good meadow carries eight to eleven sheep. Dividing the farm closely with the best quality of woven wire fence is a positive economic factor. That quality is found in

ROYAL FENCE—a continuous stay fence of big wires woven together with the Royal loop. A fabric of great strength and resiliency, galvanized and tested to ensure the utmost durability and efficiency.

Royal Fence Dealers Everywhere

Tell him your particular needs. He gladly will show you the different styles of Royal Fence adapted to all farm purposes, so you may make your own comparisons. He buys in large quantities, gets the lowest carload freight rates and can sell you good fence at the lowest possible price.

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

F. Baackes, Vice Pres. & Gen Sales Agt., AMERICAN STEEL & WIRE CO., Chicago, 72 W. Adams St.; New York, 30 Church St.; Denver; U.S Steel Products Co., San Francisco, Portland, Seattle

Send for copy of "Royal Fence News," also book "How to Make the Farm Pay," profusely illustrated, devoted to the interests of farmers and showing how fence may be employed to enhance the earning power of a farm. Furnished free upon application.

A Sunday Suit at an Every-Day Price—$15

A suit that's good enough for any man to wear anywhere is the result of a new idea in clothes-making. It's the

CLOTHCRAFT
Blue Serge Special
No 5130 GUARANTEED ALL-WOOL AND FAST COLOR $15

The success of the new idea permits us to use the best blue serge we've ever put into a $15 suit.

The style, fit and workmanship are fully up to the merit of the cloth. And you can be sure of quality before you spend a cent. The Clothcraft guaranty, backed by dealer and maker, assures absolutely pure wool; first-class trimmings and workmanship; permanent shapeliness; and lasting service and satisfaction.

All those good qualities seem like a large order in a $15 suit—but make us prove them!

Go to the nearest Clothcraft Store. Examine the suit carefully; try on the coat, and see how well it fits. Notice also the many other good styles of Clothcraft Clothes at $10 to $25.

If you don't know a Clothcraft Store write us. We'll send you the Spring Style-Book, a sample of the serge, and name of nearest dealer.

GUARANTEED ALL-WOOL

CLOTHCRAFT

REG. U.S. PAT. OFF.

THE JOSEPH & FEISS CO.
Founded 1850—Oldest American Manufacturers of Men's Clothes
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RIDER AGENTS WANTED in each town to ride and exhibit sample 1912 Bicycle. *Write for special offer.* We Ship on Approval *without a cent deposit*, allow 10 DAYS FREE TRIAL and *prepay freight* on every bicycle. FACTORY PRICES on bicycles, tires and sundries. *Do not buy* until you receive our catalogs and learn our *unheard-of prices* and *marvelous special offer*. Tires, wheels, lamps, sundries, *half prices*.
MEAD CYCLE CO., Dept. W77, Chicago, Ill.

TRUSTWORTHY MEN OR WOMEN
Wanted as local representatives of responsible manufacturer. High class merchandise and clean selling methods. $12.00 per week guaranteed on easy conditions, with possibility of $30 and advance. Experience not necessary. Manufacturer, Box C J 278, Philadelphia.

WANTED—Experienced married man for a 320 acre farm. Must be willing to work as well as superintend. Besides cash, house, cow, wood, chickens and garden furnished. Without experience and best of reference no use replying. Address BONNIE BRAE FARM, Algonac, Mich.

Wanted, Experienced Dairy Farmer for 50 Cows.
Address JNO. STRONG, South Rockwood, Mich.

A Few Good Positions Open

We have a few positions open for men who will drive through the country. We will pay a regular weekly salary and expenses. Experience not necessary. The work is healthful and instructive, it will teach you a business. Write, giving references, to

Box F, Michigan Farmer, Detroit, Mich.

Don't Fail to mention the Michigan Farmer when you are writing to advertisers.

A PLEA FOR AIR IN THE HOME.

Air, water and feed are the great essentials of life. A man may go for days without food and for hours without water but deprive him of air for a few minutes and he ceases to live.

The state and the country alike exercise some supervision of the food and water supply of the people, but the air is "free" to all, and it is left to each one to regulate the quantity and quality of her home. Unfortunately, air laden with the foulest and most poisonous substances can be inhaled without immediate knowledge of the conditions, but the effects are seen later in headache, drowsiness and other warning symptoms which, in the case of habitually unventilated dwellings results in deficient nutrition, loss of vigor of body and mind and of the power to resist disease.

We reject dirty food for our stomach while using dirty air for our lungs, organs far more delicately constructed than the digestive apparatus and needing careful consideration if we would have the best health and strength.

Go into the large majority of living and sleeping rooms in city or country, especially in winter, and you will find a reason for the spread of the white plague which is slaying thousands of our young people all over the land.

Fresh air, then, is a law of our well-being. The average adult contaminates about five thousand cubic inches of air with every breath, and in ordinary resr piration an adult abstracts sixteen cubic feet of oxygen from the atmosphere every twenty-four hours, and adds to it fourteen cubic feet of carbonic acid gas in the same time. Nearly one-third of the excretions of the body are eliminated from the lungs and another large proportion through the skin.

In the brief space I have at my command, I can only suggest methods of meeting this demaind of our nature for fresh air by means of ventilation and out door life, methods with which you are probably familiar.

At once we are confronted with the obstacle of perfectly ventilating a house. Economic considerations frequently lead householders to save fuel at the expense of health; again, drafts from open windows are objectionable; also, many persons accustom themselves to an overheated room and catch cold if fresh air is admitted while sitting at work. Science and invention are coming to our aid to overcome the first two objections and the last can and will be overcome by the exercise of will power and the desire to be well. Public opinion is coming to favor open windows in sleeping apartments and the sleeping porch or tent has ceased to be a fad; the arrangements for absolute comfort of body while enjoying fresh, pure air for the lungs has been reduced to a science along these lines.

MEAT CURING.

For probably ten years we have been using a very satisfactory method of curing our hams and shoulders, which can be used for side meat as well. Until we discovered this method we went through the time-honored method of packing in a barrel of brine, good substantial stuff, which was strong enough for self-support. Now the brine barrel is dethroned at this house.

We all have our regular ways of butchering, killing hogs, cleaning, handling, etc., which are really not so important, since the results of poor methods here last only till the butchering is done, while improper curing is evident as long as the meat lasts.

As soon as the hams, shoulders and side pieces are cut up and cool, we go at the sugar cure. This usually is two or three days after killing, owing to getting sausage and lard taken care of, and necessary other work and cleaning up after butchering is out of the way.

The Sugar Cure.—Mix together one gallon of clean salt, about one pint of brown sugar, and not over a half cup of pepper. We use no saltpeter. Thoroughly mix these ingredients together, and apply by rubbing in by hand. Rub one-half of this mixture into every part of the meat possible, the rind side as well as the other parts where there is no rind. Better have the sugar, salt and pepper in a dish or pan large enough to hold one shoulder or a ham at one time, and so put the meat into the sugar cure rather than the sugar cure onto the meat.

After you have rubbed it in thoroughly, place the meat in a clean, cool place, and leave for a week or more before applying the second or the last amount. It is better not to allow the hams and shoulders to freeze before applying this mixture. Some of our neighbors tried this way of curing except that they added saltpeter, and they did not like it. The reason, I believe, was due to the saltpeter, for since they have used the mixture as given above, they like it, and find it a great advantage over the brine method. It takes some of us a long time to learn; for 20 years the brine barrel was as much a part of our housekeeping equipment as was a coal oil barrel.

After letting the meat lie thus seasoning for several weeks, depending on whether frozen much or not, it is transferred to the smoke-house, where its final curing is given. In this connection, let me say that we believe in new-fangled notions when there is any reason in them, yet recently I read of a farmer turning a clean barrel upside down over a smoke and smoking it with several layers of smoke, then placing the meat inside of this keg, covering it with a weak brine, thus getting smoked meat in less time, besides a more thorough job. Do you think it would work? I don't. Yet, I don't know.

USES FLOUR ON GASOLINE FIRE.

Editor Household Department:—I noticed in your last issue an article in regard to the use of gasoline. Now there is no fire more easily put out than gasoline if you know what to use. If you will try common flour, and every household has some on hand, you will find that it will smother the fire very quickly, as I know from experience.—A Subscriber.

HOME QUERIES.

Will someone please send a recipe for making home-made graham crackers?—Mrs. A. M. H.

Editor Household Department:—Do you have patterns for cross-stitch. Please answer through your paper.—Mrs. W. F.

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.

No. 5412, Ladies' Shirt-Waist, with Under-Arm Gore. Cut in 6 sizes, 32 to 42 inches bust measure. Size 36 requires 2⅝ yards of 36-inch material. Price, 10 cents.

No. 5194, Ladies' Dressing Sack. Seven sizes, 32 to 44 inches bust measure. Size 36 requires 2⅝ yards of 36-inch material; 2½ yards of ribbon. Price, 10 cents.

No. 5414, Ladies' Eight-Gored Skirt. Cut in 5 sizes, 22 to 30 inches waist measure. Size 24 measures 4 yards around lower edge and requires 6 yards of 36-inch material. Price, 10 cents.

No. 5395, Girls' Dress, with High or Low Neck. Cut in sizes 6, 8, 10 and 12 years. Age 8 requires 2⅞ yards of 36-inch material. Price, 10 cents.

No. 3209, Boys' Sailor Suit. Sizes 4 and 6 without a fly, 8 and 10 with a fly. Four sizes, 4 to 10 years. For 8 years it requires 2⅜ yards 54 inches wide. Price, 10 cents.

If you wish to mend holes or rents in woolen goods and have no material to match from which to draw thread, get a half yard of wool skirt braid the same color and draw threads from this. Press under damp cloth or paper.—Mrs. A. D. P.

On Baking Day

Utensils Quickly Cleaned and Cleared away with

Old Dutch Cleanser

A dash of Old Dutch Cleanser on a damp cloth quickly removes the caked flour from the rolling-pin and the bread-board, cuts away the burnt-in crusts on the baking-pans.

Many other uses and full directions on large Sifter-Can 10c

Takes but a minute to run that Seam on the FRANKLIN Sewing Machine

And it's a joy to run it up, too. For no matter what the fabric is—from the daintiest dimity to the thickest of corduroys—the Franklin runs so smoothly—so freely—so easily that there's scarcely *any* effort.

It's the easiest running machine you ever imagined—ball-bearing and so well-balanced and simple in construction that you can sew the live-long day in *ease*—with never a trace of a backache.

And then, there are endless improvements that make sewing on the Franklin a veritable delight. For example, the arm is high—you can sew on the bulkiest goods. You get the same straight, even and elastic stitch that never rips, no matter what the sewing is. It's self-threading up to the eye of the needle. There's the extra big bobbin—automatic bobbin-winder—the self-setting needle and the automatic tension release—the automatic head-lift and the roomy drawers. Then, the belt is on the outside of the wheel—it comes off and goes on easily. And then, best of all, the Franklin is the simplest machine you ever used—nothing complicated—you can run it perfectly without a personal instructor, and do all kinds of sewing—hemming, ruffling, tucking, shirring, binding, etc.

$18.45 for a $65.00 Sewing Machine

But although the Franklin is easily the finest sewing machine that you can buy, in price it is far below any other machine of its quality. The identical machine—with the exception of a number of improvements we have made—is sold everywhere by dealers and agents for $65—yet our price is $18.45. Think of that—a $65 sewing machine, guaranteed for 20 years, for $18.45. Write for *free* book today and save from $20 to $45 on your sewing machine.

Get This FREE Book

But we have written a book that tells of the Franklin's many conveniences in detail—illustrates in colors the many handsome hand-rubbed finish styles of cabinets—tells of our iron-clad 20-year guarantee—and our 3-months free trial offer. It's a book that you ought to have if you ever expect to put a dollar into a machine, for it not only tells of the Franklin, one of the finest sewing machines made, but also of our Minnesota sewing machines, ranging as low in price as $5.95. This book is *free*—write for it *today*. Just a postal saying "Mail me your Sewing Machine Book"—and the book comes *free*. Address

Sears, Roebuck & Co., Dept. 624. Chicago, Ill.

CRESCENT SMOKE HOUSE

Portable, Galvanized, Rust Proof—Fire Proof

Clean, sanitary and durable. Many farmers use it also for poultry house, grain bin, milk house, storage house, etc., etc. Handiest thing on the farm. You *need* one. Write now for

Big Folder FREE

Tells how strong and substantial it's made. Can be carried anywhere—set up or taken down in less than 5 minutes. Get *all* the interesting facts

Wheeling Corrugating Co., 211 N. Clinton St., Chicago, Ill.

Don't Wear a Truss

FREE

STUART'S PLAS-TR-PADS are different from the truss, being medicine applicators made self-adhesive purposely to hold the parts securely in place. No straps, buckles or springs—cannot slip, so cannot chafe or compress against the pubic bone. The most obstinate cases cured. Thousands have successfully treated themselves at home without hindrance from work. Soft as velvet—easy to apply—inexpensive. Awarded Gold Medal. Process of recovery is natural, so no further use for truss. We prove what we say by sending you Trial of Plapao absolutely FREE. Write TODAY.

TRIAL OF PLAPAO

Address—PLAPAO LABORATORIES, Block 72 St. Louis, Mo.

(Continued from page 184).

various departments of work at the agricultural college. A similar review will also be undertaken at Ann Arbor and Houghton, that the work of these three state institutions might be harmonized and that some system of cohesion between them may be formulated.

A number of vessels reported the unusual phenomenon of water boiling in the Gulf of Mexico about 240 miles south of the Texan coast. It is believed by the observers that some volcanic disturbance at the bottom of the Gulf at this point is causing the peculiar action of the water. The sea is filled with dead fish.

Water has been turned into the dam surrounding the wreck of the old battleship Maine and the hull has now raised free of the mud into which she settled since the explosion 14 years ago. She will remain secure inside the dam until orders are received from Washington for moving her out.

Sunday about 40 pulpits in the city of Detroit were occupied by speakers who are working in the interests of the movement to reduce the number of saloons in the state.

The 62 miners entombed in the Bunker Hill mine at Sutter Creek, Cal., by a cave-in, were all rescued uninjured.

Orders have been issued to rush work on the fortress to be built on Flamenco Island, which guards the Pacific entrance to the Panama canal.

Property valued at $129,600 was destroyed by fire Monday night at 251 Jefferson avenue, Detroit.

Foreign.

Conferences between the republicans and conservatives of China are still being held with the purpose of arriving at an agreement for the establishing of a republic. Gradually differences are being harmonized into a general scheme, which, it is stated by leading Chinamen, will astonish the world by the way their ancient civilization will accept its provisions and begin another great epoch of their national existence. It is now believed that the capital will remain at Pekin and that the demands of the republicans will not all be acceded, although they are having a controlling interest in the new regime. Their magniminity is the assuring feature in the problem and argues for the loyalty of the Chinese to their country and traditions, and bespeaks harmony and prosperity for the future.

The Canadian government has offered to open negotiations for a reciprocity treaty with Australia.

Strikes which were on among the dockmen at Manchester, Eng., and Glasgow, Scotland, have been settled.

The British and German governments are considering a proposal for a world-wide entente looking toward universal peace. For the past few days the war secretary of England has been in Berlin considering provisions of such an agreement.

Twelve men are known to have been killed and five injured by an explosion of dynamite near Fort Francis, Ont., where a construction gang was at work on a railroad bed.

Severe fighting occurred at San Domingo, early this week between government troops and the revolutionary forces. Gen. Toridio was killed. The rebels remained in possession of the field.

UPPER PENINSULA BOOSTERS MEET.

The annual meeting of the Upper Peninsula Development Bureau was held at Marquette on February 6, with a large number of members present from the several counties of the Upper Peninsula who are interested in the work. In his annual address, President T. A. Green, reviewed the work of the association for the past year. He recounted the difficulty which was experienced during the first year's work in convincing people that the work of the bureau was not to boost any one town or county, railroad or interest, but the welfare of the peninsula as a whole. He declared prospects bright for the ensuing year and urged the formation of county development bureaus throughout the peninsula. Resolutions were passed at the meeting favoring the organization of a boys' and girls' auxiliary club with a membership fee of 25 cents per year, the proceeds to go toward boys' and girls' corn growing contests throughout the peninsula. Another resolution asked the State Board of Agriculture to expend a larger share of their appropriation in the extension of work of the Upper Peninsula Experiment Station at Chatham. Officers were elected for the ensuing year as follows:

President, Thornton A. Green, Ontonagon; vice-president, Patrick Flanagan, Sagola; second vice-president, A. T. Roberts, Marquette; secretary, J. J. McNamara, Houghton; treasurer, H. W. Reade, Escanaba.

Several directors were also elected from each county. The work of this bureau is similar in nature to that of the two similar organizations in the lower peninsula, and the agriculture of the upper peninsula will undoubtedly be rapidly developed through its effective work.

CROP AND MARKET NOTES.

Eaton Co., Feb. 5.—Zero weather, and 26 below, but a few sunny days. Excellent sleighing, though the snow is not deep enough to prevent getting about to draw wood, and do such work. The farmer who does not get his wood cut and hauled before spring will have only self to blame. Beans, $2.10@2.15; wheat, 93c; rye, 90c; oats, 48c; corn, 65c; potatoes, 75@85c; butter, 26c; eggs, 24@30c; hogs, $5@5.75; sheep, $2.50@3; lambs, $4@6.50; calves, $5@7.50; cattle, $3@5.50. Hay is worth good money now, a local retailer offered a farmer $22 per ton for a few tons but did not get it. Buyers paying about $18 for good timothy hay.

Newaygo Co., Feb. 5.—January has been a solid cold month all through, as low as 16 below zero. It has been hard on stock of all kinds and has certainly taken lots of feed, which is mighty scarce with some farmers. A good many are buying high-priced feed, which surely cuts down the profits. There is not much profit in feeding ground corn at $1.50 per cwt. Butter-fat has been a good price but is falling off in price 2@3c. Prices paid by local dealers are: Potatoes, 75c; wheat, 85c; oats, 48c; shelled corn, 65c; rye, 85c; eggs, 28c; butter, 28c; live pork, 5½c; dressed, 7c; beef, 2@3c; sheep, 2½@3½c; veal, 3@5c; fowls and spring chickens, 10c; butter-fat, 37c.

Sanilac Co., Feb. 9.—The old saying, "When the days begin to lengthen, the cold begins to strengthen," has proved more than true this winter, every day just the same. Clover and wheat are pretty well protected with snow, perhaps six inches on the level. We have not had any bad blizzards this winter and the first snow that fell is with us yet. Stock, as a rule, are not feeding very well. Bean pods were almost a total failpre and with perhaps 50 per cent of the corn fodder still in the field the facts are one is compelled to feed considerable more grain to balance up the ration, the roughage is so deficient in its milk nutrition. Farmers in general are feeling rather cheerful, not much doing but the chores. Coal famine necessitates more wood cutting than usual. Horses seem to be a little more plentiful than usual and are not quite so high in price. Clover seed rather high and scarce and will be more so when spring comes, as farmers will be active buyers. Market quotations: Wheat, 92@94c; oats, 48c; rye, 88c; hay, $15@17 per ton; butter, creamery, 36c; dairy, 25c; eggs, 26c.

Ottawa Co., Feb. 9.—It was the opinion of many that because of so much rain during the fall, there would be a light fall of snow during the winter. Since the beginning of January, snow has been falling very frequently, until now it is about 20 inches deep in this section and the weather has been extremely cold with the prospect of still continuing so. Everybody is complaining about the extra fuel and feed that is being consumed. The roads drift so badly nearly every day that it makes it difficult for teams to travel. Quite a number of farmers are busy hauling gravel, some for their own use for cement work, such as barn and stable floors, silos, etc. Others are hauling gravel on the roads and a number of teams are drawing gravel for the new canning factory which is to be built in Coopersville this spring. It is said it will require over 1,000 yards of gravel for this. It is expected this canning factory will be a great help to the village and surrounding country. The San Jose scale has made its appearance on all orchards in this section so there will have to be more spraying done than ever before.

Branch Co., Feb. 1.—Fine winter weather following the extreme cold weather of Jan. 1-20. Sleighing fine and much grain going into market at following prices: Wheat, 94c; oats, 48c; corn, 63c; clover seed, $11; buckwheat, $1.60 per cwt.; butter, 28c; eggs, 28c; hay, $20. Ice houses filled with ice from 14 to 18 inches thick. Much unfinished stock is being placed on the market owing to scarcity of feed. Live stock comparatively free from disease, except horses, which are suffering much from distemper.

Shiawassee Co., Feb. 4.—Low temperature prevails. Sleighing excellent. Farmers busy doing chores and hauling out manure. Wood-cutting at a standstill on account of too much snow in the wood lots. A number of farmers are selling off their timber that is ready to harvest and eight teams are busy hauling the logs to a nearby mill. From $14 to $20 per thousand is being paid for choice timber. Winter crops of all kinds are going through the season in excellent condition the land being well covered with snow. Farmers are feeling rather blue over the bean crop. Thousands of bushels will be fed to hogs in this locality. Farmers are very much dissatisfied with the present method of marketing beans, believing they are entitled to the cull beans after paying 7½c for picking.

Ohio.

Wayne Co., Feb. 6.—January was a very cold month with the mercury standing at zero and below, having reached 24 degrees below zero on the 13th. Snowing a little every day but not enough for sleighing during the month of January and February from the start has been cold and stormy. Snowing every day a little with the mercury standing close to zero, and occasionally a little below, with fair sleighing at this writing. Markets: Hay, $19 per ton; wheat, 90c; oats, 45c; clover seed, $14 per bu; pork, dressed, $8 per cwt; beef, $9, dressed; butter, 35c; eggs, 32c; poultry, alive, 10c.

Lucas Co.—The weather continues to be cold, the mercury hovers close to zero mark. There is about six inches of snow on the level fields, a good protection to wheat, which looked good before the snow came. The ground is frozen very deep and apples and potatoes which were buried are frozen, also some of the cellars which were considered frost-proof. Potatoes are $1.50 per bu; apples, $1.50; oats, 50c; wheat, 95c; rye, 90c; barley, $1.80 per cwt; hay, $24 per ton on the Toledo market; straw, $12; live hogs, $5.90; eggs, 32c; butter, 35c; chickens, 10c; corn 90c per cwt. On account of the high price of all kinds of grain farmers are marketing their hogs, which will have a tendency to make hogs high next summer.

MICHIGAN CROP REPORT.

Wheat.—In reply to the question, "Has wheat during January suffered injury from any cause?" 77 correspondents in the southern counties answer "yes" and 243 "no;" in the central counties 11 answer "yes" and 144 "no;" in the northern counties 2 answer "yes" and 124 "no," and in the upper peninsula 1 answers "yes" and 30 "no."

Snow protected wheat in the southern counties 27 days; in the central counties 29; in the northern counties 30; in the upper peninsula 31 and in the state 28 days.

The average depth of snow on the 15th in the southern counties was 5.20 inches; in the central counties 6.70; in the northern counties 11.85; in the upper peninsula 17.05, and in the state 7.73 inches.

On the 31st the average depth in the southern counties was 7.48; in the central counties 8.88; in the northern counties 15.15; in the upper peninsula 22.10, and in the state 10.21 inches.

The total number of bushels of wheat marketed by farmers in January at 108 flouring mills was 294,976 and at 112 elevators and grain dealers 350,694, or a total of 645,670 bushels. Of this amount 484,869 bushels were marketed in the southern four tiers of counties; 138,690 in the central counties and 22,111 in the northern counties and upper peninsula. The estimated total number of bushels of wheat marketed in the six months, August-January, is 8,500,000. Sixty-four mills, elevators and grain dealers report no wheat marketed in January. The average condition of live stock in the state is reported as follows, comparison being with stock in good, healthy and thrifty condition: Horses and swine 95; cattle 93, and sheep 94.

CATALOG NOTICES.

The 1912 catalog of the Seager Engine Works, Lansing, Mich., is a handsomely printed, 50-page booklet, fully illustrating and describing the famous Olds gasoline engine manufactured by this company. The engine is not only described as a whole, but in every detail, and the various kinds and sizes of engines manufactured by this company for many different purposes are also shown. The list includes engines for all kinds of work which gasoline power can be made to perform upon the farm.

"Conserve the Moisture" is the title of a booklet sent upon request by The Dunham Company, of Berea, Ohio. This booklet, as stated on the title page, is "A plain, practical talk by a man who knows." It tells how and when to use land rollers and various types of pulverizers for best results in the conservation of needed soil moisture, which means increased yields of our staple crops. Write the Dunham Company for a copy of this booklet, mentioning the Michigan Farmer, and secure this interesting and profitable information.

L. L. May & Co., St. Paul, Minn., publish a handsome 1912 catalog of northern grown seeds, plants, bulbs, and fruits. This is a book of 114 pages, fully describing and illustrating their complete line of seeds and nursery stock of all kinds including ornamental plants and shrubs as well as bush and small fruits and farm seeds of all kinds.

Peerless Fence. "The Symbol of the Steel Age," manufactured by the Peerless Wire Fence Co., of Adrian, Mich., is illustrated and described in a 72-page catalog, sent upon request by this company. In it many sizes, styles and weights of farm fencing are illustrated and described, as well as ornamental fencing, steel gates, tools and fencing accessories, etc.

R. H. Shumway's catalog for 1912 contains 60 large pages, illustrating and describing the complete line of farm seeds offered. It will be sent upon application to readers of this paper to R. H. Shumway, Rockford, Ill.

"The Novo Engine, its Features, One of its Uses and what Some Users Say Regarding It," is the title of a handsome illustrated booklet, published by the Novo Engine Company, of Lansing, Mich. This illustrated booklet describing the Novo gasoline engine will be sent to readers of this paper upon request by the above firm.

The Eureka Mower Co., of Utica, N. Y., is sending out a handsome 40-page illustrated catalog describing a complete line of farm implements, including potato planters, corn planters, weeders, seeders, harrows, cultivators and other machinery in addition to their center draft mower. This catalog of over 40 specialties manufactured by this firm will be sent upon request. Ask for catalog G.

The Iowa Seed Co., Des Moines, Iowa, are now sending out their forty-seventh annual seed catalog of farm, garden and flower seeds, shrubs, plants, etc. It is an illustrated catalog of 150 pages, listing a very complete line of these goods.

Johnston Farm Machinery, manufactured by the Johnston Harvester Co., of Batavia, N. Y., is fully illustrated and described in a handsome 40-page catalog sent upon request to Michigan Farmer readers. In it are described the Johnston line of harvesting machinery, including corn and grain binders, mowers, reapers, disk harrows, hay rakes and tedders, hay loaders, harrows, rollers, etc.

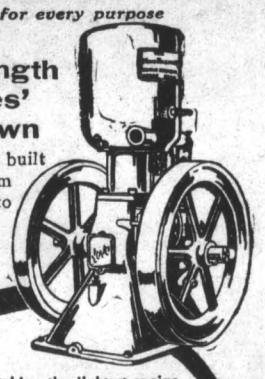
The Marlin Gun Catalog, just issued by the Marlin Firearms Co., 127 Willis street, New Haven, Conn., is a comprehensive catalog, radically different from others of this line. In addition to giving full information regarding the guns manufactured by this company, it is also a practical treatise on gun construction and illustrates and describes the many standard styles of cartridges adapted to the Marlin line of guns. Several new models are listed in this catalog for the first time.

Prof. Jesse Beery, Pleasant Hill, Ohio, well known the country over as the "King of horse tamers and trainers," has published an interesting pamphlet, explaining his system of teaching the Beery method by correspondence. Prof. Beery declares that a knowledge of the simple principles of his system enables any man to master vicious horses, cure bad horse habits and break green colts with ease. A copy of this book will be sent free upon request to Michigan Farmer readers.

"The engine for every purpose

Save Your Wife's Strength Your Horses' and Your Own

The Novo Engine is built for all farm work from running separators to operating feed mill and ensilage cutters.



Readily portable; the lightest engine for power developed—1 to 10 H.P. Compact, simple, entirely self-contained.

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It's easy to understand, start and run. Cooling system guaranteed against frost damage.

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Write as to best place for settlement, settlers' low railway rates, pamphlet "Last Best West," and other information, to Supt. of Immigration, Ottawa, Can., or to Can. Gov. Agt.

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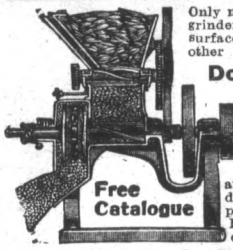

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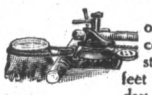

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JOB WANTED—single man, age 26, wants place as manager or foreman on farm. Excellent references. A. GAINDER, Cressey, Mich.

PRACTICAL SCIENCE.

IS "ONE MAN'S MEAT ANOTHER MAN'S POISON?"

Is the miller of today grinding the wheat so fine that it is almost impossible to make good bread out of the flour, or are our bread-makers losing the fine art? Also, is the fine flour responsible for the increasing amount of appendicitis, stomach, kidney and kindred ailments, as many physicians infer? Why does the miller grind flour, corn meal, buckwheat, etc., so fine that the life is ground out of it? Corn meal, when so ground, becomes a paste when made into mush and "johnny-cake," is soggy instead of light as when made of coarse meal. Every housewife made good bread out of winter wheat flour 25 or 30 years ago, and today she must have spring wheat flour and poorer bread. Is there any difference between our winter wheat of today and that which we grew 30 years ago? Could we not have as good bread from winter wheat flour today if the old process were used in grinding? Does the miller make enough more flour from the wheat by this fine grinding to pay him for jeopardizing the health of the consumer? What has become of our old-time middlings? Does the miller put them into the new "patent" flour? Today we get ground bran for middlings.

Bay Co. F. C. HORN.

In the above question a fact is brought into prominence which has caused a division among scientists for a number of years. The effect of the high milling of flour has been made the subject of an extensive investigation by the United States government and by several of the state experiment stations. Members of the medical fraternity have also been divided on the question of the effect on health of the modern highly milled foods. Around this condition has developed the quite successful exploitation of specially prepared breakfast foods, which demonstrates simply that the problem has taken hold of the rank and file of the public.

Perhaps unfortunately for the promulgation of an absolutely systematic doctrine, the human race seems bound by individual idiosyncrasies. What may seem with one individual may disagree with another, and a diet carefully regulated to the needs of one person may be entirely incompatible with another. Buckwheat flour is a good example of such a food. Some persons can scarcely touch buckwheat cakes delightfully suited to their particular needs. Strawberies, apples, various fruits, and even milk and meat are included in this list; in fact, there is not an article of food which is not included in the articles against which some individual because of some peculiarity of constitution specifically rebels against. It is thus common knowledge that "what is one man's meat is another man's poison," and the statement is literally true.

This condition in no way argues against the use of meat and milk as general articles of food. Neither does it proclaim strawberries, apples, etc., unfit for food. The individual with the idiosyncrasy along any one of these lines knows by experience against what article of food his system rebels, and thus, clothed with knowledge in this respect he simply drops that food from his daily diet.

The great majority of individuals may, without any symptoms of distress, eat milk, meat, fruits, flour, etc. The idiocratic individual must adapt himself to his own needs without attempting to change the whole race to suit his own idiosyncrasy.

The Composition of Wheat.

Now let us see what the miller has done with flour, which is one of our staple food products, and whether he has improved its suitability according to the needs of the greatest number, or idiocratically to suit individual needs and perhaps individual idiosyncrasies. A study of the composition of the grain, the wheat, discloses some interesting facts regarding its composition. Associated with bran or the outer covering of the wheat is a considerable quantity of fibrous or cellulose matter, and at the same time a large quantity of gluten or the protein constituent of the wheat. The flour portion, or the portion that is used principally as high-grade flour is today devoid of any great quantities of fibre or cellulose, and at the same time is very much lower in its content of mineral matter than is the average of the whole wheat berry. Without doubt, modern flour has arisen to satisfy a popular demand for white flour; in fact, in later years, to satisfy this demand the miller has resorted to artificial means of whitening flour. At this point, we should say, however, that the introduction of chemical processes for the whitening or bleaching of flour is specifically prohibited under the ruling adopted by the Board of Food and Drug Inspection. A very large percentage of the population of the country consists of persons who live more or less sedentary lives, in which, of course, vigorous muscular exertion does not play any important part. The anatomy of the human individual is somewhat differently adjusted than is that of our domestic animals. With the domestic animal's food rather rich in the roughage element or the fibrous, cellulose constituents, is imperative to supplement the activity of the digestive organs and to stimulate and enccurage the onward movement of the products of the alimentary canal, which onward movement is conducive to health. With an individual performing severe muscular work, by means of which the digestive organs are undergoing some considerable manipulation due to walking, running, working, generally exercising, it is unnecessary to give great consideration to the question of the concentration of the food. To a person leading a sedentary life, however, without much muscular exertion, without much exercise, some provision should be made in the daily diet for the introduction of just those constituents in the food which we recognize is necessary in the food of domestic animals to prevent the delay and subsequent fermentation with its accompanying auto intoxication in the alimentary canal. It seems desirable that in all standard articles of diet, such as wheat bread, this factor should be provided for, otherwise the lack of system regarding our food supply will insure at best but sporadic attempts at this scientific adjustment.

Modern Flour.

Modern patent flour contains much less fibre, which means that the bran and middlings are more completely separated from it than was possible under any of the old processes of milling. At the same time, modern patent flour contains but a very small percentage of the mineral ingredients. Both the fibre matter and the mineral matter seems to be demanded in the diet of the ordinary individual, consequently, modern high-grade patent flour does not satisfy the general needs of the public. We are inclined to believe that, so far as workmanship is concerned and palatability perhaps, and the other scientific features of the bread, that the manner in which it is manufactured at the present time is superior to that of twenty or twenty-five years ago. The main difference, however, is with the product with which the baker has to work Whole wheat bread contains the fibre and the mineral matter, as was formerly found in the flour twenty-five or thirty years ago, and an entirely different product from the high-grade patent flour of today. We are conscious that the modern high-grade patent flour is perhaps more scientifically produced than was the flour of twenty-five years ago. We are sure that the high-grade patent flour is more completely digestible, and bread made from high-grade patent flour is more completely digestible than was the bread made from the flour produced under the old process. This naturally is so because of the fact that it contains less mineral matter and less fibre, which, as may be readily understood, contributes to the digestible residues in food. The United States government office of experiment stations, a number of years ago, conducted a series of digestive experiments at the Minnesota Experiment Station under the direction of Prof. Harry Snyder, which experiments pointed conclusively to the fact that bread made from high-grade patent flour was more completely digestible than bread made from whole wheat flour of a generation ago. No attempt was made, however, in these experiments to determine the effect on the health of the individual, of this bread made from high-grade patent flour compared with bread made from whole wheat flour, and thus the very point most vital to the human race was entirely ignored in this series of experiments. The number of cases of dyspepsia and persons who have developed faulty digestions, with an inability to eat bread made from high-grade patent flour has been so great as to indicate a general lack of adaptability of the flour to human needs, rather than as indicating an idiosyncrasy of a comparatively few individuals in this respect; and we have, heretofore, stated that we consider high-grade patent flour to be flour adapted to an idiocratic person, rather than suited to the needs of the public in general. These statements must not be construed as indicating an inferiority in patent flour, but rather a lack of appreciation on the part of the miller of the real needs for which a flour should be manufactured. Neither is it the fault of the miller, because he is simply catering to a public demand.

It is possible that winter wheat ground by the modern process is less adaptable for bread-making purposes than was the winter wheat ground under the old system. It is nevertheless true, that spring wheat patent flour as manufactured today is superior for bread-making purposes, to the patent flour made from winter wheat. The character of the gluten in spring wheat is superior for bread-making purposes to the gluten in winter wheat. On the other hand, for such purposes as pastry, making of cakes, etc., where a short gluten is desirable, winter wheat flour is by far superior to spring wheat. It is common knowledge to the patrons of some hotels who use exclusively spring wheat flour that, while no fault can be raised as to the quality of the bread, at the same time the pastry is far below that where winter wheat flour is used in its manufacture.

Recapitulation.

In conclusion we desire to make these points:

1. Good bread is made out of the high-grade patent flour, but it is deficient in fibre and in mineral matter simply because the flour from which it was made does not contain more of these materials.

2. The consumption of great quantities of high-grade patent flour bread is not the cuse of appendicitis, stomach and kidney troubles, etc., although in all probability the consumption instead of whole wheat bread would bring about a corrected digestive conditions which would be less conducive to the development of such ailments.

3. We think the modern housewife is as competent and does make as good bread as was made twenty-five or thirty years ago.

4. The only difference between winter wheat flour at the present time and winter wheat flour years ago, is that, as stated above, the present day flour is more completely milled and contains less of the bran, and of the mineral matter as a consequence.

5. The middlings have not gone into the patent flour; on the contrary, more of the middlings and particles of bran have been taken out of the patent flour than was done a generation ago.

6. High-grade patent flour today is a more perfectly manufactured product than that manufactured years ago. It, however, is not as suitable to the needs of the people today as was the flour and the bread manufactured formerly.

FLOYD W. ROBISON.

SOURCES OF PHOSPHORIC ACID AND POTASH IN FERTILIZERS.

(Continued from last week).

Acid Phosphate.

The phosphoric acid in acid phosphate is quite readily available, due to the solvent action of the sulphuric acid. The lime of the phosphate rock has been changed to sulphate of lime, or gypsum, in the treatment.

Super Phosphate.

Another product and common source of phosphoric acid is known as super phosphate. In varying manufacturing processes a product called bone black, or sometimes, animal charcoal, is used in large quantities. One of the main uses for such a product is in the refining of granulated sugar. The by-product from the refining of sugar, is now treated with sulphuric acid as is the case with phosphate rock and this dissolved bone black is commonly called super phosphate. This contains upwards of 15 per cent of phosphoric acid.

Muriate of Potash.

The chief source of potash in commercial fertilizers at the present time is the muriate of potash, or potassium chloride (KCl). This product is one of the direct products mined chiefly in the Stassfurt salt mines of Germany, and the principal output is controlled by the German Kali Company. Muriate of potash contains about 50 per cent of actual potash, that is, K2O.

Sulphate of Potash.

Associated with the muriate of potash is the sulphate of potash, K2SO4 which is also controlled by this same company. Sulphate of potash contains from about 48 to 50 per cent of actual potash (K2O).

(Concluded next week).

Drain Your Land for 4 cents a Rod

We guarantee this horse power Cyclone Tile Ditching Machine cuts tile ditch, 10 inches 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 soil. Read our free book giving information, from U.S. Govt. authorities on *Drainage*

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No. 9 Edge-drop Planters, Model B Disc Harrow—single and double—are the world's best sellers. Gold medal winners at every exposition. *Get Quality and service—John Deere Dealers Give Both.*

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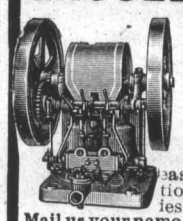

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Mail us your name and address on a post card, today, giving us the size of engine you need and the use you will put it to. We make 1½ to 5½ h.p. single cylinder engines; 6 to 20 h.p. two cylinder; 30 to 50 h. p. four cylinder. Quick action on your part is demanded to get this free offer. Don't buy or order an engine until you investigate the TEMPLE MAKE.

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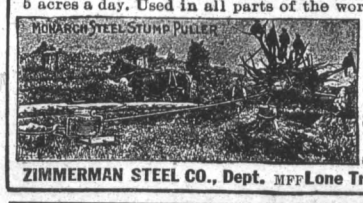
Pulls Stumps Seven Feet Thick

The mighty Monarch is made of highest grade Bessemer Steel in our own big factory. Outwears three ordinary pullers. Guaranteed 700 h. p. and against breakage. **Only stump puller in the world equipped with genuine "Hercules Red Strand" Steel Wire Rope** the kind used by U. S. Government. Clears 1 to 5 acres a day. Used in all parts of the world.



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

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

THE MOTTO-CARDS AND THE BOYS AND GIRLS.

The motto-cards, provided for by resolution, at the recent annual meeting of the State Association of Farmers' Clubs, one of which is reproduced in reduced size on this page, have been printed and sent to the superintendent of public instruction, who has kindly undertaken to distribute them to the school commissioners of the various counties, and he is now sending them out, with a letter to each commissioner requesting that one of the motto-cards be placed in each of the schoolrooms in his county.

It is hoped that each one of the school commissioners will feel as deep an interest in this matter as does Commissioner T. H. Townsend, of this county, (Clinton), who has sent one of the motto-cards to each one of his 180 teachers with an earnest request, in which he says: "I'm going to ask you to give this motto-card a fitting place on the wall of your schoolroom in this form for the present. Later on, provision will be made for framing the same. In the meantime will you put forth your best efforts to see

It Pays, Always, to DO RIGHT

AND

It Never Pays to do Wrong

This motto is furnished by the Michigan State Association of Farmers' Clubs and is placed in the school rooms of the state with the co-operation of the Superintendent of Public Instruction and the County School Commissioners. Please post conspicuously in your school room.

that it is kept clean and in nowise defaced? Through the right sort of reference to it, on your part, let it teach the lesson that the motto signifies: "Kindly do your part to help it become a living principle in the lives of the boys and girls under your charge. It's a very fitting New Year's Message."

It may be possible that some one of the commissioners will lack proper interest in this matter and neglect to send a motto-card to each one of the teachers in his county. Should this be the case, it is hoped that the teachers, parents, Club members and others, will look after this matter and see that one of the motto-cards is placed in each schoolroom.

This may seem, to some, to be of small account, but when considered in the light of placing these true words, "It pays, always, to do right and it never pays to do wrong," before the 700,000 boys and girls who gather daily in the public schools, and this in the years in which they are forming character, then who can tell the value of the results which are sure to come thereby, to these boys and girls who are soon to take our places and take up the duties and responsibilities of citizenship?

In this day of "graft" and "get-rich-quick" domination, it behooves every lover of his kind to do all within his power to save the boys and girls from menacing dangers.

J. T. DANIELLS.

CLUB DISCUSSIONS.

Have "Overflow" Meeting.—The Green Oak and Lyon Farmers' Club held their February meeting at the commodious and hospitable home of Mr. and Mrs. L. D. Lovewell, of South Lyon. Mr. and Mrs. Lovewell are very popular people and royal entertainers. There was an overflow meeting, 200 being present. After a bounteous dinner the meeting was called to order by the president. A very excellent program was rendered, consisting of select readings, recitations, instrumental and vocal music. The recitations were exceptionally fine. Rev. Sherman gave an excellent talk, his subject being "Conservation." Mr. D. Gage, of the Wixom Farmers' Club, was called to the floor. He said it gave him great pleasure to meet old friends and also to meet new ones. If we were to take out the economy of human affairs our friends, life would be a barren waste. He also spoke of the benefits of organization and co-operation, especially the work of the W. C. T. U. Mr. Lovewell, our host, gave a very feeling and interesting talk along the lines of the benefits to be derived from the Farmers' Clubs and kindred organizations. The question box came next. All voted we had a royal good time. —Mrs. R. D. Stephens, Cor. Sec. Pro Tem.

Discuss Poultry Topics.—The Salem Farmers' Club held its January meeting at the home of Mr. and Mrs. W. Geiger. A large number were present. After the usual bountiful dinner the program was opened with music by a choir of young ladies. Mr. W. Vanvorse read some interesting items on the poultry exhibit and laying contest held in St. Louis. Robert Ross, a member of Salem Club, reported 10,488 eggs from an average of 65 hens during 1911. At 20c per dozen this would give an income of $2.70 from each hen. Also, his flock are "just hens." Not pure-bred or any special breed. A recitation by Bruce Rorabacher and a reading by Mrs. G. H. Thompson were much enjoyed. President Thompson conducted a question drawer. "What effect will the present mortgage tax law have on taxes?" was answered by John Smith. "The mortgage tax law will reduce the valuation of property and increase taxes. "Shall we have an elevator at Salem?" The opinion prevailed that it would be a paying investment. New executive committee: Mr. and Mrs. I. Hamilton. and Mrs. W. Tate. Club will hold an institute in February.—Cor. Sec.

Elect New Officers.—The Ingham County Farmers' Club elected its officers at the December meeting and as usual with this Club kept nearly the same officers. President, Col. L. H. Ives; vice-president, Mrs. Joseph Jewett; recording secretary, Mrs. W. H. Taylor; corresponding secretary, Mrs. J. E. Tanswell; treasurer, E. C. Russell, who has had charge of the funds of this society for thirty years and whose strong box has never been empty. The program committee consists of directors, Mrs. W. L. Cheney, R. J. Robb and Mrs. J. W. Chapin, and the locating committee of directors Mrs. Alfred Allen, Messrs. W. A. Melton and M. Vaughn. As this Club was organized in January, 1872, it celebrated its fortieth anniversary by an all-day meeting at M. A. C., Jan. 13, a special car on the M. U. R. went from Mason direct to the college so there was no transfer in Lansing. On arrival at the college the members went direct to the agricultural building and were welcomed by Dean Shaw and after viewing the show of apples under the auspices of the Horticultural Club the men went to the various barns and the ladies to the women's building where they were shown by Dean Gilchrist and associate workers, the various things of interest. In the sewing room, where a machine was fitted with a motor, much fine work was shown. Girls draw their own patterns and some handsome dresses were on exhibition. The ladies also went to the laundry; the wood-work room, where they have practical experience in the use of the saw and hammer, as well as the gymnasium, dining-room, kitchen and parlor. As the dinner hour was near, the ladies went back to the agricultural building where President and Mrs. Snyder and several other members of the faculty and their wives joined the party and a hundred strong wended their way to one of the dining-rooms in the basement of Wells Hall and were served a good and substantial dinner. President Ives called the meeting to order and acted as toastmaster. The following persons spoke in turn. President Snyder, Judge G. W. Bristol who, with President Ives are the only two charter members still living; and Deans Bissell and Lyman. Mrs. W. L. Cheney gave a complete Club history that was much enjoyed. Judge Collingwood, R. J. Robb, H. M. Young, Dean Gilchristo, Prof. Jeffery also addressed the meeting, and the last speaker was Mrs. Ives who gave an original poem, "Milestone Number Forty." The day was one of pleasure and profit, the next meeting will be the second Saturday of February with Mr. and Mrs. Herman Willett at which time it is expected that the year-books will be ready for distribution. —Mrs. Tanswell, Cor. Sec.

GRANGE

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

CIVIC RIGHTEOUSNESS.

(Paper by F. B. Garratt, presented at a meeting of Calhoun Pomona Grange and published by request).

I am going to talk to you for a short time of civic righteousness, or the righteous citizen. If spiritual righteousness is necessary that we may be better prepared for the future life, then civic righteousness is just as necessary here, that we may live up to the requirements and possibilities of this life. Further, if you believe in Ingersoll's idea of one world at a time, then civic righteousness is more important than spiritual.

If I was asked to define civic righteousness, or to give an example of its working, I would point to the man or woman always ready to do their part in bringing about conditions that are for the betterment of the community as a whole and who are actuated by no selfish motive.

The person who, walking along the highway, kicks a loose stone out of the track has in him the germ of civic righteousness. He is doing something, not alone for his own benefit, but for the benefit of all persons using the road. A disinterested act, however trivial, at once stamps the doer as a person of possibilities that may be easily developed.

The righteous citizen has many duties to perform. First, to his family; second, to his community; third, those of the township, county and state. I have named them in the order of their importance. Good citizenship, like charity, begins at home. The home where kindness, forbearance and generosity prevail will be the breeding place of good citizenship. This is not invariably true, as good citizens have been developed amid mighty poor surroundings, but it is the rule. The adornment of the home, its surroundings, the people, and the upkeep of the farm should interest us all. Well painted buildings, neat dooryards, clean roadsides and good fences pay, not only by adding to the value of our homes, but far more in the satisfaction and pride we have in them. The place where dilapidation and neglect are everywhere apparent seldom shelters a good citizen.

It need not be a costly process, this beautifying the farm home. A few shrubs, some flowers, but mostly that spirit which makes one desire such things. If, in these days of rush and hurry, you cannot possibly find time to accomplish these things, then there is no better religion than in devoting an hour or two of your Sunday mornings to the task. But really there is hardly ever need for this. The farmer who does not waste and fool away time that would be sufficient to keep things tidy is so rare as to be almost a curiosity. It is not that we do not have the time, it is because we do not use to advantage the time we do have. I have a profound pity for the man or woman who is obsessed with their work, which, like an evil spirit has taken full possession of them. Like the swine of holy writ, they rush headlong into a sea of trouble. The interior of the house, and the conditions there prevailing, are not visible to the passer-by, but our ritual says, "A well ordered household is essential to a happy home, for without a happy home no farm can be a success."

This beautifying process should not be confined to the outside of the house, but rather should begin within and work out. The farmer should see to it that his wife has as many labor-saving devices in the house as he has outside, and if he does not see to it, let the wife take the job off his hands and see to it herself. Working at a disadvantage all through life, when a little money and ingenuity combined will prevent it, is a very foolish thing to do.

What are we on earth for, anyway? Does that question ever occur to you? Millions before us have come and gone, the teeming millions of today will all pass away, and unborn millions will follow in our wake. We are like atoms floating between two eternities. What are we here for? I cannot answer the question to anyone's satisfaction but my own, perhaps, but I believe we are here to make the best of ourselves, mentally, morally and socially. To do this our environment must be the best possible. You cannot gather figs from thistles, or raise a clean pig in a filthy yard. The generally accepted definition of civic righteousness, or civic pride, is "that spirit which makes a person take an interest in those things which are for the public welfare," such as roads, schools, organizations of different kinds, well kept cemeteries, and all of those things that are necessary to keep a community on the up grade.

The individual must be of some use to the institution itself, be willing to sacrifice something of his individual interest and time for the benefit of the order, for the good of the church, for the good of the school, and it is not sufficient that these institutions be built up merely as institutions. They are all means to an end.

People are to co-operate not merely for their individual good, not merely to build up an institution which gives them a chance to co-operate, but there is something still more—we must co-operate through these various enterprises for the good of everybody in the community.

In this building up of the community, in civic pride and co-operative effort, the school must play an important part. A few communities have churches, some have Granges, but all communities have schools.

Their very numbers make them natural leaders. Where we find one teacher who is alive to the situation, we find nine who are not. But as a little leaven leavens the whole lump, so will the good work done by the few incite others to effort, and in time the change will be general. Schools are being established all over the land which are planned on an entirely new basis, and which are designed by the teachers, and by the people who pay taxes, to do a vastly different thing for the community than the old-time school did. The teaching of agriculture itself in the schools is an evidence of this point of view. The time was when a majority of farmers themselves did not believe that agriculture could be made a part of the school curriculum. Today there is hardly a state in the union but which, under some auspices or other, or by some kind of legislation, is endeavoring to have agriculture made a part of our public school system.

The school officer or school patron shows his civic pride in always being ready to lend a helping hand. The church is often the principal factor in community uplift. I have in mind an instance where a community was revitalized and regenerated through the efforts of one man, and he the pastor of a country church. But it was not done by working for the church alone. The pastor studied the needs of the community and, by catering to all, achieved a wonderful success. Also in many instances the Grange is the leader in the good work. One of the objects of the Grange is to develop a better community life. I object to anyone going out into the country and insisting that the farmers should come to the village for their comforts and pleasures. I should like to see the life of the country above and beyond any village life. Isolation on the farm is a thing of the past; it is not necessary. What is needed more than anything else in the rural districts is an organization in which all can meet and mingle on a common level and upbuild agriculture. This will help solve the great problem of country life. We need more than domestic science and agricultural science in our schools; we need the community life in which fathers, mothers and all can take part with interest.

(Continued next week).

GRANGE GROWTH DURING LAST QUARTER OF 1911.

As noted in one of our October issues, the Grange year which closed with Sept. 30 last saw a greater growth in number of new Granges formed in the various states than has been seen in many years. The first quarter of the new Grange year, which began Oct. 1 and closed with the end of 1911, gives promise of another good year, a total of 107 Granges having been organized or re-organized in 23 different states during that time. The report of National Secretary Freeman for the quarter is as follows:

Organized.

Colorado	1	New Jersey	1
Idaho	1	New Hampshire.	5
Iowa	4	Nebraska	11
Illinois	1	New York	7
Indiana	1	Ohio	11
Kansas	4	Oregon	9
Maine	4	Pennsylvania	7
Maryland	5	South Dakota	4
Massachusetts	5	Vermont	1
Michigan	4	Washington	9
Missouri	2		
Minnesota	1	Total	98

Re-organized.

Delaware	1	Oregon	1
Massachusetts	1	Pennsylvania	2
Michigan	2		
Ohio	2	Total	9

POULTRY AND BEES

GETTING A START IN TURKEY RAISING.

Contrary to general opinion, turkeys are not hard to raise and a flock of these fowls is sure to yield a profit to their owner if rightly managed. There are two ways to get a start in growing turkeys. The first is to buy the breeders required for starting a flock—one gobbler and three or four hens will suffice. The other is to buy eggs and hatch them under good sitting hens. If one decides to purchase breeding stock the precautions to be observed are that the fowls be healthy, thrifty and well-matured specimens and that the male be unrelated to the females. Turkeys two years of age are best for breeding purposes. The mating season begins early and, for best results, the breeders should be producing eggs for hatching before the close of March or very early in April.

Turkeys are of a roving nature and will not bear close confinement. The hens are prone to wander away during the laying season, their natural inclination being to secrete their nests in quiet, out-of-the-way places. For this reason they should be closely watched during the laying season, with a view to locating the nests and securing the eggs, although great care must be exercised, since the turkey is a very timid fowl and easily excited.

If a nest remains undiscovered, or is left undisturbed, until the turkey hen has begun to sit, the eggs may be carefully removed and given to an ordinary hen, in which case the turkey hen will shortly resume laying. In this way one can manage to hatch a much larger number from a single pen of breeders than would otherwise be the case. The time required for the hatching is four weeks.

After hatching, place the hen and the little turkeys in a pen for a few days. After the first day feed the little fellows stale corn-meal bread that has been finely crumbled. Avoid giving food of a sloppy nature to young turkeys as it is almost sure to affect them detrimentally and oftentimes seriously. It is also very essential that they be protected from wet, and especially that they be kept out of wet dewy grass until at least three weeks of age.

If milk is available it will pay to make cottage cheese for young turkeys. The curd made by heating sour milk or buttermilk is very rich in those elements which go to make large frames and heavy flesh.

It is best that the young turkeys become accustomed to their attendant and to all persons and animals about the place. They grow much better, being less disturbed by the appearance of strangers, and are less likely to roam and to be difficult to handle when they reach maturity.

It goes without saying that turkeys will not flourish in close confinement. No one should undertake to grow them who has not ample range for them when they have passed the danger stage and are able to look out for themselves. Meadows, pastures and, after harvest, grain fields make ideal ranges for turkeys. They are busy foragers, and the insects they find give them the animal food, or protein element, which is so necessary to their proper development. When they have reached the stage at which they may be given entire liberty their owner has little more to do than give them a moderate allowance of grain at night, and when he puts them on the market in the fall a good profit on the grain consumed and labor expended in caring for them will be returned to him.

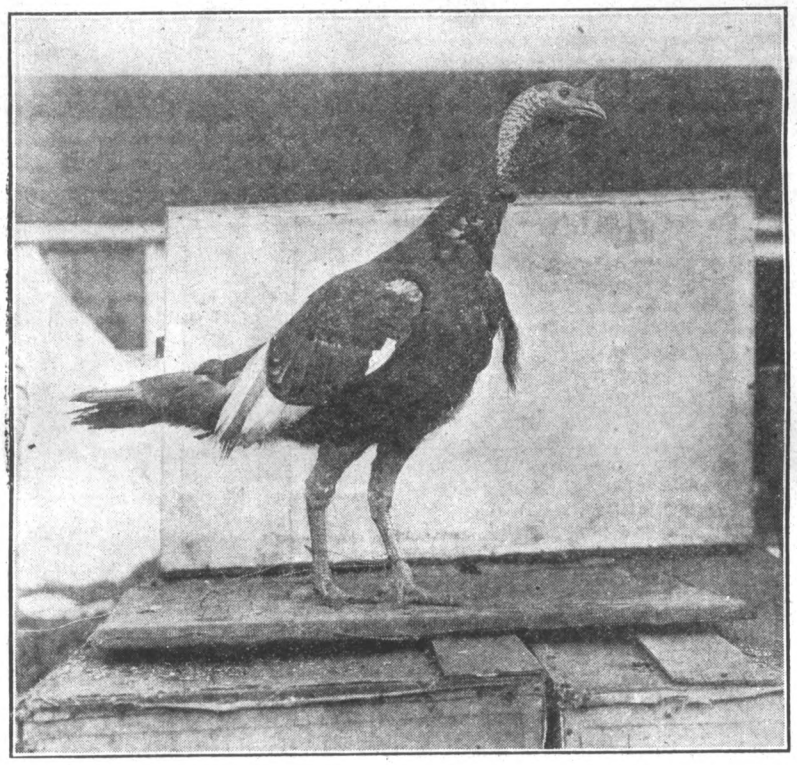
Illinois. Mrs. S. E. M.

SIMPLE SYSTEM OF POULTRY ACCOUNTING.

Just how much profit, if any, is derived from the poultry flock is a question which the average farmer cannot answer. Very few keep a definite record of poultry expenditures and receipts. Even upon farms where accurate accounts are kept with certain crops and with other branches of live stock, this condition exists with respect to poultry and is perhaps due to the facts that, on the general farm, poultry keeping is incidental to other farm work, that a considerable part of the product is consumed at home, and that the items of income and outgo are small and spread over the greater portion of the year.

The need of a simple system of accounting that will enable the poultry owner to determine the status of his flock at the close of a year's work is quite generally recognized. There are a few farmers who have devised some method of keeping a fairly accurate record of what their flocks are doing, but in too many instances these records tell only the production side of the story, and that in an incomplete way. The items of feed, labor, interest on investment and value of product consumed at home are seldom or never taken into account. Keeping records of eggs produced by laying flocks is a somewhat more general practice and an excellent one, but after all it tells little beyond giving approximate information as to the proportion of drones or non-layers.

There has recently been submitted to the poultry public, in the form of a circular issued by the Department of Agriculture, a system of accounting which should appeal to poultry owners who desire to handle their flocks in a business-like way without adopting an elaborate system of bookkeeping. This system contemplates keeping a monthly credit and debit account upon a single large sheet of paper or upon opposite pages of an ordinary account book. Not only all actual sales of whatever nature made during the month are credited to the flock, but all eggs and fowls used at home are credited at regular market value. Eggs used for hatching at home are both credited to and debited against the flock at the same price, and this price should be their ordinary market value unless the



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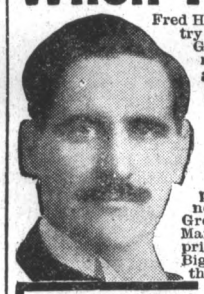

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demand is such that all eggs suitable for hatching can be disposed of in this way, in which case the price obtained for such eggs should be used. On the debit side should be entered the actual or estimated cost of food consumed during the month, estimated value of labor and the cost of any improvements, additions to equipment, etc. At the end of a year the summarizing of these monthly accounts upon a yearly sheet is a very simple matter and the balance thus obtained represents the net profit or loss. If only the extra labor which may be employed from time to time is charged, the balance at the end of the year will represent the payment which the flock has made for the owner's labor.

While in these monthly accounts which go to make up the yearly summary the farmer has an accurate record of all receipts and expenditures for the year, it is necessary that his investment be taken into consideration in determining whether the year's work has been profitable or otherwise. With this in mind the system includes the taking of an inventory upon a separate sheet or page of the account book. This inventory may be taken at whatever period of the year the owner of the flock may elect. Some prefer to open the account in the fall, others at the beginning of the calendar year, and still others during the early spring months. It is suggested, for those who have not opened an account with their poultry for the present year, that March 1 would be a favorable time. Take a careful and complete inventory of equipment, feed, stock on hand, etc. Each piece of equipment should be listed at its actual value at the time. In the case of substantially constructed buildings a reduction of five per cent a year for deterioration should be sufficient. Where repairs have been made the actual value of the building as repaired should be given. The allowance for depreciation on incubators, brooders, etc., which are given reasonable care should be about 10 per cent. All stock on hand should be inventoried at its cash value at that date, either as market poultry or as breeding stock as the case may be. Feed which has been purchased or especially set aside for the poultry should also be included. A total of all these items will represent the poultry investment at the date of inventory and a similar inventory 12 months later, considered in connection with the year's summary of receipts and expenditures described above, will enable the owner of a flock to prepare a simple balance sheet showing whether or not the flock has contributed to the farm income during the year.

In keeping such an account it will be found desirable to keep a simple egg record, and provision should be made for this. The advantage in this is that it enables the keeper to easily check up the number of eggs used at home, thus insuring proper credit being given the flock. Such a record may be kept on an ordinary large calendar or a separate sheet or page in the account book may be provided. It will be more satisfactory if provision is made for keeping a record of hens dying or removed from the flock during each month. By this means the average number of hens employed during any period can be arrived at, and comparing this with average number of eggs produced during the same period enables one to check up the work of the hens and to roughly estimate the proportion of poor layers or drones.

The attention of farmers generally is invited to this accounting system since it seems adapted to the needs of the busy man who would apply business methods to every part of his farming operations, yet cannot afford to give to the matter of accounting or bookkeeping the time and labor which a more intricate system would demand.

CAUSE AND TREATMENT OF SCALY LEG.

I. B., of Kent Co., wants to know what causes scaly leg in fowls and how it may be successfully treated. This trouble is the result of the work of a minute insect which in some way finds lodgment beneath the scales on the legs of fowls. It is known to attack practically all kinds of fowls and birds. An exhaustive study of this mite and its effect upon its victims, made by an eminent German scientist, has brought out many interesting facts regarding it. Sections from the leg of a fowl long affected with scaly leg show that in time the mite excavates deeply into the tissues and in these excavations it lives and breeds. When it has thus penetrated into the tissues the fowl develops lameness and the loss of toes has been known to result.

The manner in which the mite is introduced has not been satisfactorily determined but it is believed to be generally present in flocks of poultry where care has not been taken to exclude it. Infection from fowl to fowl probably takes place on the roosts or from mother to chick. One authority insists that fowls whose supply of oil in the skin is below normal are most likely to be infected. Conditions supposed to favor its spread are dry, barren runs, especially on alkaline soils, and foul roosting places.

The appearance of this trouble in a flock, however, need not cause great uneasiness as its eradication is not very difficult. It is necessary to treat each fowl, treatment consisting of the application of some penetrating oil to the affected parts. Many recommend and practice dipping the fowl's legs in a mixture of one part kerosene and two parts raw linseed oil, or even a half-and-half mixture of these oils where a quick cure is demanded. However, this treatment is conceded to be severe and there is danger of burning or blistering the skin if any of the feathers are wet by the mixture. The German investigator referred to above recommends an ointment made by mixing one part of oil of caraway and five parts of white vaseline, this mixture to be rubbed into the parts every few days until all indications of the trouble have disappeared. Oil of caraway is very penetrating and not nearly so irritating as many of the oils and ointments generally recommended for the purpose. Where the trouble is of long standing and the legs and feet are very scaly it is well to remove loose scales and crusts by washing the parts in warm soapy water before applying a remedy.

WHY EVERY FARMER SHOULD KEEP A FEW BEES.

No one who has given the subject of bee culture, or the relationship of bees to flowers, the least consideration will deny that bees play a most important part in the economy of nature. It is not too much to say that without bees our fruit and seed supply would, to say the least, be limited. Nature has wisely provided for the pollenization of blossoms of the vegetable kingdom by the creation of bees. Of the different agencies depended upon to do this important work the bee is the most thorough. We may plant our fruit trees in such a way that those prolific in the production of pollen will be intermingled with others that are to be fertilized; or we may depend upon the winds to carry the life-giving dust from one plant or tree to another, but there are times when these will fail.

Bees are as necessary to flowers as flowers are to bees. The flowers by their beauty and the delicate perfume they give, attract the busy bee to the nectaries from which they extract the honey there secreted; but while thus occupied they become dusted with pollen grains released by the anthers when in a state of ripeness. This pollen, or fertilizing dust, must be carried from the male to the female flower or fruit and seed would be impossible. It is not expected that every farmer or every orchardist should become and expert bee-keeper, or that he could come in competition with those who have made bees a business and a lifetime study, but the value of bees even to them should be evident.

The general farmer, of all people, is perhaps the least dependent upon his fellow men, and on every fair-sized farm there annually goes to waste several hundred pounds of nectar, unless the owner has the means of gathering and storing it for the use of himself and his family. It is not necessary that he become a competitor in the markets with the expert bee-keeper, and in most instances this would not be desirable or profitable, but the farmer should produce at least enough to supply his own table.

A singular idea some people have in regard to bee-keeping is that it is necessary to plant a certain crop and supply it to the bees. I was very much amused one day when a lady asked me, very earnestly, whether I went into the fields to gather flowers and bring them home to the bees. The bee is a miller to whose mill everything that comes is grist. She gets her honey from trees and plants as well as flowers. She roams, as sweet odors lead her, through two or three miles of surrounding country, and she cares not if she transgresses property rights or filches her stores from your neighbors' flowers and trees.

New Jersey. F. G. HERMAN.

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Barred Rocks—Males and females, prices right. Great laying strain, prize winners, 15 eggs $1.50. W. C. COFFMAN, R. No. 6, Benton Harbor, Mich.

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BUFF & White Orpingtons, Buff & White Leghorns Barred & White Rocks, & R. C. Rhode Island Reds Okls. Selects $3, Mediums $2, Utility $1.50 each Satifaction guaranteed. H. H. KING, Willis. Mich

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White Wyandotte cockerels $2.50, $3 and $3.50, from thoroughbred stock and heavy layers. A Franklin Smith, R. F. D. 9, Ann Arbor, Mich.

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MARKETS

DETROIT WHOLESALE MARKETS.

February 14, 1912.

Grains and Seeds.

Wheat.—The wheat market remained about steady until Tuesday, when news from Argentine stating that the railway strike had been settled and nothing now prevents the heavy exportation of her bumper crop of wheat, gave a bearish tone to the whole wheat situation. Liverpool prices dropped and other European points were influenced by the new conditions. On this side of the Atlantic the supply and demand situation is somewhat bearish, there being no sign of a decrease in receipts at Minneapolis and the decrease in the visible supply is small. Flour is having a rather slow movement, so that the wants of millers are not large. The price for No. 2 red wheat a year ago was 91¾c per bu. Quotations are as follows

	No. 2 Red.	No. 1 White.	May.	July.
Thursday	.99½	.97½	$1.04	.98
Friday	.99½	.97½	1.04	.98
Saturday	.99	.97	1.03½	.97½
Monday	....	....	.....	....
Tuesday	.97½	.95½	1.02	.96
Wednesday	.97½	.95½	1.02½	.96½

Corn.—Prices have fluctuated during the week, with the figures of Tuesday ruling about steady with those of a week earlier. There is a temporary weak tone to the deal due to the weakness in wheat. Farmers are delivering corn generously. However, there is a wide demand for this cereal and in itself occupies a rather strong position. One year ago the price for No. 3 corn was 46½c per bu. Quotations for the week are as follows:

	No. 3 Corn.	No. 3 Yellow.
Thursday	66½	67½
Friday	67	68
Saturday	67	68
Monday	....	....
Tuesday	66½	67½
Wednesday	66½	67½

Oats.—Last week's prices are sustained, although the market is a little dull, due to the change in the wheat and corn trade. The movement of oats is limited and the local market is dull. The visible supply shows a slight increase. Quotations for the week are as follows:

	Standard.	No. 3 White.
Thursday	53½	53
Friday	53½	53
Saturday	53½	53
Monday	....	....
Tuesday	53½	53
Wednesday	53½	53

Beans.—Cash beans show an advance of 4c during the week. There is a good demand at the advanced quotations. May beans are marked down in value. Following are the quotations for the week:

	Cash.	May.
Thursday	$2.38	$2.50
Friday	2.38	2.50
Saturday	2.40	2.50
Monday	....	.....
Tuesday	2.42	2.50
Wednesday	2.42	2.50

Clover Seed.—Alsike has advanced 15c per bushel while common seed has advanced 25c per bu. The market is firm and active at present prices. Considering the amount of seed on hand, the number of contracts are quite large. Following are the quotations for the week:

	Prime Spot.	March.	Alsike.
Thursday	$14.00	$14.00	$13.40
Friday	14.00	14.00	13.40
Saturday	14.00	14.00	13.40
Monday	.....	.....	.....
Tuesday	14.00	14.00	13.40
Wednesday	14.00	14.00	13.25

Timothy Seed.—Sales of prime spot seed were made on the local market Tuesday at $7 per bu., which is 10c below the price paid the previous week.

Rye.—Another decline of 1c occurred in the quotations for cash No. 2 rye, and the price now quoted is 95c per bu.

Flour, Feed, Potatoes, Etc.

Flour.—Prices are unchanged. Market steady

Straight	$4.25
Patent Michigan	4.85
Ordinary Patent	4.60
Rye	5.20

Feed.—All grades are unchanged and steady. Carlot prices on track are: Bran, $28 per ton; coarse middlings, $28; fine middlings, $32; 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.—There is only a fair supply of potatoes on the market. Prices rule firm with those of a week ago. Car lots on track are quoted at 95c@$1 per bu.

Provisions.—Family pork, $17@19; mess pork, $16.50; medium clear, $16@17.50; picnic hams, 9½c; bacon, 12@13½c; pure lard in tierces, 9¼c; kettle rendered lard, 10¾c per lb.

Dairy and Poultry Products.

Butter.—After last week's sensational decline, butter continued steady for both creamery and dairy goods. The output increased slightly and the movement is more free since prices declined. Quotations are as follows: Extra creamery, 32c; first creamery, 30c; dairy, 24c; packing stock 23c per lb.

Eggs.—Egg prices show a further decline this week of 2c on the local market. Southern eggs are beginning to appear on the market, but thus far have had little influence on local prices. With the coming of warmer weather it is anticipated that the receipts will increase and prices will decline. Current receipts, cases included, are quoted at 33c per dozen.

Poultry.—There is an improvement in the demand for poultry, especially chickens, and for this kind prices are higher. The supply is decreasing. Quotations are as follows: Live—Turkeys, 16@17c; geese, 11@12c; ducks, 14c; young ducks, 15c; spring chickens, 13c; No. 2 chickens, 9c per lb; hens, 12½c. Dressed—Chickens, 13½@14c; geese, 14@15c; turkeys, 18@19c.

Veal.—Market rules steady. Fancy, 10@12c; choice, 9@10c per lb.

Dressed Hogs.—Light, $7.50; medium, $6.75; heavy, $6.50 per cwt.

Cheese.—Michigan, September, 17½@18c; Michigan, late made, 16½c; York state, 17½@18c; limburger, 16@18c; domestic Swiss, 19@22c; brick cream, 18@19½c per lb.

Fruits and Vegetables.

Cabbage.—Steady. Now selling at 3c per pound.

Onions.—Steady at $1.65@1.75 per bu.

Apples.—There was a slightly better movement in apple markets last week and it is hoped that market conditions will improve. Baldwins and Greenings, $3@3.50; Spy, $3.50@4; Ben Davis, $2@2.50.

OTHER MARKETS.

Chicago.

Wheat.—No. 2 red, $1@1.01; May, $1.02; July, 95¼c.

Corn.—No. 3, 63¾@64¼c; May, 68¼c; July, 67⅞c per bu.

Oats.—No. 2 white, 53¼@54c; May, 52⅜c; July, 48c per bu.

Barley.—Malting grades, $1.10@1.29 per bu; feeding, 80@95c.

Butter.—Creameries steady at unchanged figures. Best grade dairies 1c lower. Creameries, 28@32c; dairies, 24@30c.

Eggs.—Curtailment of demand, due to recent extreme prices, and a fair increase in receipts have brought a decline of 6@7c since last week. Market quiet. Quotations are: Firsts, grading 45 per cent fresh, 32½c; ordinary firsts, 29@30c per dozen; at mark, cases included, 29@30c.

Potatoes.—Easier and 5c lower under increasing receipts. Michigan stock is now quoted at $1.03@1.05 per bu. Wisconsin, $1@1.05; Minnesota, $1.03@1.05.

Beans.—All kinds show greater firmness and a slight advance in values. Current quotations are: Pea beans—Choice handpicked, $2.60 per bu; prime, $2.50; Red Kidneys, $2.95.

New York.

Butter.—This market regained much of the recent loss before last week's close but a sagging tendency is again in evidence this week. Market irregular and unsettled. Creamery specials are quoted at 34½c per lb; extras, 33½@34c; firsts, 32½@33c; seconds, 31@32c.

Eggs.—The market is recovering from the 7c drop which came late last week and is reported firm at the quotations. Fresh gathered extras, 37@38c; firsts, 36c; seconds, 35c; western gathered whites, 35@38c per dozen.

Poultry.—Live — Chickens unchanged and fowls higher. Western chickens, 12½@13c; fowls, 14½@15½c; turkeys, 15@16c. Dressed—Unchanged. Western chickens, 12½@15c; fowls, 12½@16½c; turkeys, 12@21c.

Boston.

Wool.—The wool trade continues to be active with a very healthy demand. In the west and southwest bidding for the new clip is under way, and a great deal of interest is being centered there. The finer grades command a bullish position and prices are tending upward. Leading domestic quotations for fleeces are as follows: Ohio and Pennsylvania fleeces—Delaine washed, 32c; XX, 28@29c; ½-blood combing, 29c; ⅜-blood combing, 29c; ¼-blood combing, 29c; delaine unwashed, 25@26c; fine unwashed, 21½c. Michigan, Wisconsin and New York fleeces—Fine unwashed, 20½c; delaine unwashed, 24c; ½-blood unwashed, 28c. Kentucky, Indiana and Missouri—⅜-blood 27c; ¼-blood, 27@28c.

Elgin.

Butter firm at 32c per lb. Output 625,000 pounds.

THE LIVE STOCK MARKETS.

Buffalo.

February 12, 1912.

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

Receipts of stock here today as follows: Cattle, 140 cars; hogs, 90 double decks; sheep and lambs, 93 double decks; calves, 700 head.

With 140 cars of cattle on our market here today, and with 25,000 reported in Chicago, our market on the best grades was just about steady with last Monday, while everything below the prime cattle sold from 15@25c per cwt. lower.

We quote: Best 1,400 to 1,600-lb. steers $7.50@8; good prime 1,300 to 1,400-lb. do., $6.75@7.25; do. 1,200 to 1,300-lb. do., $6.50@6.85; best 1,100 to 1,200-lb. shipping steers, $6.35@6.75; medium butcher steers 1,000 to 1,100, $5.25@6; light butcher steers, $4.25@5; best fat cows, $4.75@5.50; fair to good do., $4@4.50; common to medium do., $3.25@3.75; trimmers, $2.25@2.75; best fat heifers, $5.50@6.25; good do., $4.75@5.25; fair to good do., $4.25@4.60; stock heifers, $3@3.25; best feeding steers, dehorned, $4.50@4.75; common feeding steers, $3.50@4; stockers, all grades, $3.50@4; prime export bull, $5.50@6; best butcher bulls, $5@5.25; bologna bulls, $4@4.50; stock bulls, $3.25@4; best milkers and springers, $45@58; common to good do., $25@30.

With heavy receipts of hogs at western points, and liberal receipts here, our market showed a decline of about 10c from Saturday's general market. The bulk of the choice quality better weight workers, mixed and medium weights going today at $6.60. Pigs and lighter weights held about steady; selling generally from $6.25@6.40 according to weight and quality. The good kind of rough sows sold mostly around $5.80@5.85, and stags around 5c per pound. Hogs are fairly well cleaned up; market closing steady.

The lamb market was active today; most of the choice lambs selling from $7@7.10. We sold one load of fancy lambs for A. B. Read, of Michigan, for $7.35. Look for about steady prices the balance of the week, but with liberal run will sell shade lower, as we are out of line with Chicago. The sheep market was active today, market strong. Look for about steady prices the balance of the week on sheep.

We quote: Best lambs, $7@7.10; cull to common do., $5.25@5.75; wethers, $4.50@4.75; bucks, $2.25@3; yearlings, $5@5.75; handy ewes, $3.75@4; heavy ewes, $3.50@4; cull sheep, $2@2.75; veals, choice to extra, $10@10.50; fair to good do., $8@10; heavy calves, $4@5.50.

Chicago.

February 12, 1912.

	Cattle.	Hogs.	Sheep.
Received today	27,000	52,000	30,000
Same day last year	31,369	68,538	28,302
Received last week	51,679	189,100	113,262
Same week last year	42,640	159,771	87,314

Cattle start off this week with a very slow general demand after last yeek's advance of 10@15c in lots salable at $8.25 and upward. Butcher stock is moving quite well at steady prices, and the few offerings of heavy steers are wanted at unchanged values, no sales up to a rather late hour taking place above $8.50. Hogs are selling surprisingly well considering the large supply, with a large general demand. The early market was called 5c lower under a reported run of 60,000 head, but later the receipts were called 52,000, and prices were better. Hogs are selling at $5.95@6.35, the best light weights going at $6.25, while pigs go at $4.75@6; stags at $6.45@6.65 and boars at $3@3.50. Hogs received last week averaged 217 lbs., compared with 216 lbs. a week earlier, 211 lbs. a month ago, 231 lbs. a year ago and 214 lbs. two years ago. The packers received 8,800 hogs direct today from other markets. The sheep and lamb market is not over active, and, except for the best, prices averaged about a dime lower. Lambs are salable at $4.25@6.75; yearlings at $5@5.75; wethers at $4.15@4.75; ewes at $2@4.25 and bucks at $2.50@3.

Cattle started off last week extremely active and 10@25c higher, the Monday run being cut down to 12,159 head because the snow blockade west of here prevented the railroads from moving stock trains with any freedom. Later in the week many belated consignments arrived, and larger offerings caused the early improvement in prices to disappear. The bulk of the cattle offered graded none too well, a liberal percentage averaging considerably less than 1,200 lbs., and these were slow to advance and quick to weaken. Cattle of superior quality and heavy in weight comprised only a small proportion of the receipts, and these sold at $8@8.85, with one sale at $9 for 27 fancy 1,563-lb. Angus and Shorthorn steers. The commoner kinds of lightweight steers brought $4.75@6, many averaging considerably below 1,000 lbs., and the greater part of the steers received brought $5.75@8, with medium steers selling at $6.25 and upward and a good class at $7.25 and over. Butcher stock had, on the whole, a good sale, cows and heifers going at $3.40@7, sales embracing 96 prime Kansas spayed heifers, mostly Herefords, averaging 900 to 1,021 lbs. at $6.85 and $7. Cutters sold at $3@3.35, canners at $2@2.95 and bulls at $3.50@6.25. The stockers and feeder trade was not very large, intending purchasers finding a scarcity of the better class of these cattle and a high scale of prices, while few buyers cared to invest in the poorer lots. Stockers sold at $3.50@5.50, while feeders brought $4.75@6.20. Calves were fairly active at $3@8.50 per 100 lbs., buyers usually wanting the choicer lots of light-weight vealers. Milkers and springers were moderately animated at $30@67.50 per head, fancy Holsteins and Durhams being scarce and selling at $60 and upward. There was more inquiry for backward springers than for fresh cows of medium grade.

Hogs started off active and decidedly higher last week, the snow blockade cutting down the Monday run to 21,479 head, and the best hogs sold up to $6.47½. By the middle of the week plenty of hogs showed up, and the receipts for Wednesday aggregated 57,126. Naturally, prices broke more or less, but they rallied later in the week on the excellent local and shipping demand. The one new feature developed was the appearance of a good eastern shipping demand for light-weight hogs of good quality, causing such consignments to sell readily on a strong basis at a time when heavy and butcher lots of hogs were selling on a barely steady basis. This carried prime light hogs up to within 5c of the price paid for the best hogs of heavier weight. A good many hogs of light weight have been received, but the average weight of the receipts has been increasing for several weeks, and fewer mere pigs are arriving than heretofore. The fresh pork consumption everywhere is so large as to make a liberal outlet for pig pork.

Sheep and lambs were marketed last week with greatest irregularity, receipts being alternately liberal and extremely small, and hence prices fluctuated a good deal, being higher, lower and higher again. Lambs of the better class of medium weights were prime favorites, as usual, bringing a substantial premium over everything else, with fat little yearlings next in general popularity. There was some demand for feeder lambs to ship to Michigan, and they sold at $5@5.85 per 100 lbs. The receipts embraced some lambs from Colorado fattened in the San Luis Valley, some fed Nevada lambs and some hay-fed Idaho and Montana mixed stock.

Horses were received week before last more liberally than at any previous time since last May, and prices weakened to such an extent that country shippers sent in much smaller numbers last week. This stopped the decline in prices effectually, and numerous sales were made at advances of $5 to $10 per head. Good mares adapted for breeders and workers were wanted for shipment back to farming districts, and they were wanted also for eastern shipment, so that prices were firm under competition. Drafters sold at $175@225 for light and medium-weights and at $250@325 for heavyweights, while chunks of 1,250 to 1,450 lbs. brought $150@200. Feeders weighing up well sold at $225@275, lighter ones going at $140@200. Wagon horses sold at $160@200. F.

LIVE STOCK NOTES.

In recent weeks the frequent big snow storms and severely cold weather have caused serious interruptions to moving live stock to western markets, the railroads being unable to move stock trains on anywhere near schedule time and therefore refusing in many instances to accept proferred consignments. This has rendered the lot of the country shipper a very uncomfortable one, causing provoking delays and making fluctuations in prices both frequent and large. Shrinkages in weight were much larger than usual, and stock often came forward in excessive numbers after delays, so that owners had to accept much reduced prices. Some of the railroads are doing the best they can with the cars and engines in their possession, but shippers complain bitterly of the slow service of some lines, and many stock trains are not provided with sufficient motive power.

The Chicago receipts of hogs and sheep so far this year show large gains over those for the corresponding period last year, while cattle supplies have undergone a falling off. Pork and mutton are retailing at much lower prices than beef, and fresh pork loins and chops are by far the cheapest of all the meats offered for sale, so that it is no wonder that its consumption throughout the country is of unusually generous proportions. Thus it happens that the curtailed production of beef fails to bring about any great rise in prices for the greater part of the cattle received, these being largely of a common grade of light-weights hurried marketward much too early in order to save high-priced corn and other feeds. Killers have been experiencing considerable difficulty in disposing of the carcasses of light, cheap and medium priced cattle, while they cannot get half enough fat, heavy beeves. The poorer lots of steers fail to sell much higher either than a mnth or a year ago, but the better class of finished beef cattle have sold recently $1.50 to $1.75 per 100 lbs. higher than a year ago. Without any doubt, owners of well-bred young cattle are making the mistake of their lives when they fail to make them prime before selling.

An epidemic similar to the spinal meningitis scourge that has caused great agitation in Missouri, Kansas, Oklahoma and Texas during the last three months has attacked the cattle of the southwest. according to Dr. J. C. Humphries, of Missouri, who addressed the annual convention of the Missouri Veterinary Association at Kansas City recently. The eating of improper food, especially the smut of corn, is the chief cause of the disease, according to the speaker. He urged closer attention to pure food laws for cattle as a preventive.

L. F. Arntzen, of Illinois, reports that more hogs have died in that part of the country within a year than at any previous time in 35 years, and farmers have marketed their hogs just as soon as they could be made ready. He says: "I think there are three things which can be done to ward off disease in live stock to a great extent, especially in sheep and hogs, viz., change their runs and pastures as often as convenient, dip them if necessary, and give them some good worm powders. If these three things are done, coupled with careful feeding, success is certainly more sure than if they are neglected."

An Illinois stockman accounts for the marketing of cattle and other live stock prematurely by the advancing prices of corn, the growing scarcity of hay and the bad weather for feeding. He says that for the first time on record, alfalfa hay has been brought in from Montana, costing in car loads $18 to $20 per ton, while stock feeders are paying 60 to 65 cents per bushel for corn.

Farmers in northern Illinois who are accustomed to feed large numbers of hogs at this season of the year are holding very few hogs because of heavy losses from hog cholera, and are now selling their corn. One country shipping station about 60 miles from Chicago has bought more corn from farmers in a recent week than it did all of last year.

Some time ago a British steamer took a shipment of 159 high-bred Kentucky horses to Australia for their Kentucky owner. The reason the owner gave for the shipment to a foreign country was that Australia is more favorable for horse breeding than the United States because of antirace track legislation in this country, which has played havoc with the breeding of race horses.

Oregon is a long way from Chicago, yet a sheepman out there is feeding 12,000 lambs on barley and wheat screenings with a view of marketing them in Chicago, involving a journey of 2,700 miles. Another sheepman has brought from Oregon to a feeding station ner Chicago 11,600 lambs, which are being fattened, having been on the road for 13 days. Their freight charge was $1.01 per 100 lbs. The owner will feed them about 60 days.

THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKETS.

Tursday's Market.

February 15, 1912.

Cattle.

Receipts, 856. Market dull at last week's prices.

We quote: Extra dry-fed steers and heifers, $6.25@6.50; steers and heifers, 1,000 to 1,200, $5.75@6; do., 800 to 1,000, $5@6; do. that are fat, 500 to 700, $4@4.50; choice fat cows, $4.75@5; good fat cows, $3.50@4.50; common cows, $3@3.25; canners, $1.75@2.75; bulls, $3.75@4.50; stock bulls, $3@3.75; milkers, large, young, medium age, $40@50; common milkers, $25@35.

Roe Com. Co. sold Gerish 26 steers av 992 at $6.20; to Sullivan P. Co. 5 canners av 862 at $2.85; to Goose 7 cows av 860 at $3.50; to Rattkowsky 1 do weighing 1,020 at $4; to Mich. B. Co. 5 butchers av 790 at $4.50, 1 bull weighing 1,080 at $5, 1 cow weighing 1,170 at $4.75; to Sullivan P. Co. 4 canners av 875 at $2.75, 1 bull weighing 1,620 at $4.75, 1 do weighing 920 at $2; to Newton B. Co. 15 steers av 960 at $5.40; to Parker, W. & Co. 1 bull weighing 1,300 at $4.75; to Newton B. Co. 8 do av 910 at $4.85; to Goose 3 cows av 943 at $3.25; to Parker, W. & Co. 20 steers av 1,025 at $6.15; to Nagle P. Co. 20 do av 1,149 at $6.40, 20 do av 1,050 at $6.

Haley & M. sold Mich. B. Co. 2 steers av 960 at $5.75, 7 do av 757 at $5.40, 6 butchers av 826 at $4.50; to Parker, W. & Co. 5 bulls av 1,368 at $4.75; to Goose 4 cows av 975 at $3.80; to Applebaum 4 butchers av 862 at $4.30, 2 cows av 965 at $3.75.

Bishop, B. & H. sold Mich. B. Co. 11 butchers av 727 at $4.80; to Hammond, S. & Co. 4 cows av 820 at $3.25, 1 canner weighing 730 at $2.75; to Goose 4 cows av 880 at $3.25; to Nagle P. Co. 22 steers av 1,063 at $6.15, 2 cows av 1,060 at $5; to Hammond, S. & Co. 9 do av 916 at $3.65, 1 do weighing 1,160 at $3.75; to Kamman B. Co. 2 steers av 995 at $6; to Rattkowsky 6 butchers av 705 at $4.35, 1 cow weighing 900 at $4; to Kamman B. Co. 8 steers av 902 at $5.50, 1 do weighing 980 at $5.25; to Lachalt 10 do av 760 at $5, 2 cow and bull av 1,065 at $4.50; to Regan 11 butchers av 688 at $4.30; to Goose 2 cows av 875 at $3.50, 4 do av 880 at $3, 12 butchers av 750 at $4; to Sullivan P. Co. 1 cow weighing 1,040 at $2.75; to Newton B. Co. 25 steers av 957 at $5.75, 1 cow weighing 1,170 at $4.50, 5 butchers av 668 at $4.25, 25 steers av 934 at $5.75; to Kamman 6 cows av 726 at $2.85, 2 do av 1,040 at $4.50, 2 bulls av 1,570 at $5; to Parker, W. & Co. 2 bulls av 1,330 at $4.75, 5 heifers av 806 at $5, 6 cows av 1,080 at $4; to Heinrich 22 steers av 808 at $5.25.

Spicer & R. sold Breitenbeck 4 cows av 1,030 at $3.70, 7 do av 1,078 at $3.70; to Bresnahan 1 bull weighing 1,180 at $4.25; to Newton B. Co. 33 butchers av 862 at $4.40, 32 do av 775 at $4.25, 30 do av 870 at $5, 22 steers av 930 at $5.65, 5 do av 714 at $5; to Sullivan P. Co. 1 bull weighing 1,710 at $4.65; to Mich. B. Co. 4 butchers av 737 at $3.50, 9 do av 993 at $5.10; to Goodwin 4 cows av 880 at $3.50; to Parker, W. & Co. 1 cow weighing 790 at $3.50; to Breitenbeck 27 steers av 820 at $5.25.

Rosenhelm sold Mich. B. Co. 2 cows av 920 at $3.50, 5 do av 1,060 at $4.50.

Lowenstein sold same 7 do av 1,090 at $4.50, 2 do av 895 at $3.50.

Brown sold same 23 steers av 1,020 at $6.

Hety sold Newton B. Co. 5 cows av 1,164 at $4.65.

Hoffend sold Hammond, S. Co. 2 cows av 965 at $3.25, 1 do weighing 1,320 at $4.50, 5 do av 940 at $3.10.

Worthey sold Sullivan P. Co. 1 bull weighing 1,330 at $4.75, 4 steers av 860 at $5.35.

Jedele sold same 1 bull weighing 1,510 at $5.25, 6 steers av 910 at $5.85, 1 do weighing 1,220 at $6.50.

Sheep and Lambs.

Receipts, 2,951. Market steady at last week's prices. Best lambs, $6.25@6.40; fair to good lambs, $5.50@6; light to common lambs, $3@4.50; fair to good sheep, $3@3.50; culls and common, $1.25@2.50.

Bishop, B. & H. sold Thompson Bros. 31 sheep av 93 at $2.50; to Mich. B. Co. 11 lambs av 55 at $4.50, 34 do av 67 at $6, 2 do av 50 at $4; to Parker, W. & Co. 80 do av 73 at $6, 21 do av 65 at $5.75, 23 do av 75 at $5.75; to Sullivan P. Co. 8 do av 50 at $4; to Hayes 11 sheep av 95 at $2.50; to Hammond, S. & Co. 4 do av 70 at $2.50, 26 lambs av 85 at $4; to Sullivan P. Co. 5 do av 106 at $4.50, 9 do av 105 at $4.50, 4 sheep av 105 at $3, 3 do av 73 at $2.50; to Thompson Bros. 17 do av 85 at $3; to Fitzpatrick Bros. 8 lambs av 80 at $6.50, 18 do av 48 at $4, 36 sheep av 130 at $2.90, 45 lambs av 85 at $6.40; to Hammond, S. & Co. 229 do av 83 at $6.40, 85 do av 80 at $6.40; to Nagle P. Co. 41 do av 70 at $6, 16 do av 60 at $5, 23 do av 85 at $6.25; to Thompson Bros. 17 sheep av 85 at $3; to Young 42 lambs av 60 at $5.50; to Fitzpatrick Bros. 26 do av 55 at $4, 14 sheep av 90 at $3.25.

Roe Com. Co. sold Sullivan P. Co. 42 lambs av 55 at $4.50, 12 sheep av 88 at $2.50; to Nagle P. Co. 191 lambs av 75 at $6, 98 do av 57 at $5.50; to Thompson Bros. 24 do av 80 at $6; to Barlage 36 do av 62 at $5.50, 3 sheep av 120 at $2.50.

Spicer & R. sold Mich. B. Co. 1 lamb weighing 70 at $5.50, 1 sheep weighing 110 at $3; to Newton B. Co. 3 do av 100 at $2.50, 14 do av 90 at $2.85, 14 lambs av 70 at $5.75, 1 sheep weighing 93 at $2.75, 14 lambs av 70 at $5.

Fenton sold Newton B. Co. 8 sheep av 60 at $3, 26 lambs av 70 at $5.50.

Weeks sold same 9 do av 65 at $5.50.

Veal Calves.

Receipts, 305. Few choice 25c higher, others steady. Best, $8.75@9.25; others, $4@8.25; milch cows and springers steady.

Spicer & R. sold Mich. B. Co. 3 av 95 at $6, 13 av 140 at $8.

Roe Com. Co. sold Hammond, S. & Co. 8 av 140 at $7; to Mich. B. Co. 5 av 125 at $8.25.

Bishop, B. & H. sold Parker, W. & Co. 14 av 150 at $8.75, 2 av 125 at $8.25, 7 av 135 at $8, 6 av 130 at $8.25; to Hammond, S. & Co. 4 av 120 at $7; to Mich. B. Co. 7 av 115 at $7, 8 av 130 at $5.50; to Hammond, S. & Co. 4 av 105 at $5, 3 av 140 at $8, 1 weighing 120 at $9; to Sullivan P. Co. 1 weighing 190 at $9.50, 5 av 125 at $5.50, 8 av 145 at $8.75; to Newton B. Co. 4 av 95 at $5, 23 av 155 at $9; to Burnstine 12 av 135 at $8; to Parker, W. & Co. 15 av 140 at $8; to Goose 2 av 130 at $7, 3 av 150 at $5.50; to Goose 3 av 125 at $7.

Hogs.

Receipts, 1,884. Market steady with Wednesday and last week's close; nothing sold up to noon.

Range of prices: Light to good butchers, $6.15@6.25; pigs, $5.75@5.80; light yorkers, $6@6.15; stags one-third off.

Bishop, B. & H. sold Hammond, S. & Co. 615 av 200 at $6.20, 450 av 180 at $6.15, 325 av 165 at $6.10, 310 av 155 at $6.05.

Spicer & R. sold Parker, W. & Co. 250 av 200 at $6.15, 115 av 180 at $6.10.

Haley & M. sold same 260 av 210 at $6.20, 140 av 195 at $6.15.

Market closed very dull and 5@10c lower than last Thursday.

Friday's Market.

February 9, 1912.

Cattle.

Receipts this week, 1,509; last week, 1,512. Market active at strong Thursday's prices. Best steers and heifers, $6.25@7; steers and heifers, 1,000 to 1,200, $5.75@6; do. 800 to 1,000, $4.75@5.50; do. that are fat, 500 to 700, $4@4.50; choice fat cows, $4.75@5; good do., $3.50@4.50; common cows, $3@3.25; canners, $1.75@2.25; choice heavy bulls, $4.75@5; fair to good bologna bulls, $3.75@4.25; stock bulls $3.50@4; milkers, large, young, medium age, $40@55; common milkers, $25@35.

Veal Calves.

Receipts this week, 859; last week, 882. Market steady for good, common very dull; receipts very common. Best, $8@8.75; others, $3.50@7.50; milch cows and springers dull and $5 lower.

Sheep and Lambs.

Receipts this week, 8,056; last week, 7,954. Market for best lambs steady; common lambs 25@50c lower; sheep steady. Best lambs, $6.25@6.50; fair to good lambs, $5@5.50; fair to good sheep, $3@3.50; culls and common, $1@2.75.

Hogs.

Receipts this week, 7,436; last week, 6,264. Market 5c higher than on Thursday. Light to good butchers, $6.25; pigs, $5.75@6; light yorkers, $6@6.15; stags one-third off.

As a result of the marked decline in prices last year, 107,668 cattle were exported from Chicago to foreign markets, an increase of 48,086 over the previous year. Prices have to rule very low in order to be sufficient to meet the South American competition, the Argentine cattlemen having been busy in breeding up their herds for years. At the present time Argentine beef will stand a comparison with the bulk of the beef shipped from the United States and Canada.

VETERINARY.

(Continued from page 180).

down, but always requires help to get up. O. C., Charlevoix, Mich.—Apply equal parts turpentine, aqua ammonia and sweet oil to back two or three times a week and give her 1 dr. ground nux vomica and 2 drs. acetate of potash at a dose in feed or water two or three times a day. Also give her a dessertspoonful Fowler's solution at a dose three times a day. Her bowels should be kept open and this is best done by feeding her well salted bran mashes, silage, oil emal and some roots.

Mange—Eczema.—My cattle are affected with mange, causing them to itch and rub hair off in spots. It appears annually at this season of the year and disappears when warm weather comes. G. W. H., Lake Odessa, Mich.—I am more inclined to believe that your cattle suffer from eczema, than mange; for if they had mange it would not cure itself, but get worse. Apply one part sulphur, one-half part carbonate of potash and six parts fresh lard twice a week. Give each of them two tablespoonfuls of cooking soda at a dose in feed two or three times a day. It is possible for them to get well, if they are well groomed and one part coal tar disinfectant and 30 parts water applied daily after grooming.

Chronic Looseness of Bowels—Collie Dog.—We have a Collie dog that we have owned for nine months and she is now two years old, but ever since we got her she has been troubled with looseness of the bowels. G. F. T., Douglas, Mich.—Give her 10 grs. sub-nitrate of bismuth at a dose in food two or three times a day

Cracked Heels.—I have a three-year-old colt coming four, that is badly stocked in one hind leg; his heels are cracked and sores discharge an offensive pus that has a bad odor. S. D., Central Lake, Mich.—Dissolve ¼ lb. acetate of lead, 3 ozs. sulphate of zinc and 3 ozs. carbolic acid in a gallon of boiled or rain water and apply to sores twice a day. If his leg is covered with long hair it should be cut off around sores. Give him a teaspoonful of powdered nitrate potash at a dose twice a day and a dessertspoonful Fowler's solution at a dose three times a day. It is hardly necessary for me to say that your stable should be kept clean and well ventilated for a case of this kind to do well. Furthermore, keep him out of snow, slush and cold winds until his legs heal.

Spasm of Larynx—Stomach Worms.—Have a well-bred four-months-old sow pig that has had two fits and is somewhat stiff. If she gets well would you advise me to use her for breeding purposes? This pig and her sister have never had cold feed before this attack. I gave her one tablespoonful of turpentine, one of salts and a little copperas at one dose; since second fit I feed dry feed, corn, mill feed, etc., with cold water. I have called it worms and when pig commences to drink warm feed, worms come up in throat and choke him. This theory worked out on two pigs last winter. After one died I opened it and found it full of worms. I then treated for worms and commenced feeding cold food, with fair results, but pigs did not grow much. A neighbor lost a shoat a few days ago with the same trouble—he opened it, expecting to find worms, and instead found it had little blood, but watery fluid instead. I have fed pigs in all numbers up to 85 head on this place and always fed warm feed with no trouble of this kind before last winter, but pigs were always in warmer quarters than last year and this may account for the trouble. My neighbor's pig was given jalop which purged him, but no worms came away. His pig had warm boiled corn and warm slop all winter. F. C. H., Auburn, Mich.—First of all let me thank you for this interesting letter. I was brought up on a stock farm in Canada where we raised well-bred hogs and since then I have raised hogs on my farm and watched closely their growth and development. It always proved profitable to me to feed warm cooked food to my hogs. However, nearly all hogs are inclined to get wormy, if fed raw food or allowed to eat uncooked parasitic meat or decomposed vegetables; besides, hogs are usually kept too filthy. A hungry hog is apt to choke on certain kinds of food, the result being a spasmodic, filthy condition of body, but they usually dislodge the food from gullet and get relief. If the cold food produces a spasm of larynx, this produces choking but seldom lasts longer than a minute or two. The two ailments are frequently closely associated, it being difficult to differentiate between a spasm of larynx and choking, if the obstruction is high up in gullet. It is always good practice to drench them with some warm water or a small quantity of warm olive oil, or a little melted vaseline. I advise you to feed warm food, but avoid allowing your pigs to become too hungry. Food fed to pigs should be spread thinly in trough; this often prevents choking. I am sure it always pays to prevent animals from becoming too wormy.

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HORTICULTURE

ANNUAL FRUIT SHOW AT M. A. C.

We read of many apple and land shows and since the era of this kind of demonstration was born their number has been legion. But one of the most unique is the Annual Fruit Show held at the Michigan Agricultural College.

It is given under the auspices of the Hort Club, an organization made up of the horticultural students of the College, and is by far the largest technical club of the institution. This show has come to be an annual affair and each year has seen it larger and better.

This year it entertained large crowds on January 12 and 13, the two days it was open. Not only was it attended by regular and short-course students, but visitors came in large numbers from a distance. In all, several thousand embraced the opportunity of seeing the selected display of fruit from all over the country.

Fruit was on exhibition from New York, Pennsylvania, New Jersey, Delaware, Massachusetts, Indiana, Wisconsin, Iowa, Colorado, Oregon, as well as from nearly every county of Michigan's lower peninsula. It was the fact that the display represented such a wide range of territory and such a diversity of climate and cultural conditions, that made this show so valuable. Conceived primarily to give the horticultural students of the College the benefit of the study of the variation in types as grown in different sections of the country, it more than fulfilled its object in the outside interest it aroused.

The boom in orchard land in Michigan is on, and investors flocked to the show in droves to feast their eyes on their hopes of the future to meet with disappointment if they could find no exhibit from the section in which they were interested.

As no attempt had been made to secure fancy fruit from the different sections, but simply to get specimens for comparison and study, the uniform high quality of the exhibits was a surprise to the horticultural department and a great pleasure to the visitors. To add popular interest, it was decided to award first, second and third prize ribbons to the different varieties, and also to the best county exhibits from Michigan, and the best state exhibits foreign to Michigan. This was done under the supervision of Prof. C. P. Halligan, of the College.

In this competition Iowa was awarded first place among the states, Ohio second, and Delaware third. The fruit from Iowa was grown on the farm of Mrs. S. O. Harrington, of that state. Its perfection and beautiful color were the admiration of every visitor. The color far surpassed that of fruit from any other section, and it was a splendid collection of varieties adapted to that state.

Among the counties of the home state, Jackson received first place, Hillsdale second, and Allegan third. Jackson's exhibit consisted of over 100 plates and Hillsdale had nearly as any, while Allegan had but seven, yet these seven were of such high quality that third place was awarded to the exhibit. A plate of Kings from the farm of Mr. Edward Hutchins of Allegan county, was given first place for the variety, and also grand prize for the best plate in the whole show. Another interesting feature of this exhibit was a display of Opalescent apples from the farm of Mr. John Crane, of Allegan county. This is a promising new variety of excellent quality.

A significant fact is seen in this local state contest—the first and second prizes went to counties outside the belt popularly termed "Michigan's Fruit Belt," and proves the contention of leading horticulturists of the state that Michigan's apple belt is not confined to a narrow strip along the shore of Lake Michigan but extends clear across the state, from shore to shore. It is said that if necessary, Michigan could supply the apple needs of the whole world.

A very interesting exhibit came from the New York State Experiment Station (Geneva). It consisted of a number of plates of apples from trees of known parentage. Along with the progeny came apples from the parent trees, and a comparison between them was extremely interesting. A large number of the crosses were between Ben Davis and higher quality varieties, but none seemed to be of any practical value. The chief interest in this exhibit was scientific and from the plant-breeder's standpoint rather than commercial.

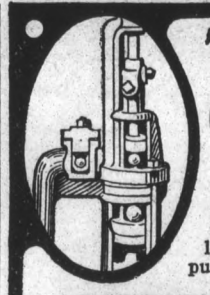
The department of landscape design had a unique exhibit and one that attracted much attention. A miniature farm laid out in a sand flat showed the all too common sight of an unattractive country place with its more or less dilapidated buildings, poor grades about the house, ugly arrangement of the few plantings surrounding it, with no attempt to shield from view the barnyard, outbuildings and other obtrusive sights. Following this was a plan of the same place rearranged according to the principles of landscape design. Next was shown this plan carried out in miniature. The house was repaired, slightly remodeled, and repainted. The outbuildings and barns were moved to a greater distance from the house, and the garden along with them, while all were attractively screened by shrubbery and tree plantings. The grades about the house, and the drives and walks were rearranged, and the natural beauty of the place brought out by tasteful treatment.

Exhibit at the Annual Fruit Show at M. A. C.

Diseases and insects affecting fruits were demonstrated by exhibits of the real thing, supplemented by charts and drawings. This feature was very complete and the attendants were kept busy answering queries of visitors in regard to them.

Unusual interest centered about an exhibit of apple pies. The young women of the home economics department had entered into competition for a barrel of choice Steele's Red apples, a bushel of Spitzenbergs, and a half bushel of the same, put up by the club as prizes for the three best pies baked by the students. First prize was won by a freshman, second by a senior, and third by a sophomore. The pies were auctioned off at the close of the show and even more attention centered around this event. The prices soared almost in direct ratio to the popularity of the maker of the pastry.

Too much credit for the success of this show cannot be given to Prof. H. J. Eustace, head of the horticultural depart-



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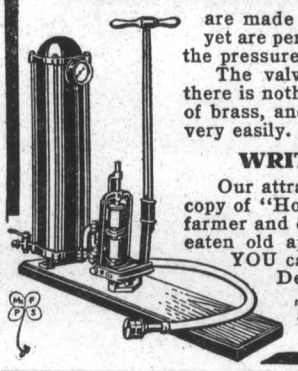

are made with valves that work with the least possible friction, yet are perfectly tight. They keep the liquid MOVING FORWARD; the pressure holds as long as needed.

The valve construction of Deming outfits is very simple, and there is nothing to stick or get out of order. They are made entirely of brass, and will never rust out. If need be, they can be removed very easily. More than twenty styles; hand and power.

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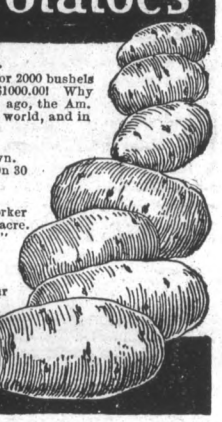

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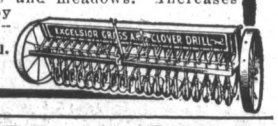

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THINNING WINESAPS.

The Colorado experiment station recently conducted an experiment in thinning Winesap apples. The fruit of six Winesap trees was thinned about June 16, or shortly after the June drop, two other trees were thinned on July 22, and two unthinned trees were used as checks. The thinned trees yielded an average of 12.72 boxes, of which 5.34 were extra fancy, 3.07 extra choice, 3.2 standard, and only 1.11 total culls, as compared with an average of 17.58 boxes on the unthinned trees, of which only 2.5 were extra fancy, one extra choice, and nine standard, with 5.08 boxes of culls. The average results showed a gain of $1.85 per tree for the thinned fruit. In this experiment late thinning was just as advantageous in improving the quality and increasing the quantity of high-grades as early thinning. Early thinning is recommended by the Colorado authorities, however, in order that the remaining fruit may develop quicker and the vitality of the tree be conserved.

A WARNING TO FARMERS.

Those readers of The Farmer engaged in fruit growing will be interested in the analysis of a compound being sold about the state as an insecticide and fungicide. Samples of the same or similar nature have been sold more or less extensively for several years, but a sample came to this laboratory for the first time only a few days ago.

This sample was sent from Whittemore, Mich., where it was being sold at $2 per pound.

The packages in which it was sold were not labeled nor did they contain any directions for use. The verbal directions were as follows: "With a half-inch auger bore two holes in the trunk of the tree two or three inches deep. Fill with the powder and cork tightly."

It was claimed that the powder "will kill all apple blight, bitter rot, San Jose scale, apple worm, etc."

The analysis of the sample follows: Sulphur, (free) 26.68 per cent; calcium oxide, 30.03 per cent; magnesium oxide, 21.43 per cent; carbon dioxide, 11.72 per cent; water (by difference), 10.14 per cent.

The analysis indicates that it is probably a mixture of one part sulphur and three parts magnesium lime, and it could be put up for three or four cents per pound. No other comment seems necessary.

Agri. Col., Mich. A. J. PATTEN.

THE FARM GARDEN.

Most successful farmers are careful to have a good garden. The part devoted to table vegetables and flowers should be fenced, and the soil made rich with barnyard compost. The woman of the household should direct the management of the garden. It therefore should be located near the house, and be as convenient as possible. Too little attention is given, as a rule, to planning the cropping system of the garden. The tomatoes, cabbages, beans, peas, etc., must not be grown on the same spot each season, but, like other crops, must be rotated to prevent the accumulation in the soil of injurious insects, fungi, and bacteria.

With a little planning a succession of vegetables, fruits and flowers can be provided for spring, summer and autumn, with a considerable supply for canning and for winter use, and it is particularly important to see that the seed comes from a thoroughly reliable dealer and is of the very best. In the same way the fruit trees should be ordered only from reliable nurserymen, the varieties being carefully selected.

Fruits and vegetables not only increase the healthfulness and attractiveness of the daily bill of fare, but they save a great deal of expense, and are far better than the stale garden stuff and the inferior grades of canned goods from the stores.

Farm workers thrive better, do more work, and are happier and more contented when well and properly fed.

Illinois. S. E. M.

FRUIT NOTES.

This has been a rather cold winter for many kinds of fruit buds and twigs, and we hear many reports of serious injury, yet it is difficult to tell the extent of the injury until later when the warm weather has called out what life there is in the buds and perhaps awakened life in many latent buds that were not considered in estimating the extent of the injury. Even if a large per cent of the buds and young growth is killed we may still have a fair crop, possibly a better one than we would have with a full load of buds and blossoms. Last season we secured a fair crop of apples from trees which did not appear to have five per cent of a setting at blossoming time and for some time afterward, in fact, our men could not see any use in spraying them, and I dare say many have had a similar experience. At any rate, it is better for us to be optimistic rather than pessimistic until it is necessary to change our views.

This is a rather hard winter on young trees in some respects. The first cold weather came without an even covering of snow and the ground froze rather deeply. However, there is plenty of moisture this fall, which was not true last fall, and since the first freezing a good covering of snow has fallen, so there will be considerable root protection even if the tops do freeze back considerably. We have put a mulch of barnyard manure around a part of the peach and apple trees set last year, but did not get them all covered. The strawberries are sleeping nicely under their covering of marsh hay and snow. They almost seem to be continuing growth, they are so green.

The apple market seems rather changeable and unsteady. The extreme cold weather has affected the handling of this fruit, especially by peddlers, and caused something of a falling off in the demand for the poorer classes of fruit; however, much of this was cleaned up before the zero weather. There are also many frozen apples on the markets which injures the trade. I have known of the fruit being frozen in the windows of grocers or on the delivery wagons and this fruit soon goes down. Those who have had experience in handling frozen fruit claim that if it is frozen but once and allowed to thaw out slowly without being disturbed that the fruit will come out all right. While we have not tried this we ed to a warm place while in this condition will not come out in good shape but will turn brown and soft and soon rot where frozen.

While the wholesale market seems rather unsteady and not as strong as it was just before the coldest weather, the reknow that fruit partially frozen and movtail market seems to have changed little. Good apples are selling at 40 to 50 cents per peck or even more, and in many cases very poor ones are retailing at 35 to 40 cents from our stores. Of course, there is considerable expense to be met by the retailer, but in many cases the difference between the farmer and retail price seems pretty high. The remedy seems hard to apply, but more direct dealing between grower and consumer will do much to bring about this end. We have sold quite a quantity of our apples in this way the past few seasons, and find that although it requires more work and that one may not be able to get rid of all of his poorer varieties and seconds in this way he can get better prices, has a growing trade if the goods are right, and does much to cut out too many middlemen. This arrangement is even more satisfactory to the consumer, as he can get his goods cheaper by buying a whole package at a time rather than by the peck, and he generally gets his fruit fresher and of a better grade. From the shipment of one or two barrels of apples to a party we have in several cases secured a dozen orders the same season, and some of these orders grow rapidly from one year to another. Neighbors and friends will club their orders, which makes quite a saving of trouble to both shipper and buyer. We have also made sales of carload lots to associations of farmers who are specializing in some crop and are located outside a good fruit belt. The present movement toward reducing the price of living is rapidly taking the form of more direct dealing between producer and consumer, and this should be encouraged. The parcels post agitation is becoming popular and though this may not affect the fruit trade to any extent it will enable the farmer to send many minor articles direct to the consumer cheaper than the latter can purchase them at retail.

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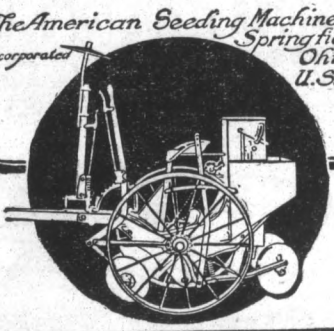

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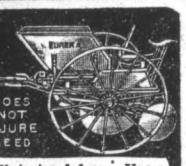

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Our Native Woodbine.

The woodbine is one of the most accommodating of beautifyers for a porch or verandah. It makes rapid growth, even under very discouraging circumstances. It loves a deep, rich soil, but is undismayed by opposite conditions, grows and thrives, each year adding to its size until in a few years it completely covers its supporting agent, and makes out of an ugly, uninviting object a thing of beauty.

Is there a tree in the dooryard that has died, or one which, for any reason it has been decided to cut down? If so leave the stub or trunk standing and plant around it roots of this vine, allowing it to grow and cling in its own way. At the close of the second season at farthest it will be a column of living green, its beauty enhanced by graceful sprays swaying from the top in every passing breeze. I doubt if there is anything possessing more grace than these sprays of woodbine as they put out tiny tendrils seeking for support. As autumn approaches the foliage turns a brilliant red, although a rather disappointing feature is that the leaves lose their hold on the stem and fall to the ground soon after frosts come.

As a protection against the beating sun I know of no better vine than this same woodbine. The plainest kind of porch is easily made beautiful and supplying a cool retreat by planting a root at each side. The tendrils will need strings or wires to cling to at first but once these get a firm hold not even a strong wind can tear them loose. A good way is to run a wire horizontally about one foot beneath the porch roof and from this let perpendicular wires or strings extend to the ground. Then, by keeping the vines confined to this space a leafy screen is afforded and without their running over the roof, a feature objected to by some.

By a little care in training and clipping of tendrils this vine can be made into festoons or into perpendicular strands of green, very pleasing to the eye.

The Wild Clematis.

Another native vine possessing many attractive features is the wild clematis, sometimes called virgin's bower, presumably by reason of its abundance of feathery white blossoms in midsummer.

This vine is very hardy and a thrifty grower. It dies down to the ground each year, sprouting from the root in the spring. For this reason it will not cover a given space so quickly as the woodbine which shoots out new leaves and tendrils from the old wood. But by the first of July this clematis attains a rank growth and from that time on until the end of the season furnishes a sun-excluding bower to its fortunate possessor. It is a particularly graceful vine, perfectly hardy, and very fragrant when in bloom.

The Wild Cucumber is a Hardy Vine.

A third in the list of hardy vines is the wild cucumber. This vine, like the clematis, has a feathery white blossom, of a strong but not unpleasant odor. It is an annual and self-sows from seed each year, the bloom ripening into fruit something similar to a gherkin, from which fact its common name is undoubtedly taken. This vine will cover an old fence or objectionable outbuilding with a blanket of green so dense as to conceal its very outlines and all this in a few short weeks after the seedlings start in the spring.

Unless nipped off, the superfluous seed sprouts become a nuisance. Yet they are easily destroyed as the garden cucumber which the seedlings very much resemble. So there is no great objection to the plant on this score. The vines die soon after the first frosts of autumn when the vines should be pulled down and destroyed. Nature will look after her own interests and no attention need be paid to seeds, only, as has been suggested, to pull up the surplus sprouts in the spring.

Do Not Despise the Hop.

As a decorative vine the hop is not to be despised. Its pleasing green and the grace of its growth appeal to the esthetic taste, while to watch the gradual development of blossom and fruit are most interesting. Its faint, yet pungent odor is not at all objectionable. Once rooted it appears perennially and requires no attention after a support is once placed for it. The variegated or Japanese variety is even more interesting since its peculiar creamy striped and blotched foliage ever presents new forms to please the eye.

Possibilities in the Grape Vine.

Lastly, I would name as a decorative as well as a useful vine for shading doorways and porches, the useful grape vine, grown with so little trouble and productive of such excellent results.

A root of any good standard variety, such as the Concord, will make a vigorous growth each season and while shading a sunny spot over door or window, will, when autumn comes supply, also, quite a large quantity of delicious fruit.

One of the most charming bits of greenery imaginable was removed from a nearby dooryard not long ago when the new owner tore down and destroyed a wild grape vine that for 20 years or more had each year embellished a small arbor or summer house where, on a simple trellis of wood with slatted roof it had furnished a play house for two generations of children from spring to fall. More than this, its sharp, purple fruit had been prized, particularly after the frosts had robbed it of its foliage. There the clusters hung, gathering richness week by week, sought by children and by birds alike, and not at all despised by the housewife, who found in these wild grapes the material for the nicest kind of jelly.

Genesee Co. E. E. ROCKWOOD.

SCULLION ONIONS—CABBAGE LICE.

In my truck gardening last year I met with two very serious hindrances: First, my onions grew a great number of sculleires. What was the cause and is there a cure for this trouble. They were grown on muck ground, well subdued but not quite as well drained as it should be. Second, the cabbage louse did great damage and entirely destroyed many of my cabbages. They did not mature solid heads. I also had a small patch of rape and they were equally destructive to that. Would it be safe to plant the same ground to cabbage another year?

Montcalm Co. A. BARBER.

Scullion onions may result from growing the crop where a sod has just been turned down, upon land that is too wet, or where coarse stable manure has been recently turned under. Often during a wet season there is a tendency for the plant to produce large stalks at the expense of the bulbs. The use of well composted manure on land that is to be put to onions and its application a year or so before the crop is produced is a wise precaution. It is also well to have the soil properly drained. Many times, however, with these conditions ideal there will be a large number of scullions, being caused by seasonal conditions. On such occasions it is a good plan late in August or the fore part of September, to break down the tops so that the energy of the plants will be confined to the bulb. This practice is not difficult to perform. It can be done by merely rolling a barrel over the rows which will crowd the tops to the earth.

The cabbage louse, known also as the cabbage aphis and denominated by scientists as Aphis brassica, is an insect greatly influenced by climatic conditions. It is also a victim of a large number of natural enemies. These enemies, however, operate during the warmer portions of the year and usually keep the aphis under control, but when the weather is detrimental to the growth and production of these natural enemies then the aphis gains control of the situation and damages the crop. The frequent forcing of a stream of cold water upon the insects is a satisfactory remedy. Whale oil soap and potash soap solutions are also effective in controlling the pests. A free use of pyrethrum applied in the powder form by means of bellows is effective in treating this insect on cabbage as well as on other plants. Another remedy is kerosene emulsion which is of especial value when the plants are young and until the heads begin to complete their growth. It cannot be too strongly recommended that the remedies be applied as soon as the aphis appears, and also that the crop be given clean and thorough cultivation and that the premises about be kept in a neat and tidy manner. It is always wise to rotate the cabbage crop. Nevertheless, by the proper applications of one or more of the above remedies one can protect against this pest without rotating with other crops but it is not the best practice.

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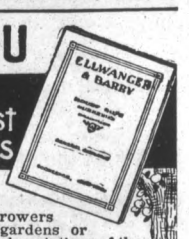

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METHOD OF STORING FRUIT IN RUSSIA.

Various methods are being offered on the pages of our horticultural press as to the best ways of storing fruits for the winter months, it being a problem upon which the success of fruit growing so greatly depends. The fruit growers of southern Russia were always noted for their exceptional skill in producing good, undamaged fruit. This is undoubtedly due to the extreme care they take in the storing of their fruits. Some of the methods they use are very practicable and may prove of interest to many of the readers of this paper.

Whenever it is possible the fruit is graded, the better varieties are being given the most attention and care. It is no uncommon thing to see apples and pears come to the market put up in individual paper wrappers and given care similar to that given to oranges. This makes the product very attractive and the price obtained more than pays for the trouble involved.

The fruits are usually stored in storehouses built for that purpose. Both ground and underground structures are being resorted to. Especially well fitted and advisable is a storage room built as an addition to an ice house, which works in exceptionally well when the small perishable fruits are to be stored away for short periods during the summer.

The storehouses are always kept at as even a temperature as possible. It is never below 41 nor above 64 degrees F. The room is also kept as dark as possible, dry, and frost protected. During the severe winter frosts, which are very common in the regions of southern Russia, the windows are filled with straw, leaves, or manure, which warms up the air while passing through this thick layer.

The cheaper grades of the fruits are placed on boarded floors or into troughs, made of two-inch thick lumber. These are bedded with a two-inch layer of clean dry straw, preferably oats, rye or wheat straw. The fruits are inspected very frequently, and any dust or foreign matter that settled on them is removed by wiping them off with a soft woolen cloth. This prevents the fruit from becoming dirty as well as lessens the danger of mold or bacterial growth, which are the prime causes of damaged and rotten fruit.

The higher-priced varieties are placed in portable cases containing many shelves. These cases can readily be moved from one place to another when there is such a necessity. The walls of the rooms where these bureaus are kept are boarded doubly, or the bureaus themselves are covered with woolen sheets. Fruit so handled will keep good for a longer time than it would under any other care.

Another good method made use of is the using of newspapers as covers. The ink on the paper makes them a very poor conductor of heat. It is usually done in the following manner: Two sheets of the paper are placed in the top of the fruit, and above them pasteboards, a woolen sheet and dry straw are placed in the order named. Paper is also made use of in packing for shipping purposes. The barrel, crate or box is well bedded with newspaper sheets, the fruit packed in carefully, a layer of paper and straw is placed on top of them and when the cover is nailed there is no chance for Jack Frost to nip them.

Artificial heating of plants is frequently resorted to to keep the place at the desired temperature. The larger storehouses are heated by stoves or steam, the smaller ones are warmed by the burning of charcoal or denatured alcohol. The heating of the room is carried out very slowly so as to prevent too sudden changes from cold to warmth.

These precautions and methods are probably in greater part responsible for the success and fame the Russian farmers have attained in the line of fruit growing. Some of these methods and ideas are being used by the western fruit growers, but, undoubtedly it may prove worth while and profitable for many others of the American farmers to put them into practice on their own farms.

Ingham Co. M. C. ELLMAN.

What the effects of the present unusual cold winter will be upon new orchards cannot be known until growing season reveals the true condition, but the fact that the cold has not been intermittent with warm days is to the advantage of the trees and also that the ground has been covered with snow. About the only precaution that can be taken is the spreading of litter about the trees, but if this is done, protect trees against mice.

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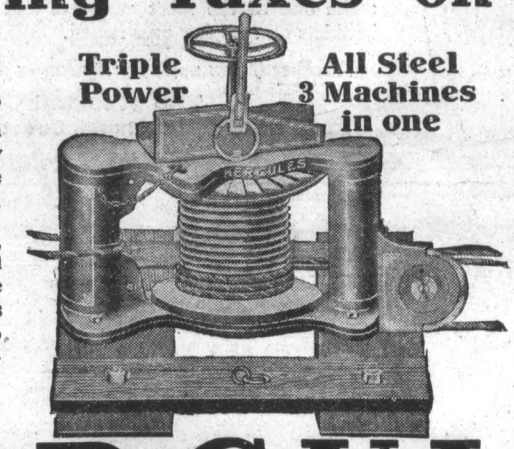
If the land is worth anything in the first place, there is not an acre of stump land in the United States that won't be worth twice as much after the stumps are pulled. You know that's true, just as well as I do. You know it's an absolute waste to let stumps occupy good, fertile land ready to produce bumper crops as soon as the stumps are out.



The question, then, is not a question of whether or not the land should be cleared of stumps; it's a question of how best to clear it. Study the pictures above—they are all reproduced from actual photographs; they answer the question of how best to clear stumpy land. They are pictures sent to me by owners of Hercules Triple Power All Steel Stump Pullers. They show the Hercules pulling stumps, little stumps, green stumps, and old stumps—pulling them out roots and all. One of them shows the Hercules moving a house just as easy as it pulls stumps. I can show you dozens of photographs like these—I have hundreds of letters from men who use the

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