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FARM NOTES.

The Management of Muck Soil.

I have a piece of muck land that was plowed early in the fall, and harrowed and disced several times before it froze up. Now would it be advisable to sow this land to peas. If so, what kind would be the best to sow, how much to the acre, and would it be best to sow oats or some other crop with it to hold the peas up?

Newaygo Co. E. B.

I have about 12 acres of muck land that was burned over last summer, from four to six inches deep. I have part of it harrowed, ready for sowing. Muck runs from one to three feet deep. Some of it I will have to get in before the frost is out or wait till June. No water stands on it. How would it do to sow oats and peas, about one bushel each per acre on this that has to be sown early, with potatoes and mangle wozzels, also millet on the balance, or would you advise something different? Would like to seed all I can to alsike and timothy. Land was heavily covered with willows and is well drained.

Clinton Co. A. L. McCLINTOCK.

The most profitable method of managing muck soil is a matter of interest to a great many farmers who have small areas of this kind of soil upon their farms. In a good many cases where the area of muck is large enough it has been made the subject of special study and experiment, both as to the special crops to which it is adapted and the elements of fertility in which it is lacking, thus making its intelligent management and fertilization possible. Where one desires to grow these special crops, muck soil gives excellent returns when planted to onions, celery, cabbage, mint, etc., and by intelligent fertilization and proper cultural methods will give great yields of these crops, which make the cultivation of relatively small areas for this purpose very profitable. But many who have but a small area of muck land undertake to devote it to the ordinary crops in the regular rotation maintained upon the balance of the farm, but generally with disappointment. There are two objections to this course, one being the danger of frost in the low places where muck deposits occur and the second in the unbalanced condition of the elements of fertility in a muck soil, which in itself leads to unsatisfactory results. Muck soils contain an excess of nitrogen, stored in them in the process of formation by the decaying of large masses of vegetable growth; but for like reasons they are correspondingly deficient in the mineral elements of fertility. Many muck soils contain as much as three per cent of nitrogen. They nearly always contain relatively small, the varying amounts of phosphorus, and are quite generally almost destitute of potash. Now the effect of this unbalanced condition of the elements of fertility is readily apparent.

The office of nitrogen in the economy of the plant is to promote the growth of stems and leaves, rather than of flowers and fruits. An abundance of nitrogen in the soil is denoted by the deep green color of the foliage of any growing crop, a characteristic which is very noticeable on muck soil.

On the other hand, potash is the source

A FEW LEADING ARTICLES OF THE WEEK.

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of starch in plants and is primarily concerned in the development of fruits and foliage and but little grain which will mature. Thus the ordinary farm crops, when grown on muck soil without any fertilization, produce an abundance of starch in the development of fruits and foliage and but little grain which will mature. It has been found that this difficulty can be overcome to a considerable



Reminders of Last Winter.—Scene on a Highway in Hillsdale County.



Farm Home of Caleb Fairbanks, of Tuscola Co., with Plenty of "The Beautiful" in Evidence.

extent by moderately heavy applications of fertilizers rich in potash, and which contain a reasonable amount of available phosphoric acid. By this means, owing to the abundant supply of nitrogen in muck soil and its inexhaustible supply of humus, where the mineral elements of fertility, particularly potash, are liberally applied, the special crops enumerated may be grown for a long series of years and give good yields. Experiments also show that corn and other grain crops may be matured upon muck soil by this means in favorable years, at least after a portion of the available nitrogen has been exhausted by crops which feed heavily upon that element of fertility. It is for these reasons that it is good economy to seed a muck soil down to timothy and red top, and such other grasses as are adapted to it, to be used as a permanent meadow so long as the land will give a good yield, which will generally be for several years provided the soil is well prepared and thickly seeded. These grasses require liberal feeding with nitrogen to produce a good stem and leaf growth and, as it is not desired to produce seed, the excess of available nitrogen in the muck soil can thus be utilized in the growth of profitable crops of hay, without expensive fertilization, and ultimately leave the soil in better condition for the growing of other crops on this account. Consequently, we believe that where it is not desired to undertake the cultivation of special crops adapted to muck soils, the best way to handle a muck soil where only a limited area is included in the farm is to seed down as above noted for a permanent meadow for a few years, then handle it in the regular crop rotation with the balance of the fields in which it may occur with a judicious use of fertilizer as advised.

The best way to seed muck land for a permanent meadow is to work it down thoroughly during the spring and early summer and sow a liberal quantity of seed during July or August, without any nurse crop. When well drained alsike clover may be made a factor in the stand of grass as suggested by one of the above inquiries, but it is questionable whether it is profitable to include it except for the purpose of increasing the feeding value of the hay.

Of course, oats and peas may be sown as a forage crop, but for the reasons above noted the results with this crop, or in fact, with any other crop grown in the regular crop rotation are not likely to be as satisfactory as the grasses which may be sown on this kind of land for a permanent meadow. Many farmers have been disappointed in the crops secured from muck soils, simply because they have failed to take into consideration their unbalanced condition so far as the essential plant foods are concerned and either grow crops which are best adapted to that condition or remedy it by intelligent fertilization, or both.

Potatoes may also be successfully grown on muck soils and by the addition of potash fertilizers large yields may

be obtained in well drained muck. Some of the most successful onion growers use potatoes as the first crop in a rotation to clean the ground for the onion crop. The writer knows of one very successful onion grower who maintained a rotation of potatoes, cabbage and onions, plowing and fertilizing only for the onion crop and preparing the soil for the other crops by surface cultivation, which reduced the trouble from weeds in the onion crop, an important item on a muck soil.

Oats in the Crop Rotation.

Would you advise sowing oats after oats? I have manure enough to cover field this winter. Soil is clay; will plow in spring.

Kent Co.

SUBSCRIBER.

It is not the best of farm practice to plant the same crop two years in succession. The whole theory of a crop rotation is against this practice. The best rotations for Michigan are those in which some deep rooting, gross feeding crops, like corn or potatoes follows a clover crop. These find the soil in a loose and open condition, and well stored with plant food, and their cultivation will leave it comparatively well stored with readily available plant food and in the best possible condition for the growing of small grains, such as oats or wheat. These latter, however, are surface feeding crops and rapidly exhaust the soil which is reached by their roots, of its readily available plant food, hence the wisdom of again seeding it to clover as quickly as possible.

On the heavier soils which are adapted to their growth, oats are ordinarily followed by wheat or some other winter grain in which clover may be seeded with more certainty of success, but while the habits of growth of these grains are similar, yet they draw from the elements of fertility in a little different proportion and the fertility of the soil is left in better balance than where any one of the crops is grown in successive years upon the same soil. Of course, on a fairly fertile soil which is plowed and a new surface fitted, oats may be grown with fairly good success for two or three successive years, and with proper fertilization might be made to follow indefinitely, but the stable manure can be more economically used upon ground which is intended for corn than upon the bare land which will be sown to some crop in which to seed clover again next spring. For this reason we believe it would be better to use the manure in that way, and to vary the rotation by sowing this land to peas and oats, instead of to oats alone. This makes a valuable forage crop, which can be utilized for different purposes, it being adapted to the making of hay, or to the maturing of a grain crop, as the grower may desire, and upon the heavier soils where the crops is used to considerable extent a great many farmers have succeeded admirably in seeding to clover with the crop. The peas will add some nitrogen to the soil, or at least appropriate from the air all that is needed to grow the crop, and the grain secured from this mixture will much more valuable as a feed upon the average farm because of the relatively large amount of protein contained in the peas, which will make this grain valuable for balancing up the ration for the live stock. Then by using the stable manure on sod ground which is to be plowed this spring as suggested, and applying, if that desirable, a relatively small amount of commercial fertilizer upon the peas and oats, the fertility of the farm as a whole will be conserved and enhanced, while a greater benefit will ultimately be derived from the use of the stable manure, not only upon the corn or other crops planted upon the sod ground, but in the small grain crops which are to follow.

IS IT PROFITABLE?

Many of us farmers get into the habit of doing our work, and putting in our crops in a certain way, without stopping to consider whether there is a better or more profitable way. It is in this respect that the agricultural press, has become almost indispensable to every farmer; because we are none of us in the business just for the fun of it. We not only want to get fair pay for our labor, but we want to make a little profit as well. Or at least we should strive to do so. By getting the experience of others the agricultural press, we can often profit by such experience and thus avoid mistakes which we might otherwise have made. For this and many other reasons, which might be mentioned, to my mind it is not profitable for any farmer to try to get along without one or more farm

papers in his home. Of course, no farmer can control the elements, or prevent the ravages of insects, but he can furnish comfortable quarters for his stock and thus add to his profits, even if he is not able to build a modern up-to-date barn. And any farmer who can afford to buy good tools, cannot certainly find it profitable not to keep them under cover when not in use. If there is not room in the barn, it does not cost so very much to build a tool house. On many farms there is loose boards enough lying around to build quite a house. The writer has a tool house built almost entirely out of broken fence boards. This building is 15x45 feet, and 8 feet high, and cost less than \$25.00, beside my own work. In this building is stored tools which originally cost over \$500. Some of these tools have been in use over 20 years, and they are yet in first class condition. But if they had been left out of doors for any length of time, would have been entirely worn out or useless long ago. It is not profitable to try to carry on a farm, no matter how small, without keeping a book account of some kind. Once get into the habit of doing so, and my word for it, every farmer who has never tried it will find it so satisfactory, as well as profitable, that he will not wish to give it up. I speak from an experience of many years. It is not profitable to neglect the little repairs that are always necessary to be made, in order to keep everything looking neat and tidy about the farm. By putting off or neglecting some repairs we sometimes make the cost double what it would have been if attended to in time. Much of such work can be done during the winter season, when time is not so pressing as in the spring. In the winter or very early spring is a good time to wash, oil and repair harness, because if this work is neglected until the busy season commences it is very liable not to be done at all.

Ottawa Co.

JOHN JACKSON.

THE MANURE QUESTION.

If there is one thing more than another that demands the close attention of we farmers, I think it is the careful husbanding of all manures. We were told at our institute by a state speaker a few days ago that a ton of timothy hay fed would produce about \$7.00 worth of fertilizer, and a ton of clover would produce about \$8.00 worth. It struck me very forcibly for I have got lots of clover hay at \$3 to \$5 per ton to ship, farmer to board pressers and deliver at shipping point, sometimes six or eight miles, which was certainly a slow way to make money. No account was taken of the manure value of the hay, only that seemed to be ready money. But a change has come to many farmers in Sanilac county. More clover hay is being fed and many are purchasing more bran and oil meal, having learned the manurial value of these feeds and balancing effect on the other feeds.

Then, many handle their manure very wastefully. I have in mind a neighbor who burned a stack of old straw to save hauling it off. I said then, such acts will turn him off his farm, same man often left his manure in the yard until fall (imagine the waste). Same man would grow three crops of oats in succession without manure or cloverseed. He could not be induced to attend a Farmers' Institute or take a farm journal. Such farmers seldom like farming or make a success of it.

With careful handling of manures and soil it can be made more productive each year. Reports show that millions of dollars are being spent every year in the United States for commercial fertilizer.

Brother farmers, won't it pay us big to have a better system of handling our manures.

Sanilac Co.

J. C. FRITCH.

SEEDING CLOVER ON SANDY SOIL.

In your issue of January 2, replying to P. M. regarding seeding clover on sandy land, you say: "Without any doubt it is better to wait until the ground is settled and harrow in the seed on sandy land." While, perhaps, I have no land that you would call sandy land, much of it is a sandy loam. I have had far the best results by sowing clover seed in the winter, say December, January or February, when the ground is bare and frozen, the earlier the better. The seed will then find lodgment in every crack or crevice. The wind will blow the sand over it, so that by spring it will be covered so deep that it will not grow until the weather is sufficiently warm that

there will be comparatively no danger from frost, and deep enough so that the sun's direct rays will not dry it out. A few years ago I sowed a part of a rye field to clover seed in December, the balance of the field I concluded to leave until spring and sow and drag, so I had my 60-tooth drag sharpened, dragged the ground over, sowed on the seed and cross-dragged it and waited for results. It was a very bad year for seeding, but I had a very fair catch where I sowed in December; but where I sowed in spring and dragged in, scarcely a seed grew. I lost my seed and two days' work with my team when I ought to have been working at other work, besides wearing out my drag. At this writing the ground is bare and frozen, and just as soon as it gets warm and still enough, I shall sow my clover seed. I never had a failure when sown in this way.

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EMORY E. OWEN.

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The Fence That Lasts.

There isn't anything that the farmer buys in which a mistake is more hopeless than in wire fence. If he gets "stuck" he is stuck for good, because there is no possible way of remedying the defect; it is a case of buying a new fence. The Brown Fence & Wire Company, of Cleveland, Ohio, is sending out some interesting literature on wire fence, showing why so much of the fence put up in recent years has rusted out and gone to pieces in so short a time. They point out very clearly that a fence, like a chain, is only as strong as its weakest part. It must be good all over to be good at all. A strong heavy stay or up-right is just as important as a heavy lateral. They, moreover, show that in recent years much of the galvanizing that has been done is hardly worth the name of galvanizing at all. The wire is merely dipped into melted zinc instead of being put thru a true galvanizing process. We know everyone of our readers will be interested in what Mr. Brown has to say on this fence question. Send to him for his little book. It will open your eyes.

The Man Who Keeps Cows

Cannot fail to be interested in the handsome catalogue issued by the American Separator Company, Box 1061, Bainbridge, N. Y. It is the finest work of its kind that we have seen put out by a separator company, containing over seventy-five excellent illustrations, which are both interesting and instructive. The working parts of the separator are shown in detail and convey clearly to the mind the extreme simplicity of the Low Down American Cream Separator, and the reason for its ease of operation, quick cleaning and ability to separate either hot or cold milk; milk from fresh cows or "strippers." Their system of selling, wonderfully low prices, liberal terms of trial and attractive purchasing terms, are all fully explained in this catalogue, while the general information on the separator subject is such that, whether you have a separator or not, you should have a copy of this catalogue. You can receive one postpaid by addressing American Separator Company, Box 1061, Bainbridge, N. Y.

Appreciative Letters.

The Chicago House Wrecking Co., Chicago, have just sent us a lot of letters from satisfied customers. We publish a few of them. The Chicago House Wrecking Co. have been advertising lumber direct to the consumer at low wholesale prices. That they furnish good lumber these letters will testify.

"Will just say that I was well pleased with my lumber. Several lumber men have been to see it, and say it is good lumber."—Mrs. M. Pendergast, Jerome, Iowa, Jan. 2, 1909.

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"The lumber I received from you a few weeks ago is very satisfactory. The plastering lath I am well pleased with. I have a good demand for them in 4 feet and 32 inch. Can you furnish me a half carload mixed with other lumber?"—H. H. Fahl, Rosedale, Pa., R. 1.

Be Sure and Get this Book—Free.

The new catalogue of the Wisconsin Incubator Co., Racine, Wis., Box No. 89, gives valuable information on Incubators and Brooders. It tells how a good Incubator and Brooder should be made, and at what price a good Incubator and Brooder can be made and sold for. It also gives you some good illustrations and instructive views, showing the construction of Incubators and Brooders. Mr. Thos. Collier, manager of the Wisconsin Incubator Co., will be glad to mail you their catalog if you will just write them for one.

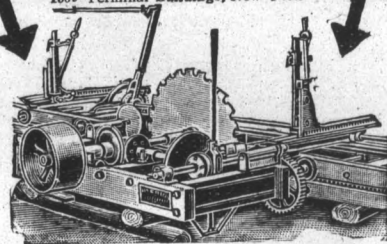
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SOME FERTILIZER QUESTIONS.

How much fertilizer is generally used on sand ground and what kind. Also what kind for potatoes on clay and what kind is used on clay ground for sugar beets? The sand ground is to be put into beans.

Sanilac Co.

T. F. NICHOLS, JR.

No one can answer such fertilizer inquiries definitely. In a general way we know that sandy land is apt to be deficient in potash, and also in a general way that clay is also apt to be deficient in available nitrogen and phosphoric acid, but usually has plenty of potash. Yet clay and sand differ. That is, they differ in the amount of available plant food which they contain and it is only available plant food which is of any particular benefit for the time being. For growing crops it matters little how much phosphoric acid and potash is tied up in good clay soil provided it is not available for plant food. Perhaps it requires weathering to make it available, perhaps it requires some very vigorous growing plant to set free some of this, or it may be that it needs an application of lime, or something of that sort. But with these we do not know, but can only speak in a general way.

Then again, different crops require different per cents of plant food. For instance, potatoes and sugar beets require a good per cent of potash in the fertilizer, while cereals and corn require more phosphoric acid and nitrogen to make a healthy growth. So we can only speak in general terms and in a general way we say that a sandy land fertilizer should contain a formula that contains a relatively low per cent of nitrogen, because sandy land parts with its nitrogen readily and you don't need to apply so much. I would say that for cereals and corn on sandy land I would use a fertilizer that contains four times as much potash as it did nitrogen, the more phosphoric acid it contains the better.

Now, as to what kind shall be used for potatoes on clay, I would say, use one that contains a good per cent of nitrogen and phosphoric acid but it does not need a heavy per cent of potash for potatoes on clay. A fertilizer containing 2 per cent of ammonia, 8 per cent of phosphoric acid and 4 or 5 per cent of potash, would, in my judgment, be a good formula to use on potatoes on clay. I would use from 500 to 1,000 pounds per acre. I would use just about the same formula on clay ground for sugar beets. If I had the potatoes on real sandy land, then I would prefer a larger per cent of potash, say a formula containing 2 per cent ammonia, 8 per cent phosphoric acid and 10 per cent of potash, as it will remain in the soil for future crops.

For beans on sandy land you want a good per cent of potash on general principles, but it need not be as heavy as for potatoes. I should say that a fertilizer containing 1 per cent ammonia, 8 per cent phosphoric acid and 2 per cent potash would be a good bean fertilizer. You want plenty of phosphoric acid for beans to ripen the crop. I would as soon have a fertilizer containing 1 per cent ammonia for beans as to have it contain 2 per cent, and it would cost from \$2.50 to \$3 less per ton.

COLON C. LILLIE.

CONVENIENCES ON THE FARM.

There are many little devices the ingenious farmer can arrange to save time and labor on the farm, and one who visits various farms managed by ingenious farmers will continually see something new, or at least the application of something old to suit the conditions and secure the end sought. I will give a few illustrations.

On one farm there were two sheep barns standing on either side and somewhat lower than the main barn. As many as 800 sheep had been fed in these barns at one time, and the problem of getting up the stairs to the mixing loft above was quite a serious and laborious one. But the owner was equal to the task. A plank walk was built from the back door of the bank barn to a door thru the roof of the nearest sheep barn, so the sacks could be carried from the wagon on the barn floor to the upper floor of the nearest sheep barn, a down grade instead of a climb. The other barn was reached in the same way by means of a little carrier into which the grain could be dumped from the wagon on the barn floor and run on a cable to the upper floor of the farther sheep barn.

In this same barn was a little power

plant attached to the windmill above the barn, the shaft being connected to a feed grinder, grindstone, lathe, feed cutter and drill. In another building on this farm was a forge, anvil, and various iron working tools. No need to go to town to replace a broken bolt or chain on this farm.

On another farm where spraying operations are conducted the gasoline engine is made to do the duty of the windmill, and in addition to saw the wood for use on the farm.

Then there are the many little conveniences found in many barns, such as hay and grain chutes, gates which open easily, feed troughs easy to fill and clean, conveniences in feeding, or in handling the manure, and the general arrangement which makes it possible for one man to do the chores better and in less time than two can do similar chores in other barns.

Contrast with these other barns which I have in mind where hay and stalks stored above are carried entirely around the barn and fed by carrying them to the mangers from behind each cow and horse, and where water is carried to nine cows from a pump 150 feet away and 15 feet above the basement of the barn. Or take another barn 45x60 feet, with the basement so partitioned that one must go out of doors to get from one part to another and to carry hay and feed around or over fence partitions.

When farmers study to economize labor and expense, as do the managers of factories, and eliminate some of the false motions and waste of labor on the farm factory, the margin of profit will begin to creep upward, farm homes will improve, and there will be less call for commissions to investigate farm life.

Calhoun Co.

S. B. H.

ENGLAND'S GREAT POTATO CROP.

The Department of Commerce and Labor has received a report from Consul Walter C. Hamm, at Hull, England, showing that the year 1908 will be known throughout the British Empire, as the "potato crop year." The English, Scotch and Welsh farmers agree that the harvest last season has established a record. In Great Britain the yield is stated to be almost exactly 4,000,000 tons, or about 250 bushels per acre, which is far ahead of the average for the United States. This is nearly 1,000,000 tons greater than the crop of 1907, and about 250,000 tons above the next highest crop, which was produced in 1897. The production is so large in fact, that farmers find them a burden, and in some cases hardly worth while to carry to market. An outlet abroad is being greatly sought for the surplus of this great crop, and some cargoes are being sent to the United States. These are invoiced at 60 to 70 shillings, or \$14.60 to \$17 per ton. To this must be added the freight of 11 shillings, or \$2.68 per ton from Hull to New York, and the duty of 25 cents per bushel of 60 pounds. The cost of a ton of potatoes shipped from Hull to New York is as follows, taking as the average price 65 shillings, or \$15.80 per ton:

	Per ton.
F. O. B. at Hull	\$15.82
Ocean freight	2.68
Duty, 37½ bushels to the ton.....	9.33

Total\$27.83

Thus the cost of laying down a bushel of potatoes in New York would be about 74½ cents—probably a higher price than most American farmers are getting.

The counties of Yorkshire and Lancashire, both of them in the Hull consular district, are the eastside potato fields of England. Thousands of acres are planted with potatoes there every year and in a good season heavy crops are grown. While the land is fertile, perhaps the scientific cultivation and the careful selection of seed does as much as anything to increase the yield. The total crop of potatoes in the United Kingdom averages in value about \$100,000,000 annually, but when the crop is poor, owing to an unfavorable season or a blight, there are large importations from the Continent, of which there will be very little this season.

According to the report of Secretary Wilson, just issued, unfavorable weather made our crop only 275,000,000 bushels, or more than 45,000,000 tons—five per cent below the five-year average, altho the value, \$190,000,000, is 18 per cent above and was never equaled by any former crop.

Washington, D. C.

G. E. M.

Amatite ROOFING

Why it Needs No Painting

IF you had a sample of Amatite in your hand you would see in an instant why it needs no painting or coating to keep it waterproof. It has a rough surface of *real mineral matter* on the weather side. It is evident to anyone that it is no more necessary to paint such a surface than it is necessary to paint a stone wall. Stone needs no paint; neither does Amatite. It is strong enough in itself to bear the brunt of rain and wind and sun without a protective coat of paint.

A roofing that consists of smooth materials, made to receive a heavy coating of paint, is not a roofing at all—the paint is the real roof. No paint is good enough to make a durable roof; a thick layer of pitch, faced with a real mineral surface, is far better—and that means *Amatite*.

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LIVE STOCK

THE LIVE STOCK MEETING.

The eighteenth annual meeting of the Michigan Improved Live Stock Breeders' and Feeders' Association, and allied associations as announced, was held at the Michigan Agricultural College on Tuesday and Wednesday, January 12 and 13, with a large and representative gathering of Michigan live stock men present. The several breed associations for which meetings had been called at this time and place held sessions at practically the same hour on Tuesday, January 12, in the several buildings on the campus which had been assigned to them. Most of them were well attended and matters of interest to the breeders were discussed, but as the general meeting will hold greater interest for the general reader, the general meeting will be first reported in these columns, and the breed meetings will be referred to in a future issue, or as soon as the data concerning all of them can be assembled.

Following the several breed meetings, a union meeting of all these sections was held in the college armory at five o'clock p. m., on Tuesday, for the discussion of two very important problems which confront the breeders and feeders of the state. The first of these topics, "The present status of hog cholera prevention," was opened by Dr. C. E. Marshall, of M. A. C., who reviewed in detail the method of vaccination to secure a degree of immunity against the disease. As Dr. Marshall recently described this treatment in the columns of the Michigan Farmer it will not be necessary to repeat it in this report. He said, as in the article referred to, that the early work done along this line was highly encouraging and satisfactory, but that later, difficulties were encountered which made it necessary to suspend the work for a time until the problem could be further worked out in the laboratory and these difficulties eliminated. This, he now thinks, has been done and that they are again about ready to go ahead with the work, which he thinks promises a degree of ultimate success which will be most beneficial as a method of guarding against if not eliminating this deadly disease.

Mr. C. A. Tyler, of the State Live Stock Sanitary Commission, was called upon to give his experience and observation in the immunization of hogs from cholera, which he did in a manner to convince his hearers that the treatment is a success when the conditions are right, but the result of some of his later experience was not so favorable. He, however, expressed great faith in the efficacy of the treatment, as did some breeders present who were confronted with an outbreak of cholera in their herds and who avoided heavy losses by prompt action in having their hogs treated to immunize them.

Mr. H. H. Hinds, of the sanitary commission, emphasized the wisdom of keeping the disease confined to a small territory wherever it appears, as by this means alone can the certainty of serious loss to the community be averted. Mr. Brown, who maintains a very large herd, largely on garbage collected from Grand Rapids, is a strong believer in the efficacy of treating for immunity, by which means he reduced his losses to the minimum, and also believes in breeding for immunity, as his experience points to the success of this method of lessening the ravages of the disease. It is a well known fact that some animals in every herd in which there is an outbreak will generally survive, and these he believes to have a great value as breeding stock. He purchased two car loads of immune hogs from Missouri for this very reason and declared that he would not for a moment think of breeding from a sow or using a boar that was not a natural immune, in his breeding operations.

The second of these special topics which were discussed at this important meeting, was "Contagious Abortion Among Cattle," which was ably discussed by Director R. S. Shaw, of the Michigan Experiment Station. Prof. Shaw emphasized the point that contagious abortion is more prevalent among the herds, especially the dairy herds, of the state than is generally known or suspected, and that there seems in many cases to be a peculiar lack of honor or compunction among breeders about selling infected animals and thus spreading the disease and creating new centers of infection. For this reason he counseled great care in keeping the disease out of the herd, and thoro treatment

to eradicate it if it appears. It will generally be found that this treatment must be continued for a considerable time after all apparent danger is over, to be certain that it is completely eradicated, else the infection may survive and the trouble, some and expensive work of eradication have to be done all over again. The treatment consists in a thoro disinfection of the stables and a frequent cleansing of both cows and bulls with an antiseptic wash to destroy the germs of the disease.

Following a brief discussion of Prof. Shaw's address, those present were invited to repair to the Woman's Building, where a luncheon was given to the visiting stockmen by the State Board of Agriculture and the faculty of the college. The spread was served by the girls who are taking the domestic science course, and was much appreciated by all present, as were the after dinner talks given by the governor, the speaker of the house, members of the legislature and of the state agricultural society and others who were present. Altogether, the evening was most enjoyable, and the attendance was both larger and more representative of the great allied live stock industries of the state than has been the case upon any previous, similar occasion.

Wednesday Morning Session.

As it had seemed expedient to adjourn the session of Tuesday afternoon before the discussion was completed, the meeting was called to order a half hour earlier on Wednesday morning to permit a further discussion of the special topics which had been under consideration at the previous session. The first number of the program proper, was the president's address, which was then given by Robert Gibbons, of Detroit, and which we reproduce as follows:

President's Address.

As it is customary for the President of the Association to make a brief address at its annual meeting, referring to present conditions in the industry, and making suggestions as to needed changes to insure its work growing in effectiveness as the association grows in age and experience, I shall follow this well-established custom.

It is now 18 years since the organization was formed, and that it has survived until the present time is pretty good evidence that its foundations were laid deep and strong, and able to withstand the great vicissitudes such organizations must expect to meet as time goes on. At the time of its formation there were several strong breed organizations which met annually in the state capitol, but there was so much rivalry between the breeders that it was very difficult to secure harmonious action on any subject, so they exercised but little influence beyond those interested in these special breeds. It was to tone down the asperities and jealousies of the membership of these organizations, and convince them that it would greatly aid the live stock industry to ally these kindred organizations, and thus bring about a broader feeling of friendship and mutual good will, that was certain to result in great good to the individual members. As the late Hon. Wm. Ball, its first president, expressed it: "There is good in all the pure-breeds, and we can consistently unite in driving out the scrub." That such a feeling of mutual respect and confidence has since grown up among us, all will agree, and its results are to be seen here today. All the breeds are represented, and we do not ask today what class of stock is he breeding, but what kind of a man is he? Is he honest, capable, and working diligently to improve his class of stock? If he is, he meets all the requirements which entitle him to a high place among his fellow breeders.

The Past Season in Michigan.

The past year in our state has been one of sudden and radical changes in values in all meat animals. In this respect perhaps sheep and hogs have shown greater fluctuations than cattle, but all have experienced them. There is one thing full of promise for breeders of improved stock, and that is the steady demand at high prices for the best quality of cattle, sheep and hogs. I doubt if I ever saw the difference between ordinary and choice grades so great as at present.

The changes in the industry which has been in progress during the past ten years still continues, and the big cattle outfits, once the great feature in the free ranges of the west, are steadily decreasing. They were followed, to some extent, by bands of sheep, but as the land passes under cultivation, the dairy cow, and the choice bred steer will take their places. There will be more cattle

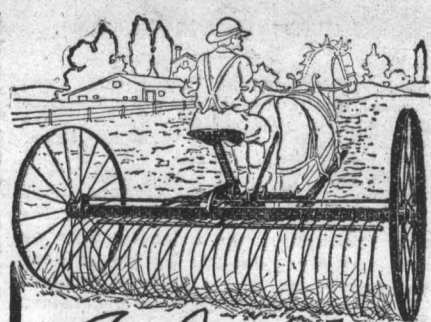
sheep and hogs raised in that territory, but conditions will gradually approach those in the older states. The long-horned Texas steer has been relegated to the scrap heap. I noted a paragraph in a Texas journal a few weeks ago, which stated that the last cattle range in that state, some 12,000 acres in extent, was being divided into farms and sold to settlers. With the disappearance of the Texas steer we may perhaps be able to eradicate the cattle tick and with it the so-called Texas fever. The farmers will want good cattle, and the cows must be better bred to produce them. Forage crops will be grown, and the dairyman will supplant the cow-boy. Even in far off Montana and Wyoming people are beginning to realize that the earth and the fullness thereof is no longer the personal property of the cattle king and the cow-boy. The cultivator of the soil is eliminating them as completely as the early settlers did the red man. It is a part of the ceaseless advance of civilization against which neither men nor conditions can successfully contend.

When these ranges become cultivated, farm stock-raising in Michigan—especially cattle and sheep—will prove as inviting a field for investment as these cheap lands of the west are now. But neither on those western farms or on those of our own state, will the beef steer represent the only product of the herds of cattle, or the fleece the only product of the flocks. It will be dairy products as well as beef, and mutton as well as wool. For the people must have meat and clothing, as well as butter and cheese.

But no matter what changes may take place in the live stock industry—the American hog, in all its various forms—will be with us, and render efficient aid in making other branches more profitable. Are you raising cattle for market? The hog is the natural associate of the beef steer. Do you prefer dairying, with its greater profits but increased labor and more complicated methods, then the hog—the well bred hog—will not only make your profits more certain, but increase them in an exact ratio as he is utilized to save waste materials and give them a cash value. He should also be utilized by the general farmer and the fruit-grower, as he is not only a scavenger, but has the inborn habit of picking up inconsidered trifles and turning them into high-priced and healthful meats—giving a cash value to what would otherwise become a nuisance on the farm. Improvement of the Live Stock of the State.

This is one of the questions which should be considered at this meeting, and to help us to arrive at proper conclusions, the Bureau of Animal Industry of the Department of Agriculture thru its chief, Dr. Melvin, has sent a representative, Mr. G. Arthur Bell, who is here to talk on that subject. This question more particularly applies to the cattle of the state, no matter for what purpose they are kept, as both sheep and hogs are of very fair quality. What is needed is a more general use of pure bred sires on our cattle. We should not be sparing in our efforts to impress upon those who maintain cattle on their farms for any purpose, that they can double the value of their herds by a system of up-breeding that will cost very little except time. If it costs from \$30 to \$32 per year to maintain a cow that only produces 150 pounds of butter per year, or 4,000 pounds of milk, it will require every dollar received for her product to maintain her in fair condition. The use of pure-bred sires upon such cows would increase the product of the heifers fully 25 per cent, and a second cross would give the farmer heifers that would produce 50 per cent more butter or milk than the original cow. Instead of 150 lbs. she would give 225 lbs. of butter, or 6,000 lbs. of milk. This is not based upon mere assertion but upon actual facts, and can be vouched for by dairymen in this and other states. And if a steady line of upbreeding is adhered to for two more generations the produce, for practical purposes, will be fully equal to pure breeds. If this process of breeding up was generally followed on Michigan farms the owners of dairy herds would receive double the income they do now where common cows are relied on. This is a safer, saner method of securing profits than any investment you can make in stocks or bonds, and it harms no one, in fact, insures to the benefit of the public generally.

In this connection I wish to impress upon both breeders and farmers that the most valuable characteristic of improved live stock is its ability to transmit its



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good qualities to its offspring, even when mated with scrubs and mongrels. When farmers generally understand this fact, and act upon the knowledge, it will have the happiest effect upon their own material interests, and provide a home market for the surplus of the pure bred herds and flocks of our breeders. Their interests are really interdependent.

Tuberculosis.

Another important subject, and one that should be settled at once, is the elimination of this terrible plague from the cattle of this state. It is a matter that can no longer be ignored. In the interest of the health of our people—which is superior to all other considerations—it must be stamped out. Every year that passes without active work being carried on for its suppression, is at the expense of the health of the people, and spreads the plague more widely. This subject will be freely discussed at this meeting by men who have studied the matter in its various phases, and I bespeak for them an attentive audience and a careful consideration of their suggestions. I may say this, however, that I believe now, as I have for years, that as this is a subject in which every citizen of the state is vitally interested, the burden of stamping out tuberculosis should not be placed upon any one individual or class. The owner of diseased cows will not be likely to make the fact known if his herd, upon which he relies for a part of the income necessary to maintain his family, will be slaughtered, without compensation to its owner. We must enlist the owner of cattle in this crusade against disease, or it will surely fail. It is up to our legislators to devise means and appropriate funds to compensate owners for such losses; and the campaign, once started, should be waged unrelentingly until tuberculosis is unknown among Michigan herds. It is a moral obligation resting upon our legislators and state officials to take up this subject at once and settle it for all time.

Live Stock Generally Healthy.

In other respects Michigan's herds and flocks have been quite free from disease. We have had some hog cholera, and a few cases of contagious abortion and sheep scab—the latter brot in from the west. An outbreak of foot-and-mouth disease caused great alarm for a time in a township in Wayne and another in Oakland counties. The principal loss and it was considerable, came largely from the regulations put in force by U. S. officials, interfering with general business. However, not a single new case of the disease has been discovered since these regulations went into effect, and I have no desire to criticize the bridge which has carried us over safely.

In conclusion, gentlemen, let us discuss each subject as it comes up, fairly and frankly, and with an eye single to the best interests of the industry as a whole, and I feel certain we shall have cause to remember with satisfaction the 18th anniversary of our association.

Following the president's address the reports of the secretary and treasurer of the association were read and approved. The next number was an address on "The Improvement of Live Stock," by H. H. Dean, Professor of Dairy Husbandry, at the Ontario Agricultural College. This address was so full of thought for the progressive breeder that we presented in full as follows:

The Improvement of Live Stock.

A writer in one of the leading American Agricultural Journals recently said: "Fashion rules wherever man lives, whether among the savages of Central Africa or in the Courts of Europe. Woman has not a monopoly of fashions. With her the hat of this year may be abominable next, and what was the very quintessence of beauty and loveliness last year may be a 'fright' now; but men are not exempt from this weakness of human nature. The masculine mind has its fads and fancies as well as the feminine."

"Stock breeders are not exempt from the tyrannous and arbitrary rules of fashion; and in our judgment the foolish fads and fancies of the stock breeders' costs the good man more dollars than the fads and fancies, foolish and otherwise, of his women folk."

The above is true and 'tis pity that 'tis true. How shall we prevent this foolish running after whims and fashion, these "bubbles in the think-tank" of breeders of live stock? I take it that one of the objects of the present meeting is to bring about an improvement in present methods. Before much improvement can be accomplished, we shall need to change not only our "fads and fancies"

but many of the theories which have hitherto guided stock breeders. We shall also need to understand so far as possible the principles underlying the problem before us.

Past Theories.

The leading motto which stock breeders have kept before them for a number of years is, "Like produces like or the likeness of an ancestor." Recently, however, a new motto, and we take it a better one, has been brot to the attention of stockmen. This motto, or axiom, may be stated as follows: Variation is the hope of the breeder. Davenport, in his recent work, tells us that, "variation rather than heredity has been chosen 'or the leading shot.'" He further says: "The most obvious fact about living things is their variability." "No two are alike and variation is universal." "Much of the real advance in both animal and plant breeding is likely to come thru distinct offsets which are called mutations."

Variation is at once the most promising agent for improvement and the most powerful and subtle force for undermining and destroying what has been already obtained."

"In reproduction there are no duplicates."

In an earlier work on "The Survival of the Unlike," Dean Bailey says: "As no two individual organisms are or ever have been exactly alike * * * it seems to me to be the logical necessity to assume that like never did and never can produce like."

"The survival of the unlike refines the fittest to be the unlike." "Variation affords the material or starting point from which progress is derived."

Goethe said: "Nature is ever shaping new forms: what is, has never yet been; what has been comes not again. Everything is new and yet naught but the old."

Darwin's evolution theory, while in the main correct, has received some quite important modifications by recent thinkers. "If we suppose that new mutations and definitely inherited variations suddenly appear, some of which will find an environment to which they are more or less well fitted, we can see how evolution may have gone on without assuming new species to have been formed thru a process of competition." Nature's supreme test is survival. According to Darwin's view of the origin of species, each new species is gradually formed out of an older one, because of the advantage that the new individual may have over the parent form." (Thos. Hunt Morgan in "Evolution and Adaptation.") De Vries concludes:

"That new species arise suddenly, at a single step without transitional forms."

"They are usually fully constant from the first moment of their origin."

"The tendency to mutate recurs periodically."

The foregoing quotations are sufficient to indicate that we shall need to modify old theories of breeding very considerably if we would keep pace with the advance of modern scientific thought on the question.

Principles of Breeding.

I can touch these in but the briefest manner. To my mind the germ plasma theory of Weismann is the best theory of heredity which has been put forward up to the present, altho it is true as Romanes says, "The Gemmule theory by Darwin; the Stimp theory of Galton; and the Germ Plasma theory of Weismann have many things in common."

In a word, Weismann explains his theory by saying, "The germ plasma is an extremely delicately formed organic structure in which each independent variable part present thruout ontogeny is represented by a vital particle, each of which again has its definite inherited position, structure and rate of increase."

"The germ plasma possesses a great power of remaining constant but the elements of the germ plasma, i. e., the biophors and determinants are subject to continual changes of composition and these minute fluctuations which are imperceptible to us, are the primary cause of the greater deviations in the determinants, which we finally observe in the form of individual variations."

He goes on to say further: "The origin of a variation is equally independent of selection and of amphimixis and is due to the constant recurrences of slight inequalities of nutrition in the germ plasma which affect every determinant in one way or another and differ even in the same germ plasma."

"Sexual reproduction has come into

force in organic nature in order to preserve the variability which had existed since the time of primordial beings."

"Life never begins anew. It is like a continuous stream."

Reid tells us: "Natural selection causes progressive evolution, reversion, regressive evolution. Whenever evolution approaches perfection reversion sets in."

It is altogether likely that the story of Man's creation, so familiar to us all, is a poetic account of man's mutation—"a sudden departure from type where the pendulum swings, but does not return." Unfortunately for the poet and his theory, fortunate for man, the latter has never yet attained unto perfection tho he is striving hard to do so. If Reid's theory be correct, and there is much in nature to warrant the conclusion, he will never reach perfection, because as he approaches that condition, reversion steps in and man tends to go backwards as an individual but the race is steadily pressing onward and upward.

It may not be very flattering to our egoism to be told, "All human embryos, those of nobles as well as commoners, are scarcely distinguishable from the tailed embryos of dogs and other mammals during the first two months of development," yet, no doubt, Haeckel is right in his statement.

If it were not for "the mighty potency of human indolence," man might progress faster than he does. It is because of the records available in reference to man's improvement, that "the greatest study for mankind is man," not only with reference to the lessons to be learned for improvement of live stock, but for the elucidation of many biological problems that interest all students. Biometry or the application of statistical methods to the study of biology, is a hopeful branch of natural science.

Practical Phases.

Leaving the scientific parts of the discussion, let us consider some of the more practical points. Any one who has given any thought to the question at all must be impressed with the fact that the live stock of America have not improved so much as one might expect in a progressive country. It is true that we have a number of excellent animals, but the proportion of poor stock, more particularly on average farms, is altogether too great and does not seem to be decreasing. We ask ourselves as practical men why this is so, and what can be done to improve matters?

I shall confine myself largely to that branch of live stock with which I am most familiar, viz., dairy stock. We are told that the average cow of the United States and Canada gives about 3,000 lbs. of milk annually and produces from 25 to 50 lbs. of butter in the same length of time. This means that a large number of cows are giving much less than the figures quoted.

When we consider that it costs from \$25 to \$35 to feed a cow for one year and that milk does not, on the average, bring more than \$1 per 100 lbs., or butter more than 25 cents per pound, we can readily see that "average" cows no more than pay for their food, while those under average production are kept at a loss.

When we consider the possibilities of a dairy cow as expressed in the year record of the American cow, Colantha 4th Johanna, of 27,432 lbs. milk and nearly 1,000 (998) lbs. milk-fat; or of the Canadian 4-year-old cow, Boutsje, which gave 20,778 lbs. milk containing 782 lbs. milk-fat in one year, making a profit, over cost of feed, of \$117.72 at creamery prices for milk-fat, and \$259.54 on her milk, at 4 cents per quart—when we contrast these records with those for average cows, we again ask ourselves why the man on the farm is content to milk average cows and why the breeders of dairy stock cannot produce Colanthas and Boutsjes in large numbers?

The answer to the first question is probably to be found in the fact that the farmer has come to consider the whole question of breeding stock, one of luck. He is in the hands of blind fate who may be kind enough to give him something of value, but who is more likely to give him common, every-day, and in many cases, poverty producing stock. He is helpless. He thinks he is just about as likely to obtain "fairly good cows" by the use of a "scrub sire" as by using a pure-bred. In many cases, we regret to say, that his logic is about correct, as many pedigreed animals are little or no better than "scrubs"—in fact, are more deceptive, because they have the pedigree but lack the power. The average man needs to be convinced of the value of pedigreed

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stock. He is skeptical (not without cause), at present.

The answer to the second question is not easily found. The man who solves this riddle will be greater than Samson, Solomon or Darwin. However, it looks as if we were about to unlock the secret, so carefully guarded by nature from the eyes of prying man. To me it seems as if the secret lies in a study of embryology. If it be true that "Every part of an animal's form is present rudimentarily in the germ cell," it seems to us that here is the place to study these forces which make an animal great or small, profitable or unprofitable, little, average, or wonderful producers of speed, work, beef and milk.

Vernon tells us: "The permanent effect of environment on the growth of a developing organism diminishes rapidly and regularly from the time of impregnation onwards." If this be true, we see the need of placing an organism in proper environment from the very moment that amphimixis or fusion of the two germ plasms takes place.

"Heredit is simply the sum of all the effects of all the environments of all past generations on the responsive, ever-moving life forces. Environment is the architect of heredity."—(Burbank).

Morgan states: "Between an organism and its environment there takes place a constant interchange of energy and material."

To quote Vernon again: "An organism varies least when it is best adapted to its surroundings." I take it that this refers more particularly to the mature organism, in which we wish to prevent reversion, or wherein we endeavor to hold what we have.

Boxall says: "The atom and the microbe are convenient starting points for tracing the evolution of the world and man."

Taking all this evidence into consideration we believe that the embryo condition of an organism is the point at which we should begin to formulate an answer to the question, why are so few animals great producers?

We are told that: "There appears to have been two separate and distinct stages in the evolution of man: One that of his conflict with nature, ending in the mastery of brute creation; the second that of his conflict with nature ending in his mastery of the resources of the earth. Overlapping and succeeding the second therefore, has been a third, that of the conflict of man with man, ending in the survival of the fittest of the human race."—(Morris).

If we may be allowed to say so, we think that the first two conflicts are not yet ended by any means and that if man would give a little more attention to the conflict with nature and less to the conflict of man with man, it would be much better for the human race. While it may be true that, "Struggle is the father, king and lord of all things," man might far better confine his "struggles" to those of a peaceful nature, than to an effort to strangle the weaker members of humanity.

Coming back to the practical application of the foregoing principles, we see the need in the case of the dairy cow, or supplying her with plenty of feed and having suitable environment while she is carrying the future cow, or the sire of many cows.

Is it not a fact that most men put a cow on small rations as soon as she "goes dry?" This is a fundamental mistake in the breeding of dairy stock. When "dry" is the time to build up a cow's system for the future strain of milk-giving and in order that she may have vitality to impart to the embryo calf.

Quoting from a bulletin giving the result of Poultry work at the Maine Station, by C. D. Woods, (Main Sta. Bull. 157, pp. 203-218). (pp. 271-272 Experiment Station Record, Vol. XX, No. 3).

"After 9 years of selection with respect to egg production the birds breed no truer to a definite type of egg production than they did at the beginning."

The practical conclusion to be drawn from the results of this breeding experiment seems to the authors to be clear. It is that the improvement of a strain of hens in egg-producing ability by selective breeding is not so simple a matter as it is supposed to be. Nothing could be simpler than breeding from high producers to get high producers. But if this method of breeding totally fails to get high producers—in other words, if the daughters prove not to be like the moth-

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ers in egg production—it cannot fail to excite wonder as to whether the simplicity of the method is not its chief (possibly its only), recommendation. * * * The improvement of a race by selective breeding is a vastly more complicated matter than it is assumed to be by those who maintain that one need only to breed from the best to insure improvement. The supposed facts of heredity on which the practical stock breeder (working for utility points), operates, are in very large part, inferences rather than facts. What is needed more than anything else for advancement of the stock-breeding industry in all its phases, is an accumulation of definite knowledge of the fundamental principles of the hereditary process. All breeding operations must be based on the laws of inheritance in organisms. The practical stock breeder is able to work out the applications of these laws for himself. What he most needs is broader and deeper knowledge of the laws themselves. This knowledge must come from thoroughgoing, purely scientific investigations.

The study of the scientific aspects of the question of live stock improvement is a great work for Experiment Stations and Agricultural Colleges. The more practical part of the problem may and ought to be investigated by the members of this association and by the intelligent breeder on his own farm. Bakewell, Booth, Bates, Cruikshank—these were all practical farmers who studied live stock improvement from practical viewpoints. They had none of the aids of modern science. If the biologist and the practical breeder will but join heads and hands in the study of this question we feel sure that great results will be accomplished. So long as these two remain apart, one working in his laboratory and the other upon his farm, progress will be very slow.

Following this address an opportunity was given to ask questions, which several improved, and Prof. Dean made his ideas with regard to the balanced ration a little more clear, indicating that he thought it valuable as a guide to the intelligent feeder but not something that should be followed absolutely and inflexibly.

The next number was an address on "Bovine Tuberculosis and Its Economic Bearing," by Dr. C. E. Marshall, of M. A. C. This was followed by an address on the "Methods of Eradicating Bovine Tuberculosis," by Prof. J. J. Ferguson, of Chicago. This subject is one of such economic importance to the live stock men of Michigan that we will refrain from commenting upon these papers at this time and publish them in full, or at least give liberal abstracts of them, in a future issue.

Afternoon Session.

The first business of the afternoon was the election of officers, which resulted in the following choice: President, E. N. Ball, of Ann Arbor; vice-president, Prof. R. S. Shaw, of M. A. C.; secretary, A. C. Anderson, of East Lansing; treasurer, C. S. Bartlett, of Pontiac. The old executive committee, consisting of T. F. Marston, Bay City, W. H. Schantz, Hastings, H. H. Hinds, of Stanton, G. B. Hupp, of Birmingham, and F. R. Crandall, of Howell, was re-elected in a body.

Beef Production in the Corn Belt

Was the subject of the first address by Director E. A. Burnett, of Nebraska Experiment Station. The speaker referred to the production of feeders and the fattening of beef cattle as two separate departments of the business which under present conditions, are followed separately, the production of the feeders being the part of the western ranchman or farmer, and the feeding or fattening of the animals being carried on more largely by the farmers of the corn belt. He referred to the modern tendency toward the production of baby beef, stating that in this kind of feeding the selection of animals of good breeding was essential. He also made the point that a high class of roughage consisting of good alfalfa or clover hay is essential to finishing this class of feeders in a minimum of time. In his state calves or yearlings are purchased in the fall, fed on a good class of roughage and a fairly liberal grain ration throughout the winter and then turned out on the grass and finished as baby beef for the summer market with a good grain ration. In speaking of the balanced ration for beef production, Prof. Burnett stated that where alfalfa or clover hay was available it had not been found necessary to buy concentrates rich in protein, but where roughage of poor quality is fed it is good economy to use such

concentrates in the grain ration. He did not advocate western methods for Michigan but that the small feeder here might buy his stock from the neighborhood or produce his feeders from a good herd of milking cows, making the dairy business an adjunct to that of feeding for beef, as he believes any other plan of producing feeders would be too expensive to follow. He spoke of hog feeding as an industry which must necessarily accompany the feeding of beef cattle to make the operation profitable in most cases, and believes that cattle feeding in the corn belt could not continue under present methods without the practice of following cattle with hogs, in which case it is found most economic to feed the corn in the ear or shelled. In reference to pastures on which cattle are to be finished he emphasized the point that they should not be overstocked, which is fatal to the growing of a maximum amount of forage which would make the process profitable. Altogether the address was an inspiration to those who follow the business of cattle feeding, either as a specialty or a side issue.

The closing number was an address on the "Benefits of Improved Blood to the General Farmer," by G. Arthur Bell, of the U. S. Bureau of Animal Husbandry. The address was a plea for the up-breeding of all live stock by the use of pure bred sires. Space will not permit us to review his address in this issue to the extent which it merits but it provoked considerable discussion among the live stock men present, and will be, we have no doubt, a potent influence in inducing many of them to spread the doctrine of the breeding-up of live stock in their respective communities.

Thus closed the most successful and enthusiastic session of this organization in the 18 years of its history.

FITTING FINE WOOL SHEEP FOR THE FAIRS.

Much has been said about fitting stock for exhibition purposes at fairs. People have the idea that an animal fitted for show is practically valueless for breeding purposes after the fairs are over. This may be true with a few classes of stock, but does not obtain in the cases of the great majority of show animals. It is possible we may have to except most of the mutton breeds of sheep that are fitted to winning form, if we may believe what their own breeders and exhibitors tell us. In the case of the Merino sheep, however, it is different. It is possible that, if an exhibitor were fitting for a certain class of fairs at which mutton judges officiated in the fine wool rings, he might, by trying to meet the demands of these judges succeed in overfitting his stock, but this would take more than one season's fitting, so that there is little danger of such results. So far as the Michigan exhibitor is concerned when fitting for the Michigan fairs, an abundance of fat counts for but little when exhibiting the Merino of any breed.

The first and most essential point in fitting Merino sheep is to get size. Keep the young stock growing from the time of its first appearance till it reaches maturity. This insures a stronger constitution and greater development than can be secured in any other way. Of course, this means that plenty of bone and muscle-making feed is to be supplied during the growing period, with only sufficient fattening feed to keep the carcass plump and well rounded out while developing. For growing stock I am quite fond of a ration of equal parts of corn, oil of a ration of equal parts of corn, oil meal, bran and oats, with less or no corn in the summer and plenty of roots in the winter. Since the fleece is the first consideration in the fine wool breeds, I believe we want the sheep that enters the show ring to be as nearly as possible in ideal form as to fleece as well as to carcass. This is best attained by making it possible to put the sheep in the ring with nearly, if not quite, a full year's fleece. This means shearing in the fall. Some men seriously object to this fall shearing, but I prefer a sheep honestly shorn in October or November to one partly shorn in March or April. Stubble shearing is reprehensible, for almost invariably the shearer will vary the length of the fleece while so doing so that it presents different lengths on different parts of the body. Again, a stubble shorn fleece nearly always shows that it has been stubble shorn and does not present as attractive a surface as a uniform, closely shorn fleece of the same length. There is another consideration also. I have never seen but one fine wool sheep judge but

what would be fooled by the longer fleece on the same type of stock, and so the judges have forced the exhibitors, who care to make a favorable showing when the awards are made, to shear so as to have nearly a year's growth when they take their stock into the show ring. Shearing rules are of no value, save to forbid stubble shearing, since this is so easily distinguished and, when a judge is so instructed, he can easily throw out such stock. Rules that limit time of shearing are and can never be enforced, so all they serve to do is to scare the novice into making an unsatisfactory show, no matter how good his stock may be, and give the other fellow who shows regardless of rules, an unfair advantage. Practically all the prominent fairs of the country have abandoned this rule and have thus saved a whole lot of trouble between and with exhibitors. So much for the shearing of the fine wool for show purposes.

It goes without saying that show sheep must be kept out of the rains, properly protected from heat and flies in the summertime. I think it has been quite generally found that stabling and stall feeding thruout the summer gives better results than allowing the show stock to pick their living. To be sure, it makes more work, but the results pay for the extra labor. Plenty of succulent feed such as green alfalfa, green clover, green oats and peas, rape, cabbage, with only a fair amount of grain will put the sheep in the finest of condition and give the younger stock a maximum growth. This method of caring for the stock will thus obviate all the worry about the weather and save having to chase after the sheep every time a wet looking cloud appears in the sky. This means a little planning of crops to supply these things in their order, and some extra labor and care in getting them to the stock, and someone will say that the ordinary farmer or breeder cannot afford to do it. But he certainly can. What one can do another can, especially when there is nothing difficult about it. The fellow that always talks about what the ordinary breeder can or cannot do is talking about the ordinary fellow that always has simply ordinary stock and never could have anything else no matter how much money he might put into it or how good it might be when he got it.

Finally the properly fitted Merino sheep, no matter what breed, is not injured constitutionally or for producing strong virile stock, and no man need be afraid of such when he gets ready to buy. Of course, stock so handled must have a reasonable amount of exercise and the fitter will see that it has it, because he cannot hope to get the results he desires without paying attention to this important feature.

I hope these thoughts will be of some help to some of our more timid Merino breeders so that they will be able to show the world what they are doing.

Oakland Co.

E. M. MOORE.

LIVE STOCK NOTES.

Horses are having a much larger sale since the Christmas and New Year holiday, but the market has been oversupplied recently with inferior animals that could be disposed of only by cutting prices. Medium weight chunks moved off slowly under a feeble demand from all quarters, while heavy horses were firm. Heavy drafters sold mainly at \$180@210 per head, with commoner ones going at \$165 and even less. Small southern chunks had a fair outlet at \$60@110, and loggers and feeders were picked up by buyers at \$165@215. Light drivers were fair sellers most of the time at \$140@350, while carriage pairs went at \$325@675. Mules sold at \$75@200 per head.

To draw it mildly, there are hundreds of farmers who deeply regret that they failed to buy feeder cattle last fall when, as was pointed out, prices were temptingly low. This great opportunity was dilated upon at the time by farm papers, as well as by live stock commission firms, and some farmers acted promptly on the suggestion by refilling their feed lots. A majority of farmers failed to do so, however, taking the ground that it would not pay to venture in with corn commanding such high prices. Farmers who delayed buying feeders until later were compelled to pay much higher prices, and now prices are away up, with extremely few prime feeders available on any terms. The fact is, cattle of a prime heavy feeder class are really pretty good killers and are in active demand for the butcher trade. Meanwhile, there is a good inquiry from many feeding sections, and in some towns in Iowa and Illinois great numbers could be sold readily. It frequently happens that the price asked is an obstacle, and while a would-be purchaser may be ready to pay from \$4.50 to \$4.75 per 100 lbs. for heavy feeder steers, he is apt to draw back when a higher price is demanded. In short, in various localities there are orders for feeders that are not being filled. A few prime heavy feeders have been sold by stockyard speculators in the Chicago market to Ohio buyers at \$5.25 to \$5.60.

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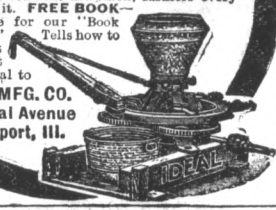
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THE EVOLUTION OF THE CORN PLANTER.

For years the farmer planted his corn by hand, one man going ahead and making the hole, probably followed by a boy dropping the kernels in the hole. Then some genius invented a tool called a "jabber," which made the hole and put in the seed at the same time. A similar tool is now in use for planting missed hills or seed destroyed by cut-worms. Well, that looks very slow to the vast number of acres planted today with the modern corn planter. Great improvements have been made in the corn planter, too. Time was when the round-hole flat drop was pretty good, and by the way, it's good now. Well, some inventor thought that the grains being more nearly uniform as to thickness than they are as to size when laid flat, that the planting of the corn on its edge was best. What we want with a corn planter is a machine that will drop just as many hills with three grains to the hill as possible. Some farmers buy the edge drop and then wish they had bought the flat drop; some purchase a flat drop and mourn because they didn't buy an edge-drop. The man who buys a Superior Corn Planter doesn't need to mourn, because he has both systems for the price of one. This planter has so many new and proven features of merit that it is impossible to tell all about them here. Prof. Holden, the corn king, of Iowa Agricultural College, Ames, Iowa, when inspecting the Superior Corn Planter and the work it did, expressed his admiration in no uncertain tones. This planter has been thoroughly tried out in all sections of the United States where corn is grown, meeting with the unqualified endorsement of all users. It is made by the same people who manufacture the world-famous Superior Grain Drill, and it is safe to say that the quality went into this corn planter, to make it worthy of its name. Write to the manufacturers, The American Seedling-Machine Co., Incorporated, Springfield, Ohio, for full information about the Superior Corn Planter. Then go to your implement dealer and insist on seeing the Superior before buying any other planter. It is fully guaranteed and must do all that its makers claim for it.

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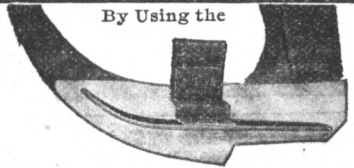
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THE DAIRY

CONDUCTED BY COLON C. LILLIE.

CEMENT FLOORS FOR COWS.

Every little while we hear some dairyman object to a cement floor for cows to lie upon. They claim that where the udder comes in contact with the cold cement floor it is not good for the cows. In some instances it causes inflammation of the udder, garget, etc. While I have had no practical experience of this kind I know dairymen who do use cement floors and do not have this trouble. But it can be entirely avoided by using the model stall. With the model stall we have the cement floors, but a 2x4 is placed just in front of the cow's hind feet and the space between that and the manger gradually fills up with bedding and forms a mattress for the cow to lie upon. Now, when she wants to lie down she steps forward and lies upon this mattress so that the udder does not come in contact with the cold floor at all. A soft bed of this kind is even better than a wooden floor for the cow to lie upon. With cow stanchions, of course the bedding almost always works back into the gutter and leaves the place where the cow lies down bare, and the udder then can come in contact with the floor.

THE COVERED BARNYARD FOR COWS.

In this part of Allegan Co. there are quite a few farmers who keep their milk cows loose in the stable; others say that cows don't give as much milk when running loose as when tied. As I intend to build a new barn I would like to know which is the best way. I am young in the dairy business.

JOHN BAKER,

This inquiry from Mr. Baker brings up a very interesting question. It is a question, too, that the best dairymen differ about. The proposition is, shall we keep cows in stanchions or in stalls, almost continuously, or shall we provide stanchions for them while they are eating their ensilage and grain and being milked, and then turn them out into a covered barnyard for the rest of the time. This covered barnyard is to contain racks for feeding hay, a watering trough, etc., but the grain and the ensilage are to be fed when the cows are confined in their stalls so that each can get her own share and not steal from her neighbors. Of course, I cannot speak from experience relative to the convenience and benefit of the covered barnyard, but I can see a few objections to the plan.

The first, and most serious one, is, the great expense. You must have just about as much barn room, so that the cows can be fed their grain and be confined for milking, as you would if they were to be kept in the stable entirely without the yard. Then, besides that, you must provide a covered yard, made reasonably warm and of sufficient size to accommodate the cows when they are not confined. This would require more space than the original stable because the cows moving at liberty must have more room than when confined in stalls. It costs considerable, almost as much to build this yard as it would to build the stable. Modern cow stables are getting to be expensive, and covered barnyards, properly built, are almost as expensive. Many people think they can't afford to have an up-to-date cow barn, hence it would be difficult to talk them into using the covered barnyard system of keeping dairy cows.

Second, this system of keeping cows requires an enormous amount of bedding. Did you ever notice how much straw it takes to keep a calf pen clean and dry where the calves run loose and are tramping it down into their droppings and urine continually? If you never did, just take it upon yourself to bed the calves for a month and you will see how much straw it takes to keep them dry and clean. Now, instead of two or three calf pens, imagine that you have a whole barnyard that must be bedded down so that the cows can be kept clean, because this is the place they sleep, and they cannot keep clean unless you have bedding enough to absorb all of the liquid and practically all of the solid manure to keep it dry. If you have sufficient bedding, this is a splendid place for the cows, and a splendid system. It is almost impossible to get straw enough for the old system of keeping cows where they are confined in stalls, and I really can't figure out how I could manage to get

straw enough for the covered barnyard.

A third objection I should raise is that there could be no regularity about drawing out the manure. If you drew out manure regularly from a covered barnyard you would have to go over the entire yard. If you did not, then you would wait and draw at certain intervals of time, and would have to take it out clean and begin over again. In doing this, your barnyard is never kept level but is continually broken up by the process of drawing out manure. It seems to me that there would be no regularity about this work and consequently the work would not be accomplished systematically as it is where the cows are confined in stalls and the gutters and stables have to be cleaned every day. The result would be that when spring comes not half of the manure would be hauled out, and then this work would come at a time of year when the farmer has everything else to do. If you can overcome these objections, and a few other minor ones, then I am willing to admit that this is the most suitable and sanitary way of keeping cows, but it does not seem to me that it is entirely practical.

COW NOT DOING WELL.

What would be best for a cow that is daily lessening her milk flow, altho she has been fresh only six weeks. At time of freshening she gave 1 1/2 gals. of milk per day; now she gives 3 1/2 qts. I feed mixed hay and fodder with bran and chop as a soft feed.

Ohio,

G. E. B.

A cow in good health, on this ration, ought not to lose on her milk. I am inclined to think that something is the matter with the cow. It would not be policy for me to attempt to say what to do without a chance to make a diagnosis of the case. My advice would be to consult a local veterinary surgeon. Tell him the conditions, explain the case fully and let him make an examination and then prescribe. Probably the cow needs a tonic or something of that sort. It certainly is not a case where advice can be given at long range thru an agricultural paper, but it must be done on careful investigation by a local veterinarian.

CROP ROTATIONS ON THE DAIRY FARM.

The true province of the farm is to produce food for the cows and any system of crop growing that does not provide a nearly balanced ration for the cows is not based upon the principles of permanent agriculture. Our farms should have fewer old and run-down fields and every acre of tillable land should be brought up to its full capacity of crop production. By adopting a rational system of crop rotation we can bring up the productive capacity of the soil and feed our cows better and at less expense.

Corn, clover and small grain should form the rotation whenever it is possible to grow them. No other fodder plant equals corn when it is made into ensilage. It is desirable in the rotation, for its tillage increases the productivity of the soil. When made into ensilage it is easily digested. The average dairy farmer is as yet unaware of the great capacity for food production now lying dormant in his land. His dairy business has been built up largely on cheap mill-feeds and by-products, and he has neglected to cultivate his soil until he can see no other way than to rush with his milk check to some feed dealer and purchase the high-priced concentrated by-products which the enterprising manufacturer has for sale. Instead of this he should grow crops that have food-producing powers and that will yield a good amount of protein. He should cut and cure his clover at a time when it contains the most digestible matter. Early-cut hay is the best feed, and the best for the rotation in which it is grown and harvested, for the reason that a second growth is stimulated and keeps the soil open and porous. Corn, clover, oats, peas, early-cut hay, ensilage, roots and vegetables, with a small amount of the high concentrates, are what may be classed as essentials in compounding a balanced ration for dairy cows. As a rule dairymen are feeding too much of the highly concentrated cattle foods for the good of their cows. It's more oats, peas, corn, wheat bran and clovers, and less gluten, malt sprouts and dried brewers' and distillers' grains that are needed on the average farm. There may be a little less milk produced, but the stock will be more healthy and the profits greater at the end of the year.

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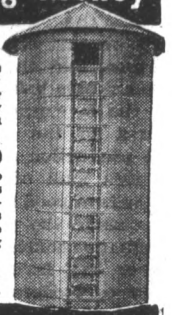
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AT WHAT TIME IN THE FALL SHOULD COWS FRESHEN?

When is the best time to have cows come in for winter milking—October, November, or December? When does Mr. Lillie have his cows calve?

Clinton Co.

J. P.

When I began winter dairying by having the cows freshen in the fall, I tried to have them all drop their calves in September, because we filled the silo at that time and had fresh, succulent food. I also believed I could get more out of them by having them come in early rather than late in the fall. From experience, however, with my conditions, I have made up my mind that it is just as well, and I think a little better, to have them come in a little later, say the last of October and November, because we generally have so much work in September that the new milch cows, and the calves, are liable to be neglected. The fall's work must be done and we are straining every nerve, consequently the cows are apt to be neglected.

On the other hand, if we have them come in in October and November, the fall work is well out of the way; the men have little to do but the chores, and the cows will receive their first attention. I also believe you will get just as much out of the cows by having them come in in October and November as you will if they freshen in September. Then again, we are liable to have some quite warm weather in September, too warm, in fact, for fresh cows to do their best, and at such times the flies are very exasperating.

The enquirer wants to know when I have my cows come fresh. Now, to be exact about it, I have them come fresh when I can. Really it's a matter that isn't entirely under the control of the dairyman, altho he can govern it very much. It is almost impossible, in a large herd of cows, to get them all to come in at a given time. It is practically impossible so our cows begin to drop their calves the last of September and they string along until after the holidays. Several of them haven't come in yet; but it wasn't our fault. We wanted them to come in earlier.

IS IT NECESSARY TO WET THE GRAIN RATION?

Please tell me whether I can feed wheat bran, oil meal and corn-and-cob meal, equal parts, without water, to my cows this winter without trouble. Have water very handy.

Benzie Co.

SUBSCRIBER.

I think from this inquiry that subscriber wants to know if he can get just as good results by feeding the grain ration dry as to wet it. Years ago it used to be a common practice to "slop" the cow, that is, to mix the grain feed into a wet slop and feed it in that way. The common belief was that the cow got more good out of it, that it was better digested and assimilated if fed in the form of a slop than if fed dry. This practice of wetting the feed is only a notion. There is nothing to it whatever. In fact, the cows will get more good out of their grain ration by feeding it dry than they will wet, because they chew it more before swallowing, and mix it more thoroughly with the saliva, consequently prepare it for further digestion in the stomach and alimentary canal. The tendency of cattle when they eat a wet grain is to swallow it without properly mixing it with saliva. Of course the cows must have all the water they want at some time during the day and it is reasonable to suppose that they will require a little more water than they would if their grain feed was wet, because the water used in wetting their grain takes the place of the water they drink.

A GOOD AND A LIBERAL RATION.

Would like to know if I can improve my rations for cows that give from 11 to 13 lbs. of butter per week? Ration is as follows: Bran and cottonseed meal, mixed equal parts by weight, of which I feed 10 lbs. per day with 40 lbs. ensilage and all the clover hay and corn fodder they will eat up clean.

Allegan Co.

J. J. ALBERS.

The only way that I can criticize this ration would be to say that, in my judgment, it is pretty expensive. I believe you are feeding grain pretty heavily and I think you could substitute oil meal for wheat bran and save a little money. Wheat bran certainly must cost you \$25 or \$26 a ton and you can get oil meal for about \$34. Now a ton of oil meal is worth about as much as two tons of bran for balancing up a ration of corn silage, clover hay and shredded corn fodder. The bran is costing you two-thirds as

much per ton as the cottonseed meal. My opinion is that if you would cut out the bran and feed oil meal in place of it, you could get the same results by feeding 3 lbs. of cottonseed meal in the morning and 3 lbs. of oil meal at night. That would make only 6 lbs. of grain instead of 10 lbs., and I am quite confident that you could still further reduce the number of pounds of grain economically. That is, your cows might fall off a little in the flow of milk but it would cost you less, and you would make a larger per cent of profit than you would by feeding too liberally of a high-priced grain ration. Yet when a man can get such results from cows, I do not feel very competent to advise. I feel more like going to him for advice.

SOILING AS A SUPPLEMENT TO PASTURE.

I have 40 acres of wild pasture. Soil good clay loam covered more or less with poplar brush. Would like to pasture during the coming season from 15 to 20 head of stock, but with such a season as the past one it would appear folly to attempt it. Could I carry that number more successfully, the majority being milch cows, by breaking up 8 or 10 acres and sowing to green fodder? Please outline a plan in such case, stating what to sow to obtain the earliest and best successive cuttings for the season.

Lapeer Co.

J. A. R.

I think it entirely practical to break up eight or ten acres of this 40-acre wild pasture and grow forage to be fed as a soiling crop to supplement the pasture. I think it would be safe to say that the remaining 30 acres, or 32 acres, for in all probability five to eight acres would be enough for the forage crop, would furnish sufficient feed for the stock until about August. That is when we usually get the drouth and when we ought to have some supplementary feed. All the fore part of the season these 30 to 35 acres would furnish feed enough for the 30 head of stock. This being the case, I do not think it necessary to plant anything for forage with the exception of corn. Plant an early variety and a late variety. There is no corn better for a forage crop than sweet corn. If I broke up eight acres of the pasture I would put three acres to early sweet corn and five acres to Stowell's evergreen corn. For the early sweet corn I would select something like the Country Gentleman, rather a medium early corn which will grow large stalks. Plow the ground early, fit it well, and plant your seed just as soon as the weather will permit. Plant it in drills, using about 1/2 bu. of seed corn to the acre. Cultivate the land well and if it is in good condition you will raise a large amount of forage. Now cut this up and feed to the cattle just as soon as the pasture begins to fail. In this way you could carry just as much stock on the pasture the latter part of the season as you could the first. If you have any corn left you can cut it up and use it for winter feed.

CANNOT GET EXHAUSTIVE CHURNINGS.

What is the matter with my cream? I let it stand and ripen for two days, getting the butter all right in lumps, but when we churn it over again (that is, the buttermilk), we get some more butter.

Osceola Co.

N. D. B.

One cannot answer this question with any degree of satisfaction without knowing more about the conditions. I would say, from this limited amount of information, that the cream is churned too cold. At this time of the year, or during cold weather, you have to churn cream a little warmer than in the summer time. I should say that this cream ought to be churned at 65° or 70° in order to get exhaustive churnings. Then again, if you have your churn too full, so that when the churn is revolved you don't get proper concussion, you will not get complete separation of the butter globules. Again, if you have fresh cream mixed with your ripened cream, you will not get it all the first churning. For instance, if you have some cream that is several days old that has become ripened and sour, and then you become ripened and sour, and then you put in fresh cream that is not sour, the ripened cream will churn and the other will not. In other words, the ripened cream will come quicker than the fresh cream, and then, if you churn the buttermilk again, you will finally get butter from some of the fresh cream that you put in last. If you have milk from stripper cows in the winter time, and have trouble about the churning, I think it is a good plan to scald, or pasteurize, the milk before it is set for creaming.

LIKE A THIEF AT NIGHT THE CREAM SEPARATOR THAT CAN'T SKIM CLEAN

Dairy authorities the world over agree that the centrifugal separator is indispensable to the man who owns milk cows. And why? Simply because it saves his cream, hence his money. The more cream saved, the more money, that's sure. But unfortunately many separators do not save all the cream. And worse still the biggest of claims are made for these machines. Such separators are like a thief at night or the pickpocket who with an innocent face rubs our elbow and then robs us of our wallet. Because of inferior and out-of-date bowl construction, these separators, unknown to the users of them, daily lose a big percentage of the cream.

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The Galloway Wagon Box Spreader fits any truck

The Wm. Galloway Co., 649 Jefferson St., Waterloo, Ia.



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POULTRY AND BEES

SOME GENERAL HINTS ON DUCK RAISING.

Ducks should prove profitable on the average farm. They are easy to raise, develop fast and soon are ready for the market. There is a good profit derived from selling them for broilers, but if kept until five or six months old before selling them their feathers become quite an item.

Duck eggs may be set under hens in April or May. It takes four weeks for them to hatch. They should be sprinkled with warm water on the twenty-sixth day. When the ducklings are 24 hours old feed them the same as young chickens. Each hen should be given eight or ten and have a coop by herself. Feed and care for them as you would chickens. A brook, river, or pond near by is an excellent thing for the ducks but not absolutely essential.

When the ducks reach two pounds in weight, or over, if it is desired to sell them as broilers they should be confined for a week and fed all the corn meal mash or wet cracked corn they will eat. One can ship them alive or dressed as he prefers.

If one is to keep them long, plenty of range should be given them. Keep them growing until you wish to dispose of them about Thanksgiving time. Before marketing confine them one week and feed all the corn meal mash or wet cracked corn they will eat. Darken the pen so the ducks will not take much exercise. It is surprising how much weight they will add in a week's time.

Ducks are more tractable than hens and more easily cared for. They can be tamed with a little care. Those that are kept over for breeding stock should have dry quarters but may be allowed to run out all winter. The thick down protects them from the severe cold.

When it comes to breeds, the Pekin is probably the most popular and has proven a most desirable breed for market purposes. Other breeds which are kept for both pleasure and profit are the Aylesbury, Rouen, Muscovy, Cayuga and Crested White.

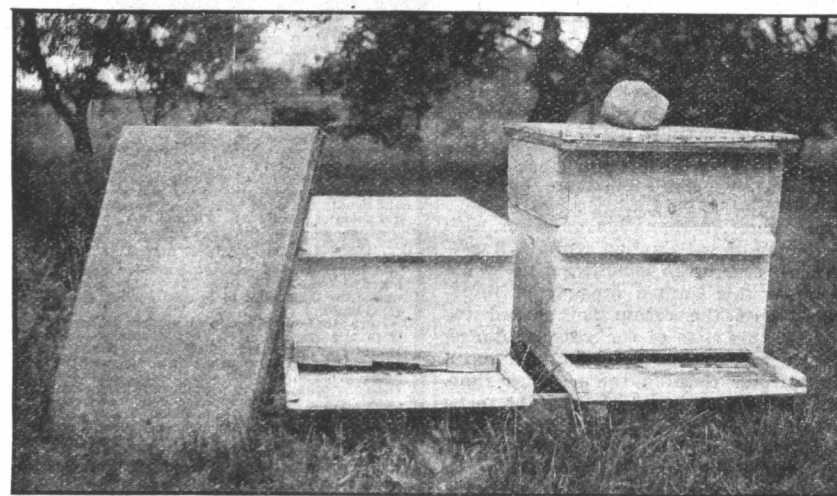
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New Hampshire.

PROFITABLE EGG PRODUCTION UNDER PRESENT CONDITIONS.

The past fall had the reputation of having been a hard one to get the pullets to doing a respectable stunt in the way of egg production. Up to the present time a good many flocks are not paying feed bills, while others are paying a good profit.

One man near me is getting 300 eggs a



Some Home-made Hive Tops and Bottom Boards.

day from 800 layers. Another with 150 is getting next to none. I think the fall was as good as any, there being very little extremely cold weather, but I am afraid the high prices of grain are at the bottom of the trouble.

My own flock of 220, all pullets and few very early hatched, is doing fairly well. We began getting eggs Nov. 6 and for some time have been averaging about six dozen a day. They showed a good profit for December, which was encouraging, as the feed bills ran into money fast.

There is little chance for argument on feeding. Hens, like cows, must be full-fed to produce eggs in paying quantities. The matter of compounding a ration is small compared with the art of dealing out the food so that it will be turned into eggs

instead of body fat. The key to the situation is plenty of exercise and not too much corn.

This winter the mash for my 220 layers has contained 7 qts. meal, 10 qts. coarse bran, 5 qts. ground alfalfa, 2 to 3 qts. dry meat scrap, and 2 qts. granulated charcoal, fed about sunrise. The other two feeds consist of about 15 qts. wheat at noon and the same of cracked corn at night, given in quite deep litter.

The health of the flock has been very satisfactory and they are gaining in egg production daily. Oyster shells are all they have for grit. I cannot get them to use other grit when shells are kept before them continuously, and have never been able to do so, so I consider that the shells must be sufficient for the purpose.

It is gratifying to see so many more farmers trying for winter eggs and, in a good many instances, succeeding well. This winter a good paying flock of fowls is a great help. More, too, are starting a book account with their flocks. This will result in more hens being kept. It takes little more time to care for 100 than for 50 and during the winter one can take care of 200 or 300 if he is only doing chores about home.

This locality, within a radius of 10 to 12 miles, has many thrifty poultry plants, the owners carrying all the way from 200 to well up toward 2,000 layers. In most cases these plants are run by men who utilize hens in quite large numbers as a part of their farm scheme, because they have found them profitable.

In most cases where hens are kept in sufficient numbers to warrant it, the eggs are shipped to Boston, and the broilers and poultry sold locally, the summer hotels making a heavy demand from June to September.

Poultry products must continue to rule high as long as the high prices of grain continue. A good many have reduced their stock. This, too, will have a tendency to keep prices up, and while grain is so high fewer will venture to start, which will be a wise course unless they understand pretty well how to handle poultry for profit.

Maine. D. J. RYHER.

HINTS ON HOME-HIVE-MAKING.

There are circumstances under which it will pay to make hive bodies, bottoms and covers at home. When this is the case is best ascertained by the beekeeper himself. If one can earn five dollars a day at some other work, it, manifestly, will not pay to practice home hive making. The hives had then better be purchased with the money earned. But not all can command such wages, during the winter season at least, but many have leisure time during the cold season.

I have made a good many bodies; and have purchased more. My covers and bottom-boards are all homemade. Not so much mathematical correctness is nec-

essary in these as in the bodies and the frames.

White pine is about the best lumber for bodies and frames. If I lived "out west" I would use redwood. It is more brittle than white pine, so splits easier when nailing, but otherwise it is an excellent wood for bodies, and still better for covers. When it is just as cheap as white pine I would use it. As it can be had perfectly clear and of any width up to 24 inches, it makes the best single-piece covers of any lumber I know of. I have never used it for bodies, simply because I have white pine timber of my own. This, perhaps, is one reason why it has paid me to make hive bodies.

If you have decided to make some hives, get your lumber dressed on both



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sides. If it is left rough on the inside the bees will smear everything full of propolis; and to have the outer surfaces rough is undesirable on account of painting, etc. I would not have the edges planed, as usually the work is not accurate enough. Get a carpenter's jointer plane and, after having ripped the boards to the desired width, you can plane the edges nice and exact, not narrower at one end than at the other as is sometimes the result of machine planing.

The end pieces for the hive body are to be cut so as to fit between the side pieces. Cut them nice and square so they will fit well. The side pieces need not be cut so exact. I oftentimes cut them longer and saw them off after the body is nailed.

When nailing together a body, first lay your square on the side piece and make a straight line where the inside of the end piece is to come, enabling you to get the end piece in square. When nailing in the second end piece, measure the inside of the hive, not the outside. If you measure on the outside, and the lumber varies in thickness, the inside of the body will be either a little too large or too small. That's bad, for it results in bur combs and frames tightly fastened with propolis. The hives may even be enough too small to prevent the frames being gotten in. I have had this experience and had to knock some of my first hives apart. So never fail to get the length and depth of a hive exact. The width I do not consider so important.

After the body is nailed, hold the square inside. If diamond shaped, force square and drive down nails again. This should be done before nailing on the end cleats, as these will hold the hive square.

The end cleats referred to are nailed at the top of each end. They serve for the purpose of lifting the hive. Then, with me, they also serve another use. I cut the end pieces $\frac{3}{4}$ -inch narrower than the side pieces. In factory-made hives only one-half the end piece is cut down this $\frac{3}{4}$ -inch. Now in order to have the outside of the end piece come to the top, I nail in a piece of lath or thin board $\frac{3}{4} \times \frac{3}{4}$ inch. The end cleat is necessary to hold this. Of course, one could get a specially constructed plane and rabbet down the end piece the same as in factory-made hives, but that would be more work.

The photographic reproduction on the preceding page shows how the end cleats are nailed on. The bodies in this picture are factory-made, but the bottom boards and covers are my own make.

Use eight-penny nails for the bodies, and "siding" nails for nailing on the end cleats. Heavier nails will split the boards too often.

I am not so particular as to how clear and free from knots the hive pieces are. If there is a loose knot, or perhaps a hole, I nail a piece of tin over both sides to hold it. If the body is not drawn very tight by the nails, I nail a piece of narrow tin around the bottom corners. I also use tin rabbets in the hives the same as in factory-made goods. They cost but two cents per hive. I would not do without them, as to hang the frames on wood gives the bees a chance to seal them so tight that their removal is extremely difficult.

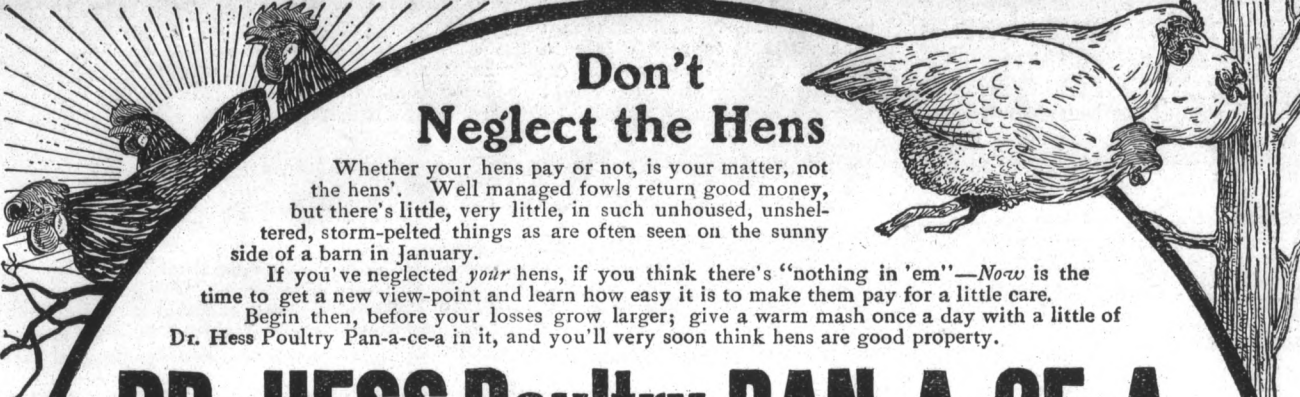
There are various styles and sizes of hives in use, so I have not given dimensions. My preference is for the regular Langstroth size. There are many more hives of this kind in use than of all other styles put together. Whatever kind of hive is selected, always use a correctly made factory hive to work from. This will prevent mistakes and their attendant annoyances.

Another hint. Whenever erecting any sort of a building, save the short pieces of boards to make into hive bodies. I have made a good many hive bodies from such odds and ends of lumber. Such hives, I might say, cost little more than the work of making them, as such small pieces would have had little other value anyway.

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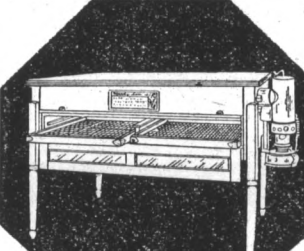
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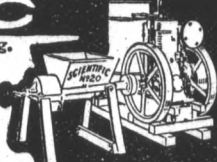
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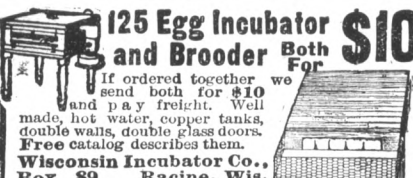
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DETROIT, JANUARY 23, 1909.

CURRENT COMMENT.

The national movement for the conservation of our natural resources has excited much interest and favorable comment throughout the country. As has before been noted in these columns, that movement is broad in its scope, including possibilities in the development of our water powers for the future benefit of the public, as well as the husbanding of our timber supply and the prevention of wastes of all kinds, both in the manufacturing industries of the country and in the cultivation of the soil itself.

Right along the line of this important movement come the steps recently taken at Lansing by the appointment of a legislative committee to investigate the water powers of the State, many of which are being developed on a large scale and of which it is alleged a grand combine has been proposed. It is said that the inquiry of this special committee will be most thorough, and not a little interest will be taken in the outcome of this investigation both by the concerns which are back of the development of some of our greatest streams from the standpoint of their water power possibilities, and the public at large who are interested not only in the development of these water powers but in the future distribution of power developed from them in the form of electrical currents for light and power purposes, and possibly in future years for the generation of heat as well. As has been pointed out, this inquiry is coming none too soon, since the water rights along many of our best streams have already been secured and franchises have been granted in a number of counties for the exclusive use of such streams for water power purposes. The possibilities of such development both from an economic standpoint by those who are interested in them and from a public standpoint as to the future effect upon the industries of the State and upon its people at large are very properly a matter for public inquiry. Not that it is desirable to hinder in any way the development of these streams to their fullest possibility as a source of power, but it is no more desirable to give private owners the right to demand exorbitant rates from users of power derived from the streams of our State which constitute

one of its most valuable remaining natural resources. It has been suggested that while it is rather late in the day for the State to control the development of these natural resources there yet remains a means of effectually controlling their operation by controlling the transmission of power generated from them to portions of the State distant from the power sites. This appearing to be a reasonable conclusion, there would seem to be bright prospects that this inquiry may result in legislation which will at once be beneficial to the people of the State at large without being burdensome to honest promoters of the development schemes or prohibitory to the economic maximum development of the water power possibilities of our State, which it would appear from a cursory review of the situation are much more valuable than the average citizen of the State has ever realized.

In the report of the recent meeting of the Michigan Improved Live Stock Breeders' and Leaders' Association, which will be found in another department of this issue, there is much food for thought, which should appeal to every live stock breeder in the State.

The addresses which are reproduced and summarized in this report are full of ideas for the practical stock breeder and should be read with care, and then re-read after they have been carefully thought over. It is truly stated in one of these addresses that for all that has been done along that line the improvement which has been brought about in our live stock is not all that might have been expected, and comes far from being all that might be desired. This would appear to indicate that our efforts along this line in years gone by have not been well directed or that they have lacked in practical application by the farmers and live stock breeders of the State, but it seems entirely possible that we may have aimed too high in those efforts and that more would have been accomplished had the doctrine of improvement been first applied in a different manner. As a speaker in one of the breed meetings which preceded the general meeting, reported in this issue, stated, "It seems useless to advocate the improvement of our live stock unless at the same time we advocate the improvement of our farm crops." Referring to the corn crop this speaker said, in effect, that if we could not inspire our farmers to do their best in the improvement of their corn, thereby enabling them to grow larger crops of this king of cereals with which to feed their improved live stock, there is little use in preaching to them the doctrine of improved live stock. What is true of the corn crop is true in only slightly less degree with the other crops grown upon the average farm. When once a man becomes interested in the improvement of the crops which he must grow in his regular rotation, he will be the more inclined to apply that improvement to the live stock to which those crops are fed, and thus there will be an improvement all along the line and better live stock will come as a natural result with the ability to feed them better upon home grown feeds, produced by thoroughly practical and scientific methods upon our farms.

It would appear that there is much in this thought for every man to consider whether he is now interested in pure bred or in improved live stock of any class or not, and it seems certain that if more farmers throughout the State could be interested in the scientific improvement of their common crops, in the handling of their soils and in the working out and application of judicious crop rotations, that more practical and scientific feeding of these crops would naturally follow and that the demand for a better grade of live stock to which they might be fed would be certain.

If the idea expressed in the foregoing comment be accepted, then every means to that end should be improved by the farmers of Michigan.

Foremost among these means will come the agricultural press, in which the most up to date ideas will regard to handling soils and improving the crops grown upon them will be found discussed. But a means which should not be neglected is the Farmers' Institute, in which ideas are certain to be advanced which may be made the basis of profitable investigation, study and experiment by every farmer who attends them. No matter if he differs with the ideas expressed by the dif-

ferent speakers, he will have an opportunity to be heard in the discussion of the topics upon which they speak and in the difference of opinion as expressed, he may gain valuable ideas which will work out to his benefit in practical application and experience. For that reason, if for no other, every farmer should attend the institutes which are held in his community and should not fail to take part in the discussions which arise, if he believes he can throw any additional light upon the subjects under consideration. Then after he has thought about them, and come to conclusions which to him seem correct, he can make further inquiry through his agricultural paper or report the results of the demonstration of his ideas through that medium after he has tried them out.

Farming is a business in which originality and ideas are at a premium. We are too much inclined to follow the beaten track which has been prepared for us and any means which will tend to take us out of the rut into which we may have fallen is sure to be to our ultimate benefit.

HAPPENINGS OF THE WEEK.

Foreign.

Western Canada is enveloped in a blizzard. At places the wind was blowing Sunday at 41 miles per hour. Train service is at a standstill.

A boat is about to leave New York with material on board for 500 houses to furnish shelter for refugees in Italy.

America was not alone in the depression of business last year as the report of the amount of imports and exports from Paris shows a decrease of \$26,400,000 and \$64,800,000 respectively over the previous year.

There is a marked increase in the number of new cases of cholera in St. Petersburg the past few days. For the 24 hours ending Sunday there were 59 new cases and 21 deaths.

An earthquake shock of two seconds duration was felt in Switzerland in the lower districts of Simmenthal, Sunday.

The recall of the Chilean minister from Peru is believed to have temporarily destroyed the good relations of the two countries.

The invasion of Tibet and the abandonment thereof by the English forces a few years ago has resulted in China taking a firm grip of the political organization there after her power had waned into almost nothing.

Venezuela is demanding that the French cable company reconstruct a portion of its line, revise its tariffs and make other changes before the concern will be allowed to continue its business in Venezuelan districts.

An explosion of fire damp in the Auka coal mines of Hungary entombed 181 men. Rescuers have taken out 45 bodies and have gotten the fire under control.

The appointments for the Russian council of the empires are but the re-selection of the old members: Count Witte, Premier Stolypin, ex-Viceroy Admiral Alexeff being among the members.

Admiral Rojestvensky who was in command of the Russian fleet in 1905 when it was nearly annihilated by the Japanese fleet, died in St. Petersburg last Thursday of neuralgia of the heart.

The Liberia gunboat, Lark, is reported as having fired upon a German steamship off the coast of Liberia, Africa. The German government has ordered a guardship to the port. No details have been received.

Representatives of the United States and England recently made protests before the foreign board of China because of the dismissal of Yuan Shi Kai from the grand council. While a few of the other representatives were in harmony with the action of the Anglo-Saxon delegates a majority seemed to think the move an imposition and is meddling too much with China's internal affairs.

It is reported that Baron Rosen, Russian ambassador to this country has been recalled and will be sent to Italy.

Austria declines the proffered services of France to mediate in the matter of her relations with Serbia. It is now understood that Austria will grant the Serbians the privilege of constructing a railroad to the Adriatic Sea.

The government of Mexico has ordered the erection of fortifications at both termini of the Tehuantepec railroad. The defenses will cost about \$14,000,000.

National.

Twelve men are supposed to have been drowned in a fishing schooner which went down near the New York harbor Sunday.

A young prospector is said to have discovered the "Peg-Leg" gold mine of California. The location of the mine was never publicly known as the first discoverer was killed by the Indians before making his find known. The rediscovery was made through the guidance of an old Indian.

A large garage containing 350 automobiles was burned in Boston Sunday morning. Only two of the machines were saved. The damage is estimated at \$900,000.

The united mine workers will hold their annual convention in Indianapolis this week. There is promise of a contest between the bituminous and anthracite district representatives because of the lax way in which the finances of the latter are handled. This April the three-years' agreement with the operators will expire and the lack of funds will place the unions at a disadvantage in the fight for better wages and conditions.

The Detroit & Cleveland and Detroit & Buffalo steamship lines are planning a merger of their interests. The stockholders of both lines are almost identical.

The operation of the primary law in Oregon has worked a peculiar situation. A Republican legislature will elect a democrat to represent that state in the United States senate if the members of the legislative body keep their pledges made at the election last fall.

Secretary of the Interior Garfield made astonishing revelations before the senate and house appropriation committees by reporting on the land frauds perpetrated within the past few years to the amount of about \$110,000,000. The department maintains that if sufficient assistance is given much of the lands so taken may be regained.

For the second time the Standard oil company operating under the name of the Waters-Pierce oil company has been ousted from Texas. The supreme court decided that the state law under which the suit was begun was constitutional and the company be fined \$1,623,500. Another interesting feature of the decision was that the federal court favored state rights by an unanimous vote of the judges.

By a party vote Representative Willett of New York was ruled from the floor of the house last Monday when declaiming a rabid arraignment of President Roosevelt.

The battleship Maine which has been in Venezuelan waters during negotiations to renew friendly relations between her and the United States, has been withdrawn.

President Roosevelt has again suggested that a popular subscription be taken for the erection of a memorial to Gen. Robt. E. Lee.

Severe snow storms in the west is interfering with traffic and railroads are not attempting to run schedule time over any of the transcontinental lines.

CROP AND MARKET NOTES.

Sanilac Co., Jan. 16.—The winter is passing off very nicely with snow enough to protect wheat and clover which was moistened nicely by a rain and thaw about New Year's. Prices remain about the same as at last report. Hay is on the advance since lifting the quarantine, and stock is moving slowly on account of longer routing to Buffalo. Produce is in good demand and bringing good prices. Butter and eggs, 25c; potatoes, 60c and not moving much; stocks wintering well, but apples are rotting badly. Hens are beginning to lay. Water continues to be scarce in many places for stock. Roads in excellent shape to market hay and grain on wheels, and return with coal, for wood is about a thing of the past with us. About an average number of cattle are on feed this winter, but few hogs, sheep or lambs.

Genesee Co., Jan. 16th.—We have thus far had fine winter weather, once or twice only has the zero mark been reached. Very little snow at present but roads are quite smooth and hard. Shipping stock is now moving at a lively rate. Many lots were held up by quarantine which is now modified. More hay than usual being marketed loose owing to quarantine. This is a great hay section and last year's was a banner crop. Dairying is largely followed here, also, many fine herds being owned. Milk producers are all doing well, with prices averaging \$1.50 per cwt. Better methods are being followed now than formerly. Live stock of all kinds in good condition and health. Considerable dressed pork being marketed. Prices have held high all the season. The following quotations are made for this date, Jan. 16th, at Flint, our county seat: Wheat, \$1.01; oats, 50c; barley, \$1.20 cwt.; beans, per bu., \$1.90; rye, 72c; corn, 63c; butter, dairy, 24c, creamery, 28c; potatoes, 60c to 65c; apples 50c to \$1.00 per bu.; turkeys, live, 15c; young chickens, 12c; old chickens, 10c; dressed hogs, \$7; dressed beef, \$6 to \$7 cwt.; hay, baled, \$7.50 to \$8.50; hay, loose, \$8 to \$9, milch cows, \$45 to \$60. Horses are high priced. Eggs are very scarce. Farmers get 32c for fresh stock, retail price, 35c.

Osceola Co., Jan. 16.—Winter set in very early. Commenced snowing in Dec. and cold weather has prevailed ever since, with snow enough for sleighing. A large amount of snow fell from Dec. 7 to Jan. 3rd and 4th, when there was a thaw which settled it quite a little. It is about right now for most any kind of work. There have been several days of zero weather. Jan. 12th the mercury registered 15 degrees below zero. Quite a little timber is being cut for logs, bolts, wood, etc., which was burned over last fall. Dry maple and beech wood is hard to sell at \$1.25 per cord and green wood is offered for \$1 per cord. Potato business is not very brisk, not many being marketed lately; growers are inclined to hold for higher price, which they seem to think they ought to have to make up for the short crop. Live stock is looking good, and there seems to be plenty of feed. Hay was a large crop here last year; it sells at \$8 to \$10 per ton; cattle, 2½ to 3c per lb.; veal, 4 to 5c per lb.; hogs, dressed, 6 to 6½c per lb.; chickens, live, 7 to 8c per lb.; potatoes, red, 55c per bu, white, 50c per bu; rye, 67c per bu; butter, 22 to 26c per lb.; eggs, 26 to 28c per doz.

Mecosta Co., Jan. 7.—A good snowfall the first of December lasted until Jan. 2, when a warm spell set in which lasted until Jan. 5, with most of the snow off of the wheat and rye, leaving it quite badly exposed, when it changed suddenly and now it is quite cold with scarcely any snow to protect the fall seeding. Potato quotations are about the same as they have been for the last two months and farmers are beginning to think that they might as well sell now as later. Since the quarantine has been raised the market is better for live stock and poultry. Cattle are worth from \$2.50 to \$3.50 per cwt.; hogs, 5c per lb.; chickens, 9c per lb; turkeys, 11c per lb., and ducks 8c per lb. Butter is worth 25c per lb; eggs, 30c per doz; honey, 10c to 12c per lb; beans are worth \$1.85 per bu., hand picked; buckwheat, \$1.25 per cwt.; wheat, 94c per bu; rye, 71c per bu; corn, shelled, 70c per bu; potatoes, 55c per bu.

Eaton Co., Jan. 15th.—The weather continues mild, with scarcely enough snow to whiten the ground, excellent weather for cutting wood, drawing manure and all out-door farm work. The stock market has improved some since the lifting of the quarantine. Stock is doing well. Wheat, 97 to 98c; oats, 47c; corn, 60c; rye, 70c; beans, \$1.85 to \$1.95; potatoes, 60c; butter, 20c to 22c; eggs, 28c to 30c; hogs, \$4.50 to \$5.25; cattle, \$2 to \$4.50; sheep, \$2 to \$6.50; lambs, \$5 to \$6.50; veal calves, \$5 to \$6.50; chickens, 10c to 11½c; fowls, 9c; ducks, 10c; clover seed, \$4.50 to \$4.75. Nothing doing in hay, and prices are unchanged, farmers are holding for better prices and hoping that when the quarantine is wholly removed it will tend to strengthen the market.

Gratiot Co., Jan. 18.—January came in soft and warm and as a result we have good wheeling and naked wheat fields. It is steady cold since the first few days, not thawing at midday. Markets have steadily improved and shipments are heavy. Hogs from 5 to 5½c; lambs 5½ to 6c; eggs, 22c; butter, 18 to 25c; wheat, 98c; oats, 48c; corn at auction, 38 to 41c.

Calhoun Co., Jan. 18.—Weather continues mostly mild and quite open. There has been very little snow, and wheat is exposed. There are many conjectures as to the outcome of the wheat crop, as many fields have little top, and if the open winter continues what there is will have little protection. Much stock is going to market at fair prices, but not high ones in comparison with the price of feeds. Corn can hardly be got, and oats is not plentiful. Oat meal is being fed considerably, this being due in part to the high price of home grains. Less stock is being fed than usual. Roughage is quite plentiful, but grain scarce. Ordinary fruit is not keeping well outside of cold storage.

MEARS INSTITUTE.

At a one-day institute held in the town hall at Mears, State Speaker Moore gave some excellent advice and interesting talks on various topics, the first being "Emergency Methods on the Farm." This was a much appreciated talk and great benefit was derived therefrom. The first "emergency" touched upon was "spasmodic colic," the symptoms of which were given as uneasiness of the animal, throwing of the head, bloating, etc. The remedy advised was one pint raw linseed oil, 1 to 2 ounces of ladanum, and 1½ ounces sulphuric ether. In severe cases the dose is repeated two, and even three times. Farmers were advised to keep such medicines constantly on hand, as, if any good results were expected the treatment must be given early in the disease. This was emphasized as being absolutely necessary. It was also advised that a drenching bottle be kept handy; also a vial with graduated scale for measuring glass, so that things might be done accurately, and not by guess-work. A solution of carbolic acid should always be at hand in case of "emergency." This is used diluted—using three tablespoonfuls to a pint of water. Any knives or instruments of any kind used about sick or diseased animals should be thoroughly sterilized. The speaker was asked the cause of milk-fever and what remedy he would advise. The cause given was milking the udder too clean. The remedy he advised was the injecting of air into the udder. This method was plainly illustrated by the speaker, to the satisfaction of all. Duncan Hodges, teacher in the primary department of Mears school, gave a discourse on "The Township Unit System," and Jesse Davis, principal of the school, gave a paper entitled, "The Farm is a School."

The "Good Roads" subject was taken up and ably discussed by Caleb Davis. Mr. Davis is a pioneer of Oceana Co., commencing when a blazed trail was our only road, and has lived to see our first mile of crushed stone road.

Another topic of Mr. Moore's was, "How to make the cow pay." Much good advice was given concerning selecting of herd, keeping account of returns by actual test, etc. Many good things were said along this line, too numerous to mention.

At the evening session, Mr. Moore gave a very interesting talk on "The balanced ration for the farmer and his family." This was ably handled and was much enjoyed by the audience.

While the attendance was not as large as we might have wished, yet the meeting was pronounced a success.

Oceana Co. J. M. W.

CATALOGS RECEIVED.

A 250-page illustrated catalog issued by DeLoach Mill Manufacturing Co., Bridgeport, Ala., describes in detail their full line of saw mills for all kinds of work, including accessory machines for well equipped mills, log and farm wagons, and woodworking machinery, as well as feed grinders, corn shellers, horse powers, steam motors, etc.

Great Western Automatic Carriers are fully illustrated and described in the large new catalog, issued by Smith Manufacturing Co., 158-164 E. Harrison St., Chicago, Ill. In this book their carriers are not only fully described but methods of installing them in barns of various kinds are illustrated in a way which would make it easy for any inexperienced man to set them up.

Strawberry Plants That Grow is the title of a new 1909 catalog just received from C. E. Whitten's Nurseries, Bridgman, Mich., describing this firm's line of small fruit plants.

Pure Paint is the title of a new catalog issued by Carter White Lead Company, of Chicago and Omaha. It tells how to know pure paint and contains valuable suggestions on painting, including several color plates, showing up-to-date effects in the blending of colors in painting different types of buildings.

D. M. Ferry & Co., Detroit, Mich., are

sending out their Seed Annual for 1909, fully describing and illustrating their complete line of farm, garden and flower seeds and garden accessories. This 100-page catalog should be in the hands of every farmer, gardener and housewife.

L. L. May & Co., St. Paul, Minn., have issued a 1909 catalog of their northern grown seeds, plants, bulbs and fruits. This 100-page catalog is profusely illustrated and descriptive of the up-to-date goods offered by this well-known firm.

Thorburn's seeds are described in a 140-page catalog issued by J. M. Thorburn & Co., 33 Barclay St., and 38 Park Place, N. Y., just out for 1909. The half-tone illustrations, showing the flowers, fruits and vegetables grown from their seeds are a pleasing feature of this catalog, giving an unusually good idea of the character of their product.

DeLoach line of engines, boilers and gasoline engines are fully illustrated and described in the pocket size catalog issued by DeLoach Mill Manufacturing Co., Bridgeport, Ala., in which a full line of engines, both stationary and portable, as well as boilers, steam pumps, etc., are listed.

The Garden Beautiful is the title of a handsome 200 page catalog for 1909 issued by Peter Henderson & Son, 25-37 Cortlandt St., New York. In it "everything for the garden" is fully described and illustrated by half-tone cuts made from the product of this firm's garden and flower seeds. It also contains colored plates showing their special line of roses.

The Naylor Line of Time-Savers is the title of a poster catalog issued by the Naylor Manufacturing Company, of La Grange, Ill., which fully describes their line of goods, including combination spring and spike tooth harrows of several styles, their two-in-one surface cultivator, two row disk and spike tooth harrow and plow harrow for attachment to gang or sulky plows, and fully explains the Naylor system of surface cultivation.

The new catalog of the American Separator Company, Bainbridge, N. Y., is a large and handsomely illustrated book, showing not only the details of construction of the genuine American Cream Separator, manufactured by this company, but showing as well the processes by which the different parts are manufactured in their completely equipped factory. It is filled with reasons for the superiority of the American Separator construction, and contains many testimonials from satisfied users in many states.

Manufacturing Methods that Have Won the Highest Recognition.

The manufacture of threshing machinery has been brot to a high standard of perfection. Mr. Barlow, of the Huber Manufacturing Company at Marion, Ohio, builders of the well-known "New Huber" line of threshing machinery and traction engines, says: "We have done no end of experimenting just to get the right quality of steel for our teeth and concaves—and to make these of the proper form and proper dimensions. Threshermen appreciate the importance of this, and in the 'New Huber' threshers we make our concaves and cylinder teeth of the finest quality of steel that can be produced for this use." The "New Huber" threshers and the "New Huber" traction engine have given a newer meaning to the word "economy" in harvesting methods. Interested persons should send for copy of the "New Huber" catalog, which is mailed free on request.

Gregory's New Seed Book Sent Free.

Before you do any planting or buy seeds, you should by all means write for a copy of Gregory's new seed book. You may have received a dozen different seed books, but you won't find in one of them or all of them together the valuable information that's contained in Gregory's. This book is published strictly in the interest of farmers and gardeners. Not only does it illustrate and describe the new and old varieties, but it helps make the planting a success by giving expert advice on the raising of various vegetables. In addition to the information contained in this book, the publishers are willing at any time to answer questions by mail. This fact alone means a great deal to the man who is striving to get the biggest returns from his planting. Write J. J. H. Gregory & Son, Marblehead, Mass., and a copy free will be sent by return mail.

By All Means Blanket the Horse.

There's a reason back of a horse blanket. Nature provided the horse with a hairy coat, sufficient in the wild state to protect him from the severest storms; and it's a well known fact, often noticed on the great ranches of the west, that a horse, running free for a season, soon grows a heavy, shaggy coat of hair, practically impervious to the biting winds of a prairie winter. How unwise then, for an owner to do less than nature, and expect a horse to be his best when left to shiver out his energy in trying to keep warm. A 5A blanket is far cheaper than such treatment, and besides protecting the horse, also protects the horse-owner, tho in a different way. It's good economy to use 5A Horse Blankets.

Satisfied customers are the best evidence of the value of goods manufactured or sold by any firm. They are also the best guide to the prospective buyer as to the kind of goods he should purchase. Acting upon this idea the New-Way Motor Company, of Lansing, Mich., have recently published a little booklet, containing testimonial letters from many satisfied users of their many different types of gasoline engines for many different purposes. It will be sent to any reader for the asking and would be of value to the intending purchaser in adding him to decide the types and size of engine which would be most desirable for any given work.

Low Fares

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Feb. 2 and 16
Mar. 2 and 16

Plan to go on one of these days—take advantage of the low fares offered by the Rock Island-Frisco-C. & E. I. Lines, and see for yourself the opportunities that are open to you in the Southwest. The trip will not cost you much. These special low-fare tickets over the Rock Island-Frisco-C. & E. I. Lines will permit you to go one way and return another, without extra cost. As the Rock Island-Frisco Lines have over 10,000 miles of railway through the best sections of the Southwest, you will see more of the Southwest than you could in any other way, and will be better able to decide where you want to locate.

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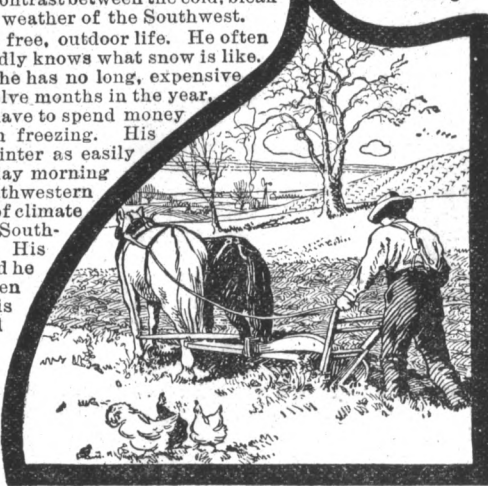
A trip to the Southwest now will give you a good chance to get away from the cold weather. See what kind of a winter the Southwestern farmer is having. You will see a great contrast between the cold, bleak winter of the North and the fine, open weather of the Southwest.

The farmer in the Southwest lives a free, outdoor life. He often begins his plowing in January. He hardly knows what snow is like. His stock has good range all year, and he has no long, expensive feeding periods. He works outdoors twelve months in the year, makes money while you are idle and have to spend money to keep your family and stock from freezing. His children go to the nearby schools in winter as easily as they can in spring and fall. A Sunday morning drive to church is a pleasure to the Southwestern farmer. Added to all these advantages of climate is the great advantage the farmer in the Southwest has over you in the price of land. His land costs only from \$5 to \$25 an acre, and he can raise bigger crops than you can. Often he gets two crops a year. His land is growing more valuable every year and he is getting rich.

Let me send you some interesting books about the Southwest. They will inform you of opportunities waiting for you there, and will open your eyes to new possibilities. Write for free copies today.

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Plowing in January



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with the New Deere No. 9 Corn Planter

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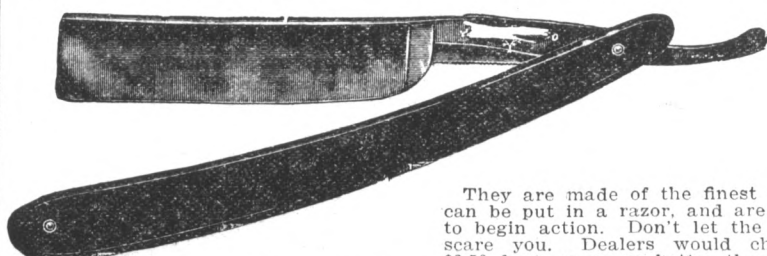
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THE MICHIGAN FARMER, DETROIT, MICH.

HORTICULTURE

RENOVATING OLD AND RUN DOWN ORCHARDS.

In all parts of the country where fruit growing has been followed for a number of years there are worn out and run down orchards. The ages that the several fruits will continue to bear profitable crops is the longest in the apple, followed in the order named, by the pear, cherry, plum and peach.

In undertaking the work of renovating and improving an old fruit orchard we are met with the following conditions: Land water-logged, scarcity of available plant-food, insect enemies, fungus growth, sweeping winds, changeable climate, and neglect. How to set about to correct these difficulties is the question for us to consider before we begin the work of improvement.

Drainage.

Unless the orchard is well drained the first thing for us to consider is how this may be accomplished. In many orchards tile drainage will provide an abundance of plant-food. Trees that are on land that is full of surface water will not root deep into the soil, and consequently they deplete the fertility of the surface soil and not being able to extend their roots down into the water-logged soil they are unable to obtain nourishment from it. Orchard soils should be thoroly drained to a depth of at least four or five feet so that the trees may develop good, vigorous root systems. We should try and secure the fertility already in the soil before we think of using manures and fertilizers on our orchards.

Making Plant-Food Available.

After the drainage conditions are right the next important step is the cultivation. A wonderful amount of plant food may be developed by cultivation. The plowing of an old orchard is not a pleasing task, but with a plow properly set and a good team the work can be done without much difficulty. Between the rows of trees the ground may be plowed fairly deep but when up within a few feet of the tree row the plow should be adjusted so that it will cut off about two inches of the surface soil and not disturb the roots of the tree. When an old orchard has been cultivated a number of years these surface roots can be kept down where they will not bother the plow. Trees and vines will do better and make a better growth when the surface roots are not disturbed when the plowing is done. Caution should also be used to prevent plowing up large roots that will catch the tools used in cultivation. After plowing the orchard the soil should be thoroly worked and sowed to some cover crop such as buckwheat or oats that may be sown late during the summer and left until the next spring to plow under. The chief aim in cultivation should be to bring the land up to a state of cultivation when it can be easily worked and capable of growing nitrogen gathering plants. After we have accomplished that much the work of further improvement is easy for with legumes to furnish humus and nitrogen we have a sure basis to work upon in the use of mineral fertilizers as a source of phosphoric acid and potash.

Fertilizing Old Orchard Soils.

Nearly all old orchards are lacking in available plant food as soon as they begin to produce large crops of fruit again and it is then that we must supply such fertilizers as stable manure, cover crops and mineral fertilizers in varying combinations. They are the chief essentials for feeding orchard soils. The use of leguminous cover crops and a mixed fertilizer containing acid phosphate, ground bone and muriate of potash equal parts applied at the rate of 1,000 pounds to the acre will produce excellent results. Some soils need an application of about forty bushels of lime per acre before they will grow clover and other legumes that are desirable to use for cover crops.

Pruning.

The first step in the work of pruning should be to remove all of the trees that interfere with the growth of the others. Trees can not produce fine specimens of nicely colored fruit when they are crowded for room and where the air and sunshine cannot reach the fruit. The work of pruning should not all be done at once and in most cases the work will prove more beneficial when about three years are taken to gradually bring about the work of pruning to meet our ideals. There can be little done to correct the form of the trees in one year but the

work of pruning should be done so that each year will bring the form of the trees more nearly to our ideal.

Low heading or high heading can seldom be remedied in pruning an old orchard. My preference is for a medium high headed tree so that the growth of branches is obtained at nearly right angles with the trunk of the tree, otherwise they will form mal-formed crotches, by the natural tendency of the lower branches to an upright growth. All trees perfect in form should have an inside or central shaft upon which the branches should be evenly distributed, never allowing three or four to cluster together, or any of the side branches to take the lead of the center. All water sprouts should be cut out the first year and all of the old shaggy bark that harbors insect pests and fungi, and often brings about a hide-bound condition of the trees, should be scraped off with a short hoe. Then with a sharp knife all traces of cankers and body blight, borers and other defective wood, that can always be found in a neglected orchard, should be removed.

Spraying.

After the work of pruning and scraping is completed and before the buds swell, spray thoroly with a copper sulphate solution, one pound to fifteen gallons of water to destroy moss, lichens and fungi. This may be followed by other sprayings as the condition of the trees require. The copper sulphate is the safest remedy to use for spraying as there is no danger of its injuring the trees where it is used. Insects and fungi are constantly increasing in kinds and individuals and the time is soon coming when orchards that have not been sprayed and properly cared for will be in a condition that will not pay for the expense involved in renovating and getting them back into shape to produce profitable crops of fruit.

Renovating by Sod Culture.

I have seen some very good results at orchard renovation by feeding livestock in the orchard and one orchard in particular on one of our farms had become unprofitable and we gave it two thoro prunings and used it for a night pasture for our dairy cows for two seasons.

During the time the cows were pastured in the orchard nights they were being fed grain foods and we were milking about thirty-five cows so the amount of manure added to the orchard was considerable. The cattle kept the old bark well rubbed off from the trees and from that time on the orchard has always produced large crops of fine quality fruit. I believe that the change is due entirely to pruning and using it for a night pasture. I have often thought that sheep would be very desirable animals to use for improving orchards, more especially when they were being fed some forage and supplementary grain foods and they would also make use of the disease infected fruit as soon as it dropped to the ground.

New York. W. MILTON KELLY.

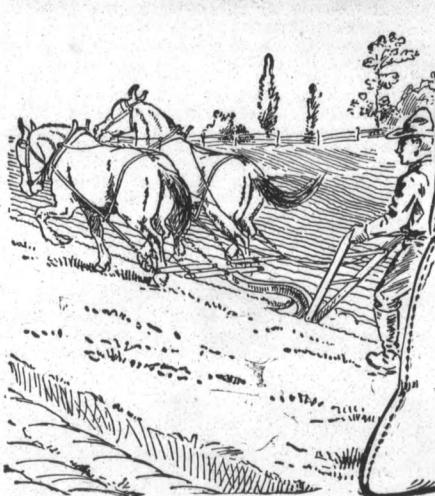
MUSHROOMS.

"It is not difficult to grow mushrooms," said an official of the Department of Agriculture, "and beginners are often as successful with them as are those having an extensive experience. Success depends upon general conditions, good materials, interest in the business, intelligent management, and persistent application. Aside from preparing the manure and making up the beds, it is a clean crop to handle and occupies little space, and so far as the general routine attention required by the beds and the gathering, sorting, packing and marketing of the mushrooms are concerned, the women of the household can do the work as well as the man."

A cellar is an excellent place in which to grow mushrooms if the floor is free from water; it matters not whether it is made of cement or of wood. The windows and doors should be closed up and darkened. The beds should be made up of fresh horse manure which has been well trampled and wetted in the stable and afterwards turned over two or three times to prevent "burning." Mushroom spawn can best be obtained by purchasing one of the "bricks" sold by seedmen. This brick is broken into a number of small pieces which should be planted two or three inches deep in the manure.

When it is considered that Paris in 1900 raised nearly 9,000,000 pounds of mushrooms, nearly half of which came to this country, it can be assumed that there is good profit in the industry to the farmer's family. There is now a very good open market for fresh mushrooms in a few of the larger cities where hotels and restaurants will contract for an entire output.

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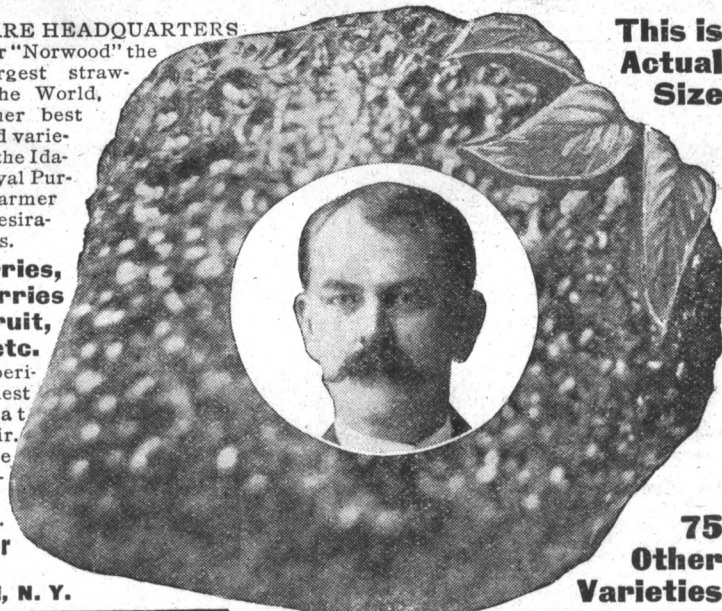
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VEGETABLE VARIETIES OLD AND NEW.

Some of Their Desirable Qualities and Otherwise.

To intelligently discuss the above subject there are several important points to be borne in mind, as table and market qualities, soil conditions, etc., and it matters little whether we consider the question from the home or market viewpoint, the same general principles will apply. It must be also remembered that local conditions and their environment have much to do with the success or failure of many sorts of vegetables as well as fruits and a variety that, in one locality may be ideal, while grown in another locality different in surroundings, may prove nearly, or quite, a failure. So we must sometimes consider the praises or otherwise bestowed upon certain sorts or kinds of vegetables with a grain of salt until we know something as to said conditions. Thus we believe that much seed has been sent out that, upon its native heath, was all that could be desired, but grown under new conditions of climate, soil, etc., proved anything but satisfactory.

It may also be well in speaking of individuality of various sorts, to say something of cultural methods of certain varieties, as some seemingly well known kinds, in reality have a place in very few gardens. So what might seem old, old stories to some are really sealed books to many.

Asparagus.

Concerning the culture, it should be remembered that the life of a bed ought to be from 15 to 20 years; and for that reason it is the poorest possible policy to fit the ground in a slipshod or haphazard sort of way. In choosing a location, some points are worthy of note. A sunny exposure is best, where, if possible, the all-day sun shall be uninterrupted. This, of course, means that shade trees or other obstructions should not be allowed. Good drainage, either natural or artificial, is necessary for best results; and if a choice of soil be possible choose the sandy rather than the clay soils. In either event, deep working is best and heavy soils will be much improved by subsoiling. No amount of manure that can be worked into the ground will be excessive as the plant is a gross feeder, and rapid growth is essential. As to stock for setting, yearling plants are best, and under no circumstances should older than two years be used. It would only be urgent necessity that would induce me to set even two year old plants.

If desired, home-grown plants may be used, which, of course, requires one year longer to bring a bed into bearing, as they may be had of the seedmen ready for setting, and thus a year will be saved. To grow plants from the seed, pour hot, but not boiling water, over them and let them stand until cool, then pour off. Repeat this two or three times and it will greatly assist the germination. Plant in rich soil in drills two inches in depth and 12 to 14 inches apart. When the plants are well up, thin to one inch or a little more apart, and keep up thoro cultivation. They will be ready for transplanting into permanent bed the following spring.

As to planting the permanent beds, too much care cannot be exercised. A missing plant is not easily replaced until the following year, so it pays in this respect alone to do the work well. Then, too, deep planting is far and away ahead of shallow setting, for the reasons that the root growth is peculiar, and the bed is or should be, long lived. The crown or bearing part of the root sets about an inch higher each year, and this being true, it follows that in the later years, if the roots have been planted shallow, the crowns will be very near the surface, and in constant danger of injury from the knife in cutting the shoots. It is either that, or the surface of the bed must be raised by covering with new soil which is a serious affair. So we say, never plant less than eight inches deep, and more is better. For general cultivation the plants should be set not less than two and a half by four feet in the rows. Wood ashes and salt, not less than four quarts to the square rod are an excellent top dressing and should be used every spring. More will not hurt, as the plants fairly revel in the salt. In autumn, mow the tops and when dry burn them right on the bed then cover with manure, to be worked in the following spring. The second season after planting the beds may be cut over two or three times; but at each cutting all the shoots, large and small, should be cut. The season following and after that the bed is, or should be, in full bearing.

As to varieties.—There are few, as only a limited number of distinct varieties have been developed. The Palmetto is the earliest of all, very prolific, large, thick, dark green stalks with distinct, pointed top, a prolific bearer and excellent as to table qualities. This has been rated as one of the hardest in resisting fungus diseases and insect pests. Conover's Colossal is doubtless the best known of all varieties and a general favorite. It is mammoth in size, green as to color, and is doubtless more widely cultivated than any other known variety. Barr's Mammoth, as the name indicates, is very large, the stalks sometimes reaching nearly an inch in diameter, with few scales, and retaining its size clear to the end of the stalk. The heads are round and closed. It is of fine flavor, a quick grower and consequently tender and succulent. Grant Argenteuil is distinctly a French sort and very popular there, both as a home and a market variety. It is rapidly coming into favor here and is, we believe, worthy of general cultivation.

In general, a white, or blanched, stalk is not sought after in the market, the choice always appearing to be a green variety. There is, however, one exception to this, Columbian Mammoth White has become very popular and we believe, deservedly so. The stalks are of largest size and retain their clear, white color four to six inches above the ground. It is well worthy of trial and will, we think, give entire satisfaction.

It is not a little surprising that such a general favorite as is asparagus, so little of it is grown, especially in the home gardens. There is seemingly no end to the demand and as a market product it is a money maker. No garden, either home or market, lacking a generous supply of this vegetable, is quite what it ought to be. A well set bed will last for years; and the wonder is why more of it is not grown.

Wayne Co.

J. E. MOORE.

LATE GROWING ONIONS.

There are at least three reasons why onions continue to grow late in the season and do not ripen well: the using of seed that matured in a climate with a longer growing season than where the seed is planted; a too liberal amount of nitrogen in the soil in proportion to other important plant elements; soil that is too wet. From these different causes growers of this crop are having trouble in widely different sections. A reader from Grand Traverse county has just made inquiry about this fault with his last season's crop.

Seeds produced in England are very likely to produce plants with this tendency of late fall growth. Seeds should be secured from houses that supply from seeds grown in this country. There is some onion seed produced in our own state. A too liberal amount of nitrogen in the soil can be overcome by balancing up the plant food therein thru the adding of potash and phosphoric acid. These elements in plenty will give the plants every opportunity to develop naturally when they should ripen in due season. Drainage will overcome excessive dampness. Tile drains are superior to surface ditches for this purpose and the fertility of the soil can better be retained thru their use.

Should one find himself with a crop of onions on hand that persisted in growing beyond the time of season when they should be ripening the difficulty can be overcome by breaking down the tops during the latter part of August. This is easily accomplished by rolling a barrel over the rows. The onions produced by treating in this manner are not generally of the high quality as those that ripen in the regular way and in proper season; but the process improves the crop over what it would be if left without the tops being broken. The expense is small as it requires but little time to cover a considerable area.

ORCHARD DRAINAGE.

Not alone level, clayey soils are benefited by drainage; very often rolling soils, considered to be ideal locations for the apple, will respond nobly to well-laid drains.

Subsoiling during the preparation of the soil for the reception of the trees is frequently a very profitable practice but the same results may be obtained on most soils by thoro tilling. The soil gradually settles back after the subsoiling but with the tile drains it gradually becomes more open and allows the roots of trees to live deeper.

Try This For a Severe Cough.

Take a pint of Granulated Sugar, add ½ cup of water, stir and let boil just a moment. Put 2½ oz. of Pinex in a pint bottle and fill it up with the Granulated Sugar Syrup. Shake well and take a teaspoonful every one, two or three hours.

The prompt results from this simple, home-made remedy will surprise you. It has been known to conquer a deep-seated cough in 24 hours. It is also an excellent thing for whooping cough, soreness of the lungs, bronchial troubles and other throat affections.

The proportion above suggested is enough to last a family a long time. It is equally effective for young or old, and has a very pleasant taste. Well corked, it never spoils. It takes less than five minutes to prepare, and is very inexpensive. The 2½ oz. of Pinex should cost you about fifty cents, and the Granulated Sugar about four cents.

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There are many pine tar and pine oil preparations, but none of these are to be compared with the real Pinex itself. All druggists have it or can get it for you without trouble if requested.

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MARKETS

DETROIT WHOLESALE MARKETS.

Jan. 20, 1909.

Grain and Seeds.

Wheat.—There has been a general improvement in the wheat market the past week. The only bearish feature of the market is the general snow storm that fell over the wheat belt of the west and northwest. Primary receipts have fallen off and the liberal use of the grain by flouring mills is rapidly consuming the visible supply which decreased nearly 2,000,000 bushels the past week. The market on Friday last was influenced by heavy shipments from Argentina, but this movement was not as large as a year ago and traders in that country are more bullish in their sentiment. The demand for flour is good and Liverpool markets are higher. One year ago No. 2 red wheat was quoted at \$1.01. Quotations are as follows:

	No. 2	No. 1	No. 3	Red.	White.	Red.	May.	July.
Thurs.	1.06	1.05	1.03	1.08	1.01			
Fri.	1.05 1/4	1.04 1/4	1.02 1/4	1.08	1.00			
Sat.	1.06	1.05	1.03	1.08 1/2	1.00 1/4			
Mon.	1.06 1/2	1.05 1/2	1.03 1/2	1.08 1/2	1.00 3/4			
Tues.	1.07	1.06	1.04	1.09 1/4	1.01 1/4			
Wed.	1.08	1.07	1.05	1.09 3/4	1.01 1/2			

Corn.—This market is strong with prices ruling at the improved quotations of a week ago. The receipts are limited and the supply continues steady, although stockmen are generally feeding less than usual; the demand from this source, however, is constant with that of the past few weeks. The visible supply shows a slight decrease. A year ago No. 3 corn was quoted at 58 cents. The following are the prices for the past week:

	No. 3.	No. 3.	Yellow.
Thursday ..	61 1/2	62 1/2	62 1/2
Friday ..	61 1/2	62 1/2	62 1/2
Saturday ..	61 1/2	62 1/2	62 1/2
Monday ..	61 1/2	62 1/2	62 1/2
Tuesday ..	61 1/2	62 1/2	62 1/2
Wednesday ..	61 1/2	62 1/2	62 1/2

Oats.—There is a fair demand for this cereal and the market is steady. The activity is confined to the cash deal. The visible supply shows a decrease of a half million bushels. One year ago price for No. 3 white oats was 54c. Quotations are as follows:

	No. 3 White.
Thursday ..	53
Friday ..	53
Saturday ..	53
Monday ..	53
Tuesday ..	53
Wednesday ..	53

Beans.—This trade is lifeless. Occasionally a bid is made but no actual exchanging is being done upon the market here. The nominal quotations set by the Board are as follows:

	Cash.	May.
Thursday ..	\$2.20	\$2.25
Friday ..	2.20	2.25
Saturday ..	2.20	2.25
Monday ..	2.20	2.25
Tuesday ..	2.20	2.25
Wednesday ..	2.20	2.25

Clover Seed.—This trade continues active with prices ruling at the figures given a week ago. Although the demand is strong, the supply is sufficiently large to keep prices from fluctuating to any great extent. The following quotations ruled the past week:

	Prime Spot.	Mar.	Alsike.
Thursday ..	\$5.60	\$5.67 1/2	\$8.00
Friday ..	5.60	5.70	8.00
Saturday ..	5.60	5.70	7.50
Monday ..	5.55	5.60	7.50
Tuesday ..	5.50	5.60	8.00
Wednesday ..	5.50	5.55	8.00

Visible Supply of Grain.

	This week.	Last week.
Wheat	48,704,000	50,479,000
Corn	7,210,000	7,325,000
Oats	10,353,000	10,921,000
Rye	928,000	1,012,000
Barley	4,445,000	4,905,000

Flour, Feed, Provisions, Etc.

Flour.—Unchanged. Demand is good. Receipts of flour on Tuesday were 600 bbls. and shipments 400 bbls. Quotations are as follows:

Clear	\$5.00
Straight	5.15
Patent Michigan	5.75
Ordinary Patent	5.35

Hay and Straw.—Prices unchanged. Carlot prices on track are: No. 1 timothy, new, \$10.50@11; No. 2 timothy, \$9.50@10; clover, mixed, \$9@10; rye straw, \$7.50; wheat and oat straw, \$6.50 per ton.

Feed.—Middlings and corn meal lower. Bran, \$24 per ton; coarse middlings, \$25; fine middlings, \$26; cracked corn and coarse corn meal, \$25.50.

Potatoes.—Traders are paying more for potatoes than a week ago. The market is firm, offerings being small and demand fair. Good stock is quoted at 75@80c per bu.

Oils.—Linseed in barrels, 56c per gal; boiled, 57c; lard oil, extra winter strained, 80c; extra No. 1, 60c; No. 1, 50c; No. 2, 45c; headlight kerosene, 9 1/2c; turpentine by the bbl, 47 1/2c per gal.

Provisions.—Family pork, \$17@17.50; mess pork, \$16; light short clear, \$18.50; heavy short clear, \$10; pure lard in tierces, 10 1/2c; kettle rendered lard, 11 1/2c; bacon, 11 1/2c; shoulders, 7 1/2c; smoked hams, 10 1/2c; picnic hams, 7c.

Hides.—No. 1 green, 9 1/2c; No. 2 green, 8 1/2c; No. 1 cured, 12c; No. 2 cured, 11c; No. 1 green calf, 14c; No. 2 green calf, 12 1/2c; No. 1 cured calf, 15 1/2c; No. 2 cured calf, 14c; No. 1 horsehides, \$3.40; No. 2, \$2.40; sheepskins, as to wool, lambs, 50c@1.50.

Dairy and Food Products.

Butter.—The trade is slow, due to the prevailing high prices and economy caused thereby. Buyers are only purchasing for present needs. The market shows firmness the country over. Dairy goods are quoted a little lower. Quotations: Extra creamery, 32c; firsts, 30c; packing stock, 19c; dairy, 21@23c.

Eggs.—Market is lower by a half cent for fresh stock while refrigerator stuff is higher. The trade is quiet. Fresh stock is quoted at 30 1/2c per dozen; refrigerator extra, 28 1/2c.

Poultry.—Poultry is dull. Prices generally are ruling with those of last week, a few, however, being lower and turkeys, both dressed and alive, are higher. Quotations: Dressed chickens, 14c; fowls, 13c; ducks, 14@15c; geese, 12@13c; turkeys, 18@22c per lb. Live—Spring chickens, 13c; fowls, 12c; ducks, 13@14c; geese, 10@11c; turkeys, 17@18c per lb.

Fruits and Vegetables.

Apples.—Market strong. Best grades are quoted at \$3.75@5 per bbl. Western apples in bushel boxes, \$2.25@3.50.

Onions.—Spanish, \$1.65 per bu; home-grown at 60@65c per bu.

Cabbage.—Home-grown selling at 2 1/2c per lb.

Vegetables.—Green onions, 15c per doz; radishes, 30c per doz; cucumbers, \$1.90 @2 per bu; lettuce, 17c per lb; head lettuce, \$3.25 per hamper; beets, 40c; turnips, 40c; carrots, 40c; watercress, 40c per doz; celery, 40c; spinach, \$1 per bu; parsnips, 60c per bu.

OTHER MARKETS.

Grand Rapids.

Dressed hogs are a little higher this week, dealers quoting at 7 1/2@7 3/4c. Butcher is steady and the egg market is also unchanged, though the high prices have resulted in a decreased consumption in the city. Wheat is now worth an even \$1 per bu. Other grains unchanged, with the exception of buckwheat, which has dropped to 75c. There has been a small advance in the potato market, buyers paying 55c in the Traverse City region, and 55@60c around Greenville and other nearer loading stations.

Quotations follow:
Grains.—Wheat, \$1; corn, 62c; oats, 52c; buckwheat, 75c per bu; rye, 70c.
Beans.—Handpicked, \$1.90 per bu.

Butter.—Buying prices: Dairy, No. 1, 24c; No. 2, 17c; creamery in tubs, 31 1/2c. Cheese.—Michigan full cream is selling at 13@14c per lb; brick, 15c; Swiss, 16c; limburger, 15c.

Eggs.—Case count, 27@28c; candled, 30@31c.
Apples.—75c@1.25.
Potatoes.—65@70c per bu.

Cattle.—Cows, \$2.50@3 per cwt; steers and heifers, best quality, \$3@4; dressed mutton 6c; dressed veal, 6 1/2@7 1/2c; dressed beef, cows, 4 1/2@5 1/2c; steers and heifers, 5 1/2@7c.

Hogs.—Dressed, 7 1/2@7 3/4c.
Live Poultry.—Fowls, 9@10c; spring chickens, 10@11c; roosters, 7@8c; turkeys, 16@18c; young ducks, 10@11c; geese, 9@10c.

Pittsburg.

Butter.—Higher; creameries, 34@34 1/2c per lb; firsts, 32 1/2@33 1/2c; prints, 34 1/2@35c.

Eggs.—Unchanged. Fresh candled, 33 @35c; current receipts, 30@32c.

Apples.—King, \$5@5.50 per bbl; Spy \$4 @4.50; Spitzenburg, \$4@4.40.
Poultry.—Dressed. Turkeys, 19@20c; spring chickens, 17@18c; hens, 17@18c; ducks, 17c.

New York.

Grain.—Wheat, No. 2 red, \$1.07 1/2@1.08 1/2c; corn, No. 2, 68c; oats, mixed, 54 @54 1/2c.

Eggs.—Easy: western firsts, 32 1/2@33c; seconds, 31@32c.

Butter.—Firm. Creamery specials, 33 @33 1/2c; western factory firsts, 21 1/2@22c.

Potatoes.—Western, in bulk, per 180 lbs., \$2.25@2.50; per bu, 78@80c.

Poultry.—Dressed, firm; western spring chickens, 15@16c; spring turkeys, 16 @23c; fowls, 14@16c.
Hay.—Choice timothy, \$17; No. 1, 16 @16.50; No. 2, \$15; No. 3, \$13@14; shipping, \$12@13; little clover mixed, 14@15; No. 1 clover, \$13; No. 2, \$11; No. 1 rye straw, \$21; No. 2 do, \$18; No. 1 tangled rye, \$12; oat straw, \$8.50@9; wheat, \$9.

Boston.

Wool.—There is a scarcity in the stocks of fleece and staple territory supplies. Although the activity on the local market is not so apparent as a week ago, a large number of small contracts have been made, which amount to a total of several million pounds. Prices continue firm and the general business is reported good. The London auctions which have just opened were very largely attended and the competition for the holdings is strong. Prices are showing a tendency upward. The following are the leading domestic quotations for the week: Ohio and Pennsylvania fleeces—XX, 34@35c; X, 31@32c; No. 1 washed, 38@39c; No. 2 washed, 38@39c; fine unwashed, 23@24c; half-blood combing, 30c; three-eighths blood combing, 29@30c; quarter-blood combing, 28@29c; delaine washed, 38@39c; delaine unwashed, 29@30c. Michigan, Wisconsin and New York fleeces—Fine unwashed, 22@23c; delaine unwashed, 27 @28c; half-blood unwashed, 28@29c; three-eighths blood unwashed, 28@29c; quarter-blood, 27@28c. Kentucky, Indiana and Missouri—Three-eighths blood, 28@30c; quarter-blood, 27@28c.

Rye.—Market slow and easy with an advance of 1/4c in price. Quotation for cash No. 2 is 78c.

Cincinnati.

Potatoes.—Market higher. Bulk on track, 80@82c per bu.

Butter.—Creamery prints, 34 1/2c per lb; extra, 34c; firsts, 32 1/2@33 1/2c.

Eggs.—Extra, 30c per doz; firsts, 27c.
Apples.—King, \$5.00 per bbl; Snow, \$3.50; Baldwins, \$4@4.25; Spy, \$4.25@4.75; Greenings, \$3.75@4.25.

Poultry.—Live—Springers, 12@12 1/2c per lb; hens, 11@11 1/2c; cocks, 7c; ducks, 11 @13c; turkeys, 10@17 1/2c.

Chicago.

Wheat.—No. 2 red, \$1.06@1.07 1/4; May, \$1.07; July, 98 1/2c.

Corn.—No. 2, 59@59 1/4c; No. 2 yellow, 59 1/4@59 1/2c; May, 61 1/4c; July, 61 1/4c.

Oats.—No. 3 white, 49 1/4@51 1/4c; May, 51 1/4c; July, 46 1/4c.

Barley.—Good feeding, 59@60 1/2c; fair to choice malting, 61@64c.

Butter.—Steady; creameries, 22@30c; dairies, 21 1/2@27c.

Eggs.—Weak. At mark, cases included, 25 1/2@28 1/2c; firsts, 29 1/2c; prime firsts, 30 1/2c.

Potatoes.—Car lots in bulk. Fancy, 73 @75c per bu; ordinary to good, 65@68c.

Elgin.

Butter.—Market firm at 32c, which is last week's quotation. Sales for the week amounted to 547,700 lbs., compared with 587,200 lbs. for the previous week.

LIVE STOCK MARKETS.

Buffalo.

(Special report by Dunning & Stevens, New York Central Stock Yards, East Buffalo, N. Y.)

Receipts of sale stock here today as follows: Cattle, 120 loads; hogs, 14,000; sheep and lambs, 27,000; calves, 700.

The medium to good butcher cattle sold 10@15c higher than last week, with an active trade throughout the day. There was several loads of good weight cattle on the market, that up to a late hour had no bids on them whatever. It seems that the markets, both east and west, are asking for a big reduction on the heavy weight cattle. In our butcher trade, and country trade also, the cry is for something on the low-priced order. We are selling cattle from \$5 to \$5.50, which don't look to be worth as much within a full dollar a hundred as those we can't get 6c for, but, nevertheless, there seems to be no demand at the present time for this kind. We don't expect this to last any great length of time, but we know that the present prices will not justify any shipper in trying to buy good weight cattle for this or any other market.

We quote: Best steers, \$6.00@6.50; best 1,200 to 1,300-lb. shipping steers, \$5.75@6.25; best 1,000 to 1,100-lb. shipping steers, \$5.50@5.75; best fat cows, \$4.75 @5; fair to good cows, \$3.50@4; trimmers, \$2@2.50; best fat heifers, \$5.50 @5.75; butcher heifers, 800 to 900-lb., \$4 @4.25; light fat heifers, \$3.50@3.75; best bulls, \$4.50@5; bologna bulls, \$3.75@4.

With light receipts of hogs today and a good outside demand, prices were from 15@20c, and in some cases 25c higher than Saturday. Fair clearance for all that got yarded in time for the market. One or two loads of choice Illinois hogs averaging 280 to 300 lbs. sold as high as \$6.75.

We quote: Best medium and heavy, \$6.60@6.70; mixed, \$6.60@6.65; best Yorkers, \$6.50@6.60; light Yorkers, \$6.25@6.40; pigs, \$5.90@6; roughs, \$5.60@5.75; stags, \$4.25@4.75.

With 120 loads of lambs on the market today they sold about ten cents a hundred lower than Saturday and trading was slow at the prices. Several loads are going over unsold.

We quote: Top lambs, \$7.55@7.60; fair to good, \$7@7.50; cull lambs, \$5.50@6.75; skin culls, \$4.50@5; yearlings, \$6@6.65; wethers, \$5.50@5.65; ewes, \$4.75@5; cull sheep, \$2.50@3.50.

Best veals, \$9.75@10; medium to good, \$7.50@9; heavy, \$4@5.

Chicago.

Cattle. Hogs. Sheep.
Received today ... 28,000 43,000 22,000
Same day last year. 35,003 53,725 23,251
Received last week. 77,150 212,677 83,924
Same week last year 84,476 248,582 71,477

Cattle were marketed last week with too much liberality, and prices suffered accordingly, although there was a good outlet, both shippers of live beef cattle and buyers of stockers and feeders sending out large numbers. Country shippers continue to market by far the largest supplies on Monday, which makes that much the worst day of the week for sellers. The market is apt to rally on smaller Wednesday supplies, while Thursday is not apt to be much of a day for either receipts or demand. In quality the receipts last week were rather ordinary on the whole, with a poor showing of choice beefs, but the demand kept on mainly for a middling class of yearling steers and heifers, and heavy cattle were still discriminated against. Cold weather has made a better consumption of beef, but high prices tend to check the demand for heavy cuts of beef, and light cuts are mainly called for. Beef steers have been selling largely at \$4.90@6.65, with the poorer class of light weight steers selling at \$4@5 and the better class of shipping cattle at \$6.75@7.75. Good cattle went at \$6@6.70 and medium lots at \$5.25@5.95. Cows and heifers have been selling at \$3.10@6, with but a small proportion of the sales above \$5.50; canners and cutters sold fairly at \$1.50@3, with bulls selling at \$2.85@5, prices being unusually high. Calves, too, were much higher than ordinarily, going at \$3.50@9.75 per 100 lbs., while milkers and springers had a fair outlet at \$25@55 per head. The stocker and feeder trade has shown a good deal of animation and firmness, with recent sales at \$2.75@5.25, and a few sales up to \$5.60. Choice feeders are hard to buy, as they are apt to be purchased by killers.

Cattle declined 15@25c last week on an average. Today, with smaller receipts than are usually seen on Monday, heavy beefs were slow and no higher, the best cattle selling at \$7. The medium and pretty good cattle of light and handy weights were active and firmer to a dime higher.

Hogs have been marketed freely for still another week, and most feeders were evidently in a hurry about selling their holdings, fearing that they would eat too much high-priced feed. The recent average weight of the receipts is only 202 lbs., compared with 215 lbs. a month ago and a year ago, and 224 lbs. two years ago. Meanwhile the demand, especially from the eastern shippers, has been much the best for heavy hogs, which have sold at a substantial premium, the lighter hogs and pigs selling at a big discount. As eastern sections have no considerable supplies of hogs left, a con-

tinuance of the extremely liberal eastern shipping demand may be expected, and a continuance of winter weather will naturally keep the consumption of fresh pork very large, the ruling prices being much below those for other meats of all descriptions. Under all the circumstances, there is no good excuse for marketing hogs prematurely. Hogs today were in much smaller supply than usual on Monday, and active buying put prices 10@15c higher. Sales were made at \$5.50@6.55.

Sheep and lambs were rushed to market in order to save feed earlier in the season, so much that supplies were greatly depleted, and no big supply seems to be left in most feeding sections of the country. Recent receipts have been on a very moderate scale, with not nearly enough fat flocks offered to satisfy the requirements of buyers, and prices ruled extremely high, especially for lambs, which were prime favorites with buyers. Fat little yearlings on the lamb order also went very high, and prime wethers and ewes made a good showing in values. There was a good call for feeder lambs, and extremely high prices were paid, few being available, as killers took nearly everything offered. Lambs sold last week at \$5@8.10 per 100 lbs., with feeder lambs taken at \$6.50@6.80. Ewes sold at \$3.25@5.50, wethers at \$3 @6, yearlings at \$6@7.25 and rams at \$3 @4.50. During the latter part of last week the general demand fell off, and prices broke sharply, declining further today, when lambs sold at \$4@7.85, the best yearlings at \$7, prime wethers at \$5.50 and prime ewes at \$5.25.

Horses of the better class have been meeting with a good demand for another week, fair prices being paid, but the market has been oversupplied with the commoner kinds that had to be sold frequently at shaded prices. Heavy drafters had a fair sale at \$165@215 per head, with a few sales of prime finished extra heavy animals at \$225@250. Loggers for shipment to New England points had a fair sale at \$160@200, and general purpose horses were forwarded in the same direction at \$150@175. Good farm chunks from four to six years old and weighing from 1,200 to 1,350 lbs. had a fair outlet at \$120@150, and light drivers sold very well on the whole at \$140@350.

LIVE STOCK NOTES.

Renewed evidence is found in the Chicago sheep and lamb market of the fine returns that are sure to follow scientific feeding of well-bred flocks. Surprisingly few fancy lots are being marketed there and elsewhere, and most of the time supplies are much too small to go around. At recent prices paid for prime lambs, as well as for choice little yearlings, and for fat wethers and ewes, sheepmen found themselves well repaid, and it is strange that so many feeders persist in marketing inferior stock, but one explanation is that many farmers have suddenly taken up the business without in the least understanding it or realizing the wide difference between fat and half-fat flocks.

This is a period when the optimists are winners, so far as stockmen are concerned, and the weak-kneed farmers engaged in fattening hogs who became frightened several weeks ago because live stock publications that are inspired by the Chicago packing concerns made the prediction that the Chicago market was bound to drop to a \$5 basis, now see that they made a serious mistake in letting go of their half-fat droves. Wide-awake farmers who keep in touch with the leading markets of the country by subscribing for unprejudiced farm papers and by directing leading live stock commission firms in the big markets to keep them fully informed regarding the live stock markets need have no fear of going wrong in marketing their holdings. Instead of falling to a \$5 basis, hogs have been headed recently in the opposite direction, and at the present time it is generally believed that before very long there will be \$7 hogs. But stockmen should always remember that it is well to sell at a good price whenever offered, and the best advice that can be given is to keep the hogs coming to market as soon as they are matured properly, taking the usual precaution to get advice first from good commission firms on the matter.

Farmers now engaged in fattening cattle for the market have been remarkably favored up to the recent cold snap that swooped suddenly down on the country. Seldom has such an unseasonably mild winter been experienced as this, and cattle have done exceedingly well in the feed lots, requiring less corn than when the weather is cold, while cattle that are being roughed thru the winter look unexpectedly well. Ohio farmers are feeding a good many cattle of the better class, and taking the entire field covered by the corn belt feeding states the amount of feeding now being carried on is much larger than was the case earlier in the season. A gradual change of sentiment has taken place among farmers regarding the policy of feeding cattle, the material decline in prices for corn being largely responsible for this, and a good deal of short feeding is being done, while large numbers of cattle are being roughed thru the winter. Roughage is plentiful nearly everywhere, and there was a big hay crop last year, except in the extreme east, where it was greatly curtailed by the dry weather, unrelieved by rainfalls of any importance. In the southwest cattle feeding is still popular with many farmers, and a good many cattle are reported as being prepared for the market in Kansas, Nebraska, Oklahoma and Texas. In Montana stockmen are utilizing their good crops of hay. A careful canvass of the cattle and sheep feeding in that state shows that nearly 20,000 cattle are on hay feed which will be marketed in late winter and early spring weeks. Many of these cattle when fat will find an outlet on the Pacific coast, but it is also expected that liberal numbers will be shipped to the Chicago market. In the same territory some 25,000 sheep and lambs are being fed.

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.

Thursday's Market.

February 21, 1909.

Cattle.

Receipts, 1,066. Market opened dull, with handy butchers steady, others 10c lower.

We quote: Extra dry fed steers and heifers, \$5.25@5.50; steers and heifers, 1,000 to 1,200, \$4.75@5; steers and heifers, 800 to 1,000, \$4@4.50; steers and heifers that are fat, 500 to 700, \$3.50@4; choice fat cows, \$3.75; good fat cows, \$3@3.50; common cows, \$2.75@3; canners, \$1.25@1.75; choice heavy bulls, \$3.75@4; fair to good bolognas, bulls, \$3@3.50; light bulls, \$2.75@3.

Bishop, B. & H. sold to Kamman 1 bull weighing 660 at \$3.11 butchers av 780 at \$3.75; to Sullivan P. Co. 5 steers av 850 at \$4.60, 5 do av 1,182 at \$4, 2 bulls av 1,430 at \$3, 3 butchers av 896 at \$3.75, 9 do av 802 at \$4.40, 2 cows av 1,000 at \$3, 1 heifer weighing 750 at \$4.50, 1 cow weighing 900 at \$2, 4 do av 958 at \$3.10, 3 do av 926 at \$3, 1 heifer weighing 770 at \$4.25, 4 steers av 1,030 at \$5.40, 3 cows av 1,100 at \$4.10; to Kull, 7 steers av 1,040 at \$4.75; to Mich. B. Co. 1 cow weighing 1,000 at \$3, 1 do weighing 1,140 at \$3.50, 4 do av 737 at \$3.25, 13 butchers av 835 at \$4.25, 12 do av 730 at \$4.10, 1 cow weighing 1,030 at \$3.50; to Regan 6 steers av 630 at \$4.25; to Sullivan P. Co. 2 bulls av 1,270 at \$3.75; to Thompson Bros. 7 butchers av 725 at \$4.25, 4 cows av 1,012 at \$3.50, 4 do av 907 at \$2.50; to Schuman 12 steers av 965 at \$5.10; to Mich. B. Co. 12 do av 932 at \$4.75; to Sullivan P. Co. 3 cows av 900 at \$2, 4 do av 1,017 at \$3; to Marx 2 steers av 850 at \$4, 8 butchers av 900 at \$4.15; to Ralner 2 cows av 1,000 at \$3.25.

Spicer, M. & B. sold Kull 6 steers av 900 at \$4.50, 6 cows av 933 at \$3; to Kamman B. Co. 10 butchers av 902 at \$4.60, 8 do av 1,144 at \$3.75; to Caplis 1 cow weighing 800 at \$1.75; to Kull 1 do weighing 1,060 at \$3; to Mich. B. Co. 4 cows av 807 at \$2; to Goose 1 cow weighing 820 at \$2, 1 do weighing 1,000 at \$2.25; to Caplis 3 steers av 806 at \$4, 1 do weighing 810 at \$3.50, 2 heifers av 465 at \$3.40, 5 cows av 940 at \$3.40, 4 butchers av 450 at \$4, 4 do av 712 at \$4, 5 do av 734 at \$4; to Sullivan P. Co. 1 bull weighing 1,330 at \$3.25; to Knauff 20 steers and heifers av 912 at \$4.40; to Mich. B. Co. 10 steers av 800 at \$4.70, 1 cow weighing 1,000 at \$3.25, 6 do av 990 at \$3.25, 6 butchers av 800 at \$3.75; to Cooke 5 steers av 756 at \$4.35; to Mich. B. Co. 10 do av 835 at \$4.70, 1 cow weighing 1,000 at \$3.25; to Rattkowsky 4 butchers av 655 at \$3.25.

Roe Com. Co. sold Heideke 14 butchers av 800 at \$4.50; to Goose 10 do av 1,008 at \$3.20, 2 cows av 440 at \$2; to Mich. B. Co. 7 butchers av 600 at \$3.60, 17 do av 550 at \$3.60; to Caplis 3 do av 710 at \$3.60; to Kaamman B. Co. 10 do av 730 at \$4.25, 1 cow weighing 1,080 at \$3.50; to Rattkowsky 2 butchers av 300 at \$3.50; to Markowitz 9 do av 1,950 at \$3.40; to Rattkowsky 1 steer weighing 900 at \$3.75; to Sullivan P. Co. 3 steers av 950 at \$4.35, 1 bull weighing 1,440 at \$3.85.

Wanty sold Bresnahan 4 cows av 967 at \$2.85.

Johnson sold Regan 2 cows av 905 at \$3.35.

McAninch sold same 6 heifers av 571 at \$3.60.

Johnson sold Mich. B. Co. 2 heifers av 725 at \$3, 2 cows av 1,040 at \$3.25, 14 butchers av 803 at \$4.35.

McAninch sold Starrs 2 steers av 875 at \$4.75, 1 bull weighing 1,060 at \$3.50.

Sharp & W. sold Kull 2 bulls av 1,225 at \$3.50, 1 do weighing 1,160 at \$4, 1 steer weighing 1,210 at \$5.85, 2 heifers av 500 at \$3, 1 cow weighing 1,000 at \$4.25, 4 butchers av 860 at \$3.50.

Wanty sold Kamman B. Co. 12 cows av 980 at \$3.75.

Vaughan Bros. sold same 5 cows av 882 at \$3.60.

Johnson sold same 2 heifers av 565 at \$4, 12 butchers av 780 at \$4.50.

Hansberger sold Sullivan P. Co. 6 cows av 970 at \$3.75, 2 bulls av 1,350 at \$3.75.

Landell sold same 17 steers av 820 at \$4.60, 3 heifers av 776 at \$3.50.

Erhan sold same 3 butchers av 500 at \$3.40.

Johnson sold same 2 bulls av 1,235 at \$3.80, 3 canners av 860 at \$1.75.

Veal Calves.

Receipts 392. Market steady. Best, \$7.50@8; others \$4@7.

Reason & M. sold McGuire 5 av 130 at \$7.50, 6 av 150 at \$7, 5 av 130 at \$7, 5 av 140 at \$7; to Mich. B. Co. 4 av 135 at \$7.50; to Fitzpatrick Bros. 1 weighing 150 at \$7.50.

Dwelle sold Burnstine 9 av 155 at \$7.50.

Weeks sold same 16 av 140 at \$7.30.

Rice sold McGuire 5 av 130 at \$7.25.

Groff sold Mich. B. Co. 18 av 150 at \$7.25.

Roe Com. Co. sold Newton B. Co. 8 av 140 at \$7.50, 3 av 110 at \$7.

Spicer, M. & B. sold Hammond, S. & Co. 4 av 150 at \$7.75, 2 av 125 at \$7.

Stephens sold Hammond, S. & Co. 8 av 150 at \$6.75.

Long sold same 15 av 160 at \$7.75.

Smith sold same 2 av 125 at \$7.

Taggart sold Sullivan 6 av 120 at \$7.

Kalahar sold same 2 av 130 at \$7.

Parker, W. & Co. sold Spicer, M. & B. 5 av 120 at \$7.50, 2 av 140 at \$6.

Hammond, S. & Co. sold same 4 av 150 at \$7.75.

Bishop, B. & H. sold Sullivan P. Co.

1 weighing 240 at \$8, 4 av 160 at \$7.50; to Markowitz 1 weighing 150 at \$6.50, 1 weighing 120 at \$7.75, 2 av 135 at \$7.50; to Barlage 9 av 115 at \$3; to Parker, W. & Co. 5 av 130 at \$7.25; to Mich. B. Co. 1 weighing 160 at \$7.50, 13 av 160 at \$7.50, 8 av 130 at \$7.25, 1 weighing 260 at \$7.25.

Sheep and Lambs.

Receipts, 5,714. Market dull and 15c lower.

Best lambs, \$6.50@6.75; fair to good lambs, \$6@6.40; light to common lambs, \$5@6; fair to good butcher sheep, \$3@4; culls and common, \$2@3.

Wanty sold Nagle 54 lambs av 85 at \$6.50.

Heeney sold Sullivan P. Co. 24 sheep av 105 at \$3.50, 6 do av 100 at \$3.50, 39 lambs av 85 at \$6.50.

Kalahar sold same 23 lambs av 60 at \$5.50, 8 sheep av 100 at \$3.25.

Stephens sold Hammond, S. & Co. 43 lambs av 75 at \$6.75, 6 sheep av 105 at \$3.50, 3 do av 107 at \$3.50, 2 lambs av 105 at \$5.

Wanty sold Nagle 54 lambs av 85 at \$6.50, 14 sheep av 110 at \$3.50.

Groff sold Mich. B. Co. 37 sheep av 85 at \$3.50, 53 lambs av 75 at \$6.25.

Kalahar sold Sullivan P. Co. 8 sheep av 100 at \$3.25, 23 lambs av 55 at \$5.50.

Robb sold same 35 lambs av 75 at \$6, 74 sheep av 85 at \$3.

Bishop, B. & H. sold Nagle 4 sheep av 130 at \$3, 36 lambs av 70 at \$6.25, 177 do av 85 at \$6.75, 10 sheep av 119 at \$2.50, 62 do av 110 at \$4, 4 do av 80 at \$4, 21 lambs av 90 at \$6.75, 152 do av 80 at \$6.75, 58 do av 85 at \$6.75, 29 do av 90 at \$5, 77 do av 70 at \$6.50, 43 do av 80 at \$6.75, 44 do av 85 at \$6.75, 6 sheep av 93 at \$3.25, 1 buck weighing 150 at \$3, 7 lambs av 70 at \$5, 50 do av 85 at \$6.75, 13 sheep av 100 at \$3.50; to Barlage 87 sheep av 85 at \$3.90, 14 do av 100 at \$3.75, 15 lambs av 65 at \$5.50; to Fitzpatrick Bros. 47 mixed av 85 at \$4.50, 18 sheep av 90 at \$3.50, 87 lambs av 75 at \$6.40, 15 do av 60 at \$6, 8 sheep av 95 at \$3.50, 2 bucks av 160 at \$3.50, 46 lambs av 75 at \$6; to Harland 24 do av 90 at \$6.75, 1 sheep weighing 130 at \$3.50; to Fitzpatrick Bros. 24 do av 90 at \$3.50.

Reason & M. sold Mich. B. Co. 20 lambs av 65 at \$6.10; to Sullivan P. Co. 37 do av 75 at \$6.25, 1 sheep weighing 130 at \$3; to Young 60 lambs av 75 at \$6.35.

Roe Com. Co. sold Newton B. Co. 24 sheep av 90 at \$3.50, 3 do av 135 at \$3.50, 30 lambs av 85 at \$6.

Spicer, M. & B. sold Parker, W. & Co. 79 lambs av 75 at \$6.40; to Hammond, S. & Co. 40 do av 85 at \$6.75, 30 sheep av 120 at \$3.50; to Parker, W. & Co. 2 sheep av 100 at \$3.50; to Hammond, S. & Co. 29 do av 105 at \$3.75.

Bishop, B. & H. sold Nagle 850 lambs av 90 at \$6.50.

Hogs.

Receipts, 4,396. Good hogs 5@10c lower; other grades 10@20c lower.

Range of prices: Light to good butchers, \$6@6.25; pigs, \$5@5.25; light yorkers, \$5.50@6; stags, ½ off.

Bishop, B. & H. sold Sullivan P. Co. 84 av 170 at \$6.25, 83 av 190 at \$6.25.

Sundry shippers sold same 131 av 170 at \$6, 40 av 165 at \$6.15.

Reason & M. sold Parker, W. & Co. 278 av 180 at \$6.25, 51 av 180 at \$6.25.

Roe Com. Co. sold same 34 av 248 at \$6.25.

Sundry shippers sold same 53 av 190 at \$6.25, 75 av 195 at \$6.20, 229 av 164 at \$6.15.

Spicer & M. sold Hammond, S. & Co. 117 av 150 at \$5.80, 160 av 165 at \$5.90, 83 av 170 at \$6, 140 av 175 at \$6.15, 120 av 177 at \$6.25.

Sundry shippers sold same 62 av 190 at \$6, 34 av 210 at \$6.25.

Bishop, B. & H. sold same 259 av 180 at \$6.30, 46 av 110 at \$5.40, 69 av 170 at \$6.25, 148 av 210 at \$6.35, 221 av 167 at \$6.20, 318 av 160 at \$6.15, 228 av 160 at \$6.10.

Friday's Market.

Cattle.

Receipts, 23. Market active at Thursday's prices.

We quote: Extra dry-fed steers and heifers, \$5.25; steers and heifers, 1,000 to 1,200, \$4.50@5.10; steers and heifers, 800 to 1,000, \$4@4.65; steers and heifers that are fat, 500 to 700, \$3.50@4.10; choice fat cows, \$3.75@3.85; good fat cows, \$3.25@3.50; common cows, \$2.50@3; canners, \$1.25@1.75; choice heavy bulls, \$3.75@4; fair to good bolognas, bulls, \$3@3.50; light bulls, \$2.50@3.

Roe Com. Co. sold Newton B. Co. 8 steers av 690 at \$4.15, 13 do av 750 at \$4.20, 3 do av 626 at \$3.50, 15 butchers av 834 at \$4.25, 11 cows av 1,045 at \$3.25.

Allen sold same 3 butchers av 973 at \$4.25, 6 do av 633 at \$3.65.

Clark sold Kamman 2 bulls av 1,245 at \$3.75, 4 cows av 1,020 at \$3.75.

Johnson sold Fry 34 butchers av 862 at \$3.90.

Veal Calves.

Receipts, 73. Market active and 25c higher than on Thursday. Best, \$8@8.25; others, \$4@7.50.

Spicer, M. & B. sold Hammond, S. & Co. 3 av 170 at \$8.

Bresnahan sold Sullivan P. Co. 3 av 160 at \$8.

Sheep and Lambs.

Receipts, 137. Market strong at Thursday's prices. Best lambs, \$6.50@6.75; fair to good lambs, \$5.75@6.25; light to common lambs, \$4.50@5; fair to good butcher sheep, \$3@4; culls and common, \$2.50@3.

Bishop, B. & H. sold Sullivan P. Co. 26 lambs av 80 at \$6.50, 1 sheep weighing 100 at \$4.

Lucke sold Parker, W. & Co. 6 sheep av 145 at \$3.50, 3 do av 95 at \$3.50, 9 lambs av 70 at \$6.50, 8 do av 67 at \$6.50.

Bishop, B. & H. sold Hammond, S. & Co. 30 lambs av 82 at \$6.75, 62 do av 75 at \$6.75, 20 sheep av 95 at \$3.25.

Hogs.

Receipts, 810. Market 10@15c lower than on Thursday.

Range of prices: Light to good butchers, \$6.15@6.25; pigs, \$4.50@4.75; light yorkers, \$5.50@5.75; roughs, \$4@5; stags, ½ off.

ers, \$6.15@6.25; pigs, \$4.50@4.75; light yorkers, \$5.50@5.75; roughs, \$4@5; stags, ½ off.

Roe Com. Co. sold Hammond, S. & Co. 77 av 225 at \$6.25.

Spicer, M. & B. sold same 75 av 185 at \$6.15.

Bishop, B. & H. sold same 379 av 190 at \$6.15.

LIVE STOCK NOTES.

Iowa farmers are feeding large numbers of western range lambs this season, a large share being run in corn fields, but as a rule they have not been crowded on the market as yet. Favorable weather has unquestionably been a powerful factor in keeping them back, but whenever there has been extra cold or wet weather considerable numbers have been marketed. The recent advance of around \$1 per 100 pounds was calculated to check sales, but big snow storms or rainy spells would cause many shipments to be made to Chicago and other western markets. A great drawback to the proper maturing of lambs by the Iowa feeders is the well-known failure of sheepmen to provide shed room, the flocks being thereby a prey to cold and wet weather.

One of the most striking features of the cattle market recently is the remarkable preference generally shown by buyers for the fat little handy weights over the higher-priced strictly prime beeves of heavier weights. The offerings of the latter in the markets of the country have undergone a very great falling off in volume, yet they have been extremely slow to advance in price, as the requirements of buyers were within narrow limits as a rule. Light cuts of beef are now extremely popular everywhere almost, and short-fed cattle sell more readily than the choicer long-fed lots.

VETERINARY

CONDUCTED BY DR. W. C. FAIR, CLEVELAND, OHIO.

Advice thru 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. In acute cases, where we believe that immediate treatment will be necessary, reply will be made by return mail, free.

Surfeit sores.—I have a yearling heifer that is infected with some skin trouble; she has several sore patches on body. Are my other cattle in any danger and what had I better do for them? H. H. S. Charlevoix, Mich.—Give 1 oz. hypo-sulfite soda at a dose in feed three times a day, also apply coal tar disinfectants full strength to sores twice a day. After they have healed and scabs slough off apply coal tar and vaseline equal parts two or three times a week.

Chronic Indigestion.—Scours.—Lice.—We have a cow seven years old that has not done well for the past two years; she is thin and scours. I am also afraid our cattle are lousy. Will it be safe to spray with coal tar dip in cold weather, as our stables are not very warm? J. C. Bedford, Mich.—Give 1 oz. powdered sulfate iron, 1 oz. ground ginger, 1 oz. ground gentian at a dose in feed night and morning. A change of feed will do no harm. You had better select a mild day and spray your cattle, or use insect powder.

Infectious Ophthalmia in Sheep.—I would like to know what ails my brood ewes? Their eyes become inflamed and in a few days a white film grows over the eye ball causing them to go blind. Our local Vet. has prescribed for them, but his treatment fails to help their eyes. J. J. H. Clare, Mich.—Give each ewe 1 gr. calomel daily for five days; also give enough vegetables to keep the bowels open. Blow some calomel into eyes once a day.

Distemper.—I would like to have you prescribe a course of treatment for a case of distemper in a 3-year-old colt. Is a horse apt to have it more than once? Can I do anything to prevent this ailment? B. K. Hillsdale, Mich.—Distemper or strangles is a disease peculiar to the horse, but it may be communicated to man by inoculation. It seldom attacks horses after they are five or six years old, but usually affects young colts, especially if they are exposed to the infection. The symptoms are dullness, loss of appetite, rise of temperature, coat begins

to rough, some discharge from nostrils and eyes, abscesses commence to form under the lower jaw, in irregular strangles abscesses may form anywhere in the body, sometimes in the lungs or intestines. When it does these cases often prove fatal. In regular strangles give the animal good care, poultice the throat with onions, turnips or linseed oil that is well cooked. I like the effects of antiphlogistine best. Give some powdered nitrate of potash, chlorate of potash and hypo-sulfite soda, 1 dr. of each at a dose three times a day. Also apply some liniment to swollen glands, equal parts turpentine, aqua ammonia and sweet oil is all right. However, there are many liniments equally as good. When the inflamed glands soften the hair plucks out easily; open and allow pus to escape, then clean out gland with a little peroxide-hydrogen or carbolic acid and water twice a day. Good care, sunlight, a dry comfortable stable or a pasture in summer is all that is necessary. Distemper is an infectious ailment and there is no preventative, other than to segregate sick ones.

Garget Kills Cows.—We have lost four valuable cows by garget affecting their udders during the past three months. Their udders become swollen and inflamed, the milk becomes waxy then clotted in the udder and sometimes it was almost impossible to get it thru the teat. Eventually the affected parts dried up completely. We have one cow affected this way now; she is due to calf in eight or ten weeks. How had we best proceed to treat her bag? Is this trouble contagious and if so how can we protect the rest of the herd? A. M. Hudson, Mich.—Congestion and inflammation of the udder is generally the result of blows, lying on sharp stones, sores on the teats, leaving the milk too long in the bag, standing in a current of cold air, exposure in cold showers, rich milk-making food too suddenly supplied and perhaps one of the most common causes is infection making its way thru teat into udder, germs multiplying, setting up a violent inflammation that either results in a sub-acute inflammation or destruction of the diseased quarter. Perhaps the most common causes of garget is lying on uneven stall floors. It is always fairly good practice to cut down the allowance of rich, nutritious food—give epsom salts or raw linseed oil as a laxative, feed vegetables instead of grain. If the udder is much inflamed use hot fomentations or poultice with antiphlogistine; also apply spirits camphor or small quantity of iodine ointment with plenty of elbow-grease. Milk cow three times a day, use a milking tube and if you have proper instruments irrigate udder with 1 part bichloride mercury and 1,000 parts tepid water. Garget is not a contagious ailment and is always the result of constitutional or exciting causes.

Abortion.—I have had trouble since last winter with my cows losing their calves. The first one taken sick was a Shorthorn that I had purchased a short time before, following her was a Jersey, next a Jersey heifer, the next a Durham grade. Nearly all of them had been pregnant about six months; now this trouble has been in my herd for the past nine months. What had I better do? J. N. Marlette, Mich.—Give each of your cows ½ dr. carbolic acid, 2 drs. glycerine dissolved in a quart of water and pour over and mix with feed once a day. Now then, there is great necessity for using disinfectants freely and thoroughly about your stable and on the hind quarters of your cows. Besides they should be flushed out with antiseptic astringents, such as permanganate potash, carbolic acid or coal tar disinfectants. Drop 1 dr. permanganate potash in 3 quarts tepid water, flush out vagina daily for three weeks. Use a rubber hose and funnel. It is most convenient to use a tank with rubber tube attachment. You can safely patronize any of our regular advertisers who put out remedies for this ailment.

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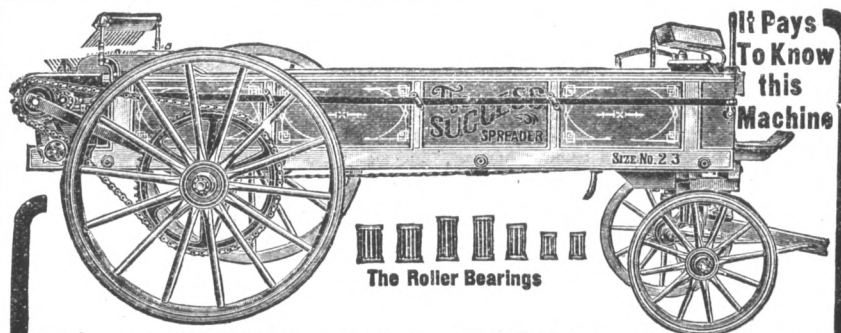
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HOME AND YOUTH

THE ARMS OF THE LAW.

BY FRANK H. SWEET.

When the daily mid-season train rounded out from the palmettoes, slowed across the bridge, and came to a smooth—almost suave—stop at the end of the Royal Poinciana, the usual people were in attendance. An orchestra in the coconut grove swelled out alluring strains of welcome; from the docks came occasional creakings of yacht sails; on the Poinciana steps, the platform, in the grove, along the paths, were scarlet coats and gauzy summer-like dresses and golf sticks and cameras.

Two private cars were in the train, but except for a casual glance, they of the scarlet coats and gauzy dresses did not notice them. Multi-millionaires had become a drug at Palm Beach, and could be jostled anywhere. Private cars were common. Only the day before the Daily News had gurgled of the billion or more dollars which the hotel represented, and boasted that the country had never before witnessed the conglomeration of such wealth under one roof.

So the guests in general shrugged their shoulders and turned away. Golf was in the ascendant at Palm Beach, and fishing a close second; wealth was the common accessory. The man of millions passed almost unnoticed; while Harry Varden, the golf champion, was sought and fêted, and even such lesser lights as Snyder and Fern and Cory were watched and admired. When the prominent commercial man and his friend made a big haul of fish under the bridge there was much talk and congratulation. But it was the fish, not the wealth.

Thus it was that the railroad magnate of a dozen millions, and the copper king of three times as many, walked from their cars with only the buzzing, tip-loving attendance of bell boys and porters. Even the curious glances which were given to a boatman who slouched across the platform with a forty-pound king fish over his shoulder were not vouchsafed to them.

But the next morning the copper king, who had registered as Harry Tierman, Michigan, made a strong plea for local recognition. He went fishing. Back somewhere in his boyhood he had done such things; and the remembrance, together with the tendency in the air, took him down to the Poinciana dock. There a five minutes' talk with Conover, the wharf master, arranged his occupation for the day. He would go to the goal of the lake fishermen, the inlet.

Early as he was, however, others were ahead of him. On the way up he passed the commercial man cruising back and forth, trolling for blue fish; and a little beyond, another with his line evidently out for grouper; and in the inlet still another boat, tacking almost between lake and ocean. Tierman wondered if some of them had been there all night.

His own line had been thrown overboard soon after leaving the dock, but not a nibble came as an encouragement for him to persevere. New boats arrived from time to time and joined in the tacking to and fro, and every few minutes he saw some one hauling in a line and lifting a bluefish or pompano over the rail. But two hours, three hours, dragged by, and still his line remained untouched; and then he caught it around a cleat with an impatient hitch and stretched himself into a more comfortable position.

"Gettin' tired, sir?" the boatman asked. "Rather," Tierman confessed, yawning; "I don't believe I'm much of a fisherman after all."

"That's 'cause you ain't in practice," encouragingly. "Keep at it steady a few weeks an' it'll come like second nature. There's them in sight who has to be told when it rains, an' who has to be took home like children when it's time to go to bed. They don't know; all they see is their line twinklin' down thru the water. But sp'ose we run over to Pitt's Island for an hour. It's a mighty queer place an' has things growin' that can't be found nowhere else round here. After an hour's strollin', you'll feel more like fishin', maybe." Tierman assented by a nod, and the boat was run alongside the Pitt Island dock. Tierman stepped out, lighted a cigar, and sauntered away into one of the shadowy paths.

Half an hour later he found himself near a small cottage which was almost concealed from the path and wholly from

the water. He passed around this and down to the shore beyond. A young man was seated upon the trunk of a fallen tree, fishing. His hat brim was drawn far down over his eyes as tho to shield them from the sun; but no sunlight could penetrate thru the density of the overhanging foliage. At the sound of approaching footsteps he started and turned.

"Oh," he said, "good morning." "Good morning," Tierman responded; "fishing to kill time, like the rest of us? Ah," as the young man rose and coiled his line, and then sent the bait circling twenty yards from shore with a quick, muscular swing of his arm, "you are an expert."

"No, hardly that," seating himself again upon the tree trunk; "I knew little of the art two weeks ago; since then I have fished quite a good deal."

Tierman's eyes left him and wandered out across the water. He wanted to be amused. Presently he sat down upon the trunk and made some comment about the fishing; the young man answered shortly and with a covert side glance of inquiry. But a few moments later, as tho the scrutiny had been reassuring, he opened a basket at his side and took from it an extra line. This he gave to Tierman and showed him how to make a good cast.

At the telegraph office of the Poinciana the little machine which kept the guests in close touch with the outside world was clicking along industriously, and the boy who delivered the messages as they ran off was taxed not to fall behind. Occasionally an owner could not be found, and the small envelopes would be brot back and placed upon the desk, there to wait another attempt at delivery later. Two hours after the copper king left the hotel one of these was brot back with: "Tierman not to be found; gone to the inlet fishing."

The operator did not look up but with one hand he motioned the envelope from the undelivered pile.

"Seemed to be important," he said; "must be delivered at once. Go find his private secretary; his servant, anybody of his party. If not able to do that, take the message up the lake yourself."

But that was not necessary, for as the boy left the office he saw Tierman's secretary entering the rotunda from outside. In less than ten minutes the secretary was hastening up the lake at the maximum speed of the fastest launch which could be procured.

He found the copper king on the tree trunk, his face eager, his tones jovial. On the ground lay four large fish, and he had caught two of them. But at sight of his secretary and the yellow envelope his face clouded.

"Couldn't you wait till I got back?" he exclaimed testily. "Don't you know that an interruption now means bad luck? I'll not catch another fish."

"But, Mr. Tierman," stammered the secretary, "the—the message is very important. Just as soon as I read it I started after you."

"Tush! They are all important—or so the sender thinks. In this case you would have pleased me better by not finding me. These fish are important. Why, man, they are the only ones I have caught in forty years. But never mind; the mischief's done now. Here, give me the telegram."

He read it with a gathering frown, then thrust it impatiently into his pocket.

"Wire Saunders to have extra vigilance at all of the coast towns and along the Canadian frontier," he grumbled. "Offer twenty thousand—fifty thousand—for the fellow's apprehension. But of course Saunders understands and has done everything that could be done. There was no use bothering me. Yes, that is all," as the secretary turned, and then paused inquiringly; "you may go now. I will not be down for several hours. I want to catch another fish."

He coiled his line as the young man had shown him, and threw it with all his strength. But the cast was poor, and he drew in and coiled and cast the line once more. Then he resumed his place on the log.

The young man was bending over, watching his line. Apparently he had not noticed the secretary's presence, or his companion's impatience. Five minutes passed, then he drew in his line and another large fish. Tierman watched him gloomily. Another five minutes, and he, too, began to draw in his line, but it was to wind it for departure.

"I'm going to quit," he declared; "luck's

turned, and I might fish on now all day without a bite."

The young man arose. "It's too bad," he said; "but you've made a good catch, anyway. These fish will be worth showing at the hotel."

Tierman's face brightened. "That's so," he agreed, "I'll send the boatman to get them. But if it hadn't been for that fellow I might have caught another."

"Very likely. Did he bring bad news?" "Well, yes, in a money way," dryly, "the difference between fifty thousand and ten times that amount. You see, it was this way. A man who was buying mining property for me disappeared with what we thot about fifty thousand. That was nearly a month ago. Of course, we took the usual precautions against his leaving the country. This telegram states that recent investigation has lifted the amount to half a million."

"Ah, that was quite a haul. And the fellow escaped?"

"So far, but he'll be caught all right," carelessly; "folks don't find it easy to do such things nowadays and get off. Fifty thousand is a good bid for vigilance; and, besides, we have some of the best detectives on the lookout. Every avenue from the country is guarded."

"Perhaps he slipped out ahead of the guards."

"No, we got a clue of him at New Orleans only two weeks ago. He had engaged passage on a sailing vessel for South America but grew suspicious and did not make an appearance. Shrewd of him, too," chuckling, "for we had a detective on board waiting for him. No, no; we'll have him all right; he's in hiding somewhere, and it's only a matter of time. But about the fishing," abruptly; "we must have some more of it together. I didn't know that I was a fisherman, but it seems I am. Now see here, I had my steam yacht down ahead of me. It's at Miami now. Suppose I wire the captain to run up and take us off for a few days. Will you go?"

An odd look flashed into the young man's eyes, and he turned for a moment. "The Mona?" he asked.

"Yes. You have heard of her?"

"Of course. I read the newspapers. You are Mr. Tierman, sometimes called the copper king of Michigan. And I have read something about the man you are looking for, and formed an opinion as to his whereabouts. You see," apologetically, "we detectives are always on the watch for such things, and read them up even when we don't expect to engage in them personally. I came here for quiet, but the professional instinct is easily aroused. Ah, you are ready to go; I will walk along with you."

They went up past the cottage and on thru the semi-tropical growth to the dock where Tierman's boat was waiting. The young man walked with a quick springing step, the dreamy listlessness gone from his eyes. As soon as the boatman had been sent back after the fish he placed his hand upon his companion's shoulder.

"Look here, Mr. Tierman," he said, with an odd, subtle challenge in his voice which the other did not appreciate until afterward; "I want to go into this thing."

"What, the fishing?"

"No, the finding of your man. I have a theory which I think will bring him to light, and I don't believe that any of your other arrangements will. Fifty thousand, I think you said. Is that for news of him or his apprehension?"

"Either for positive news, his apprehension, or a recovery of the booty."

"I see." He took pencil and paper from his pocket as tho to make notes, then went on: "From what I read in the papers you didn't meet this man yourself?"

"No; I was in Europe and cabled Saunders to engage him. I had heard, tho, that he was a mining expert."

"So," apparently jotting this fact down. "Now, about the Mona; she is ready to start at a moment's notice, and is seaworthy, I suppose?"

"Of course. She was only built last year, and her captain has orders to be ready to start within fifteen minutes after receiving a telegram. I haven't been out in her myself yet, but the captain says she is capable of a voyage around the world. But what has that to do with the fellow, Bostwick?"

"Everything. I want the Mona to help find him. Oh, I understand it is a rather startling proposition," at the look on the other's face; "but it's the only one that fits into my plans. You put the Mona under my charge for two weeks, and I'll engage to find your man. I'm positive I can do it. And I won't ask for a penny

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compensation unless I do. Isn't that fair?"

"I suppose so," discontentedly; "but my private yacht! Let me hire a tug for you, or anything."

"Nothing but the Mona will do," positively; "unless I can have her I will drop the job. But think of the half million, man! or we'll say four hundred and fifty thousand, with the fifty out. And I will need the Mona for only two weeks."

But still Tierman hesitated.

"It isn't so much the money," he objected, "as it is the fishing. I've been planning a lot of fishing since I caught those two back there. Then his face cleared. "Suppose we have a few days in her before you go," he proposed; "then you may have the Mona and welcome. We can go out again after you get back."

"And have Bostwicke escape us while we are out?" asked the young man; "no, no, Mr. Tierman; the fishing must wait. My theory is this. Bostwicke's hope is one of the South American ports, probably Paramaribo. There he would be in close touch with the interior where he doubtless has friends, and where can be found a stirring future for a man of enterprise and capital, and where there would be little danger of extradition papers. The Mona is swift, and I could make the run in a few days, find him, and wire you. Almost before you realize the fact the mystery of Bostwicke's whereabouts would be a thing of the past."

"Oh, you can have the yacht, of course," yielded Tierman reluctantly; "but I'm willing to admit," candidly, "that just now I would rather catch a few more big fish than even Bostwicke. But here comes the boatman. I will give you a note to the captain of the Mona and you can go down to Miami on the evening train."

"No, a better plan will be for you to wire him to steam this way at once," said the young man hastily. "I have a little business to attend to, and will then take a launch and meet him down opposite Lantana or Boynton. Have you a good description of this man Bostwicke—tho, of course," with affected indifference, "I have a general idea from reading the papers."

"Then you know as much as I do. But why not run down to Miami? It wouldn't delay you any, I think; and the police there could give you information and very likely show you a picture of the fellow."

But the young man laughed.

"I'd rather not, thank you," he said; "too many fingers in the broth, you know. Perhaps it's professional jealousy; but I'd rather go thru this thing alone. Well, wire just as soon as you can. I'll be ready to start in a few hours."

The copper king stepped on board and the boatman raised and swung his sail into the wind; then as they bore away from the dock, "Oh, say, I forgot to ask your name. What shall I wire?"

"Alson—Mr. Alson," the young man called across the widening space, "and wire the captain that I'll bear straight down the coast. You'll hear from me inside of two weeks."

He was better than his word. Only eight days had passed when Tierman received the expected message. But tho it brot the information promised, the copper king's face clouded and his eyes ran over the lines, and when he finished he muttered discontentedly: "Too bad! Too bad! We'll not go fishing together after all."

The message read: "The man is here, and is willing to give us his booty. Indeed, he is very glad of the chance. Two weeks' isolation with himself brot some very pertinent thots. However, he felt that he must escape, and that he could not remain in exile without the means of subsistence. So he turned detective and went in search of himself. Of course, he brot the reward along. The other four hundred and fifty thousand will be found in a tin box, two feet underground, at the northeast corner of the Seminole hut on Pitt's Island. The Mona left here yesterday, and I strike into the interior this afternoon."

Your well wishes,

ALSON BOSTWICKE."

Paramaribo, March 30, '00.

"P. S.—I am sorry about the fishing."

Two Years and Not a Broken Needle.
With regard to the sewing machine we got of you, I have this to say: We are well pleased with it. While I was sitting the other day, reading, Mrs. Osborn was busy sewing. All at once she stopped, and said, "If we could not get another machine like it, I would not take \$50.00 for it." We have had the machine two years and have not broken a needle.
—Wm. H. Osborn, R. No. 33, Camden, Mich.



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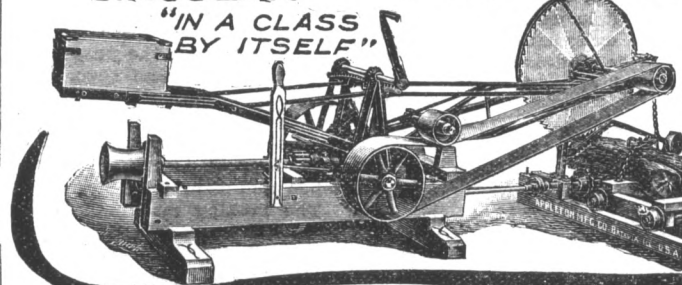


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TO MOTHER.

BY BERT LEACH.

The friends may drift away from me
As drifts the unanchored bark from
shore.

Tho voices loved I hear no more,
Tho faces loved no more I see,
There's one, I know, where'er I be,
Who never, never will forget
My mother's heart is beating yet
With love for me—with love for me.

And tho the voice I may forget
That parting begged for constancy;
And tho no echo troubles me,
Nor any fleeting wild regret—
There's one I will remember yet
When toil exhausts, and cares oppress,
And years bring woe and weariness;
My mother, I will not forget.

I look and look into the past;
My farthest vision is of thee—
Naught farther can, nor would, I see;
Oh, may the sight forever last,
For me it cannot be surpassed—
My infant head is on thy breast,
And thou dost sing thy child to rest
So tenderly—so tenderly.

And thru the years—a babe—a boy—
A youth, was I not dear to thee?
And what gave pain or joy to me
To thee gave greater pain or joy.
My questionings did not annoy,
My tears were dried, my sports not
checked.

My boyish ideals were not wrecked,
For thou didst love the growing boy.

And now, whate'er my fortune be—
A million curses may assail—
I may be shipwrecked by the gale
Of life that rushes wild and free—
I may lose everyone but thee.
I may lose all and still possess
Thy love—thy love of all the best
And mine thru all eternity.

THE EARLY AMERICAN AUTHORS.

BY CARL S. LOWDEN.

Washington Irving.

Washington Irving, first successful man
of letters of our country, short story
writer, essayist, and historian was born



in New York City, April 3, 1783. After
an eventful life he died in his country
home, Sunnyside, Nov. 28, 1859.

When nineteen he gained some promi-
nence as the author of a series of letters,
signed Jonathan Oldstyle and contributed
to the Morning Chronicle, of which his
brother was editor. Shortly afterward he
was forced to go to Europe to regain his
health. On his return he wrote for the
magazines, and in 1809 published the
"History of New York," which was his
first enduring success. This was followed
by the death of Miss Hoffman, to whom
he was engaged, and the remainder of
Irving's life was saddened immeasurably
by this unfortunate occurrence. His de-
pression was added to by business re-
verses, and he redoubled his literary ef-
forts. At intervals of two years each
there appeared the "Sketch Book,"
"Bracebridge Hall," and "Tales of a
Traveler." He returned to Europe, writ-
ing much regarding Spain and the Moors.
Then he was suddenly appointed secre-
tary of the American legation at London.
He held this position two years, and ac-
cepted an appointment of minister to
Spain. Finding insufficient time for lit-
erature, he subsequently resigned.

His last days were spent in beautiful
and tranquil Sunnyside. At this place
he wrote "Mahomet and His Successors,"
"Life of Oliver Goldsmith," and "Life of
George Washington." The last of these
was his magnum opus (greatest work),
and a few days after concluding it he
died. On the stone which marks his
grave and which is near Sunnyside, is
this inscription:

Washington,
Son of William and Sarah S. Irving.
Died Nov. 28, 1859.
Aged 76 years, 7 mo. & 25 days.
Irving's writings are sketchy, pictur-
esque, soft, easy, full of charm, and

melodious. The following is taken from
the short story, "The Widow and Her
Son." It portrays very feelingly the an-
guish of a mother for her only child:

"As they lowered the body into the
earth, the creaking of the cords seemed
to agonize her; but when, on some ac-
cidental obstruction, there was a jostling
of the coffin, all the tenderness of the
mother burst forth, as if any harm could
come to him who was far beyond the
recall of worldly suffering.

"When I saw the mother slowly and
painfully quitting the grave, leaving be-
hind her the remains of all that was dear
to her on earth, and returning to silence
and destitution, my heart ached for her.
What, that I, are the distresses of the
rich? They have friends to soothe, pleas-
ures to beguile, a world to divert and
dissipate their griefs. What are the sor-
rows of the young? Their growing minds
soon close above the wound, their elastic
spirits soon rise beneath the pressure,
their green and ductile affections soon
twine around new objects. But the sor-
rows of the poor, who have no outward
appliances to soothe—the sorrows of the
aged, with whom life at best is but a
wintry day, and who can look for no
after-growth of joy—the sorrows of a
widow, aged, solitary, destitute, mourning
over an only son, the last solace of her
years, these are indeed sorrows which
make us feel the impotency of consolati-
on.

* * * * *

"The next Sunday I was at the village
church, when, to my surprise, I saw the
poor old woman tottering down the aisle
to her accustomed seat on the steps of
the altar.

"She had made an effort to put on some-
thing like mourning for her son; and
nothing could be more touching than this
struggle between pious affection and
utter poverty—a black ribbon or so, a
faded black handkerchief, and one or two
more such humble attempts to express
by outward signs that grief which passes
show. When I looked round upon the
storied monuments, the stately hatch-
ments, the cold marble pomp with which
grandeur mourned magnificently over de-
parted pride, and turned to this poor
widow, bowed by age and sorrow at the
altar of her God, and offering up the
prayers and praises of a pious tho a
broken heart, I felt that this living mon-
ument of real grief was worth them all.

"I related her story to some of the
wealthy members of the congregation,
and they were moved by it. They ex-
erted themselves to render her situation
more comfortable, and to lighten her
afflictions. It was, however, but smooth-
ing a few steps to the grave. In the
course of a Sunday or two after, she was
missed from her usual seat at church,
and before I left the neighborhood I
heard, with a feeling of satisfaction, that
she had quietly breathed her last, and
had gone to rejoin those she loved, in
that world where sorrow is never known
and friends are never parted."

JOSHUA PETERSON'S INVENTION.

BY HOWARD BANNON.

At last Joshua Peterson had completed
his great invention—an invention that
was certain (in Joshua's imagination), to
revolutionize the dairy business of the
country. Tho how it could revolutionize
the dairy business was more than some
of Joshua's neighbors could comprehend.

Joshua Peterson was one of those farm-
ers who are never satisfied in performing
their farm duties in the customary way,
but devote much time in endeavors to
perfect an easier method of performing
them.

Joshua's latest invention, upon which
he had spent the greater part of his time
during the entire winter, was nothing
more or less than a milking machine.

Joshua's milking machine was, indeed,
fearfully and wonderfully constructed.
The frame of a bicycle was mounted upon
a platform. A great amount of small
rubber hose and curious contrivances,
that to the uninformed are nameless,
were attached to the frame. A seat for
the operator and a place for the milk pail
were provided. There were also a couple
of leather straps for securing the machine
to the cow. The platform was mounted
upon small wheels so that it could be
shoved up to the cow upon which the
operator intended to perform.

"My invention will do away with all
the troubles of keepin' cows," gleefully
chuckled Joshua to a neighbor who had
inquired as to what the strange looking
machine was intended for.

"You jest shove the machine up beside
the cow, fasten the straps to her, attach
the hose to her teats, take your place on

the seat, work the pedals and fill your
milk pail. You have no milk stool to
carry around with you, and will never be
bothered by havin' the cow step away a
few feet, when you have jest settled by
the side o' her, fer she can't git away,
'cause the machine is fastened to her, an'
when she moves, why, it'll jest foller right
along side o' her. I reckon it's a pretty
big invention, but I've studied out all the
small pints, and feel sure that it'll work
fine. I'll bet that in five years from now
every barnyard will have one of Joshua
Peterson's great milking machines. I ex-
pect it to make me rich and great."

Joshua had boasted so much in regard
to his latest invention that a great many
of the people of the neighborhood had
become interested and, to Joshua's great
delight, had promised to be present at
the auspicious time when the great in-
vention was completed and given its ini-
tial trial.

The great day had arrived. Joshua's
wonderf' milking machine was completed
and all was in readiness to give it its
first test. Almost every man, woman,
boy, girl and dog from the surrounding
farms had assembled in the Peterson
barnyard. Joshua fully expected the day
to be one of great triumph for himself,
and that he might entertain in a style
befitting the inventor of a great machine
that was expected to lighten the labor of
every farm in the land, he had persuaded
Mrs. Peterson and their daughter, Mandy,
to prepare a bounteous feast for the as-
semblage. In his fancy, Joshua saw him-
self presiding like some great hero at
the head of the table, loaded with the
excellent results of his wife's well known
culinary skill.

On the morning of the proposed trial,
Joshua had purposely let one of the cows
go unmilked. This cow was one that had
been upon the Peterson farm for quite
a number of years and was the very pic-
ture of gentleness.

As Joshua shoved the machine forth
from the shed and placed it along the
side of the unsuspecting cow, there was
an air of suppressed excitement among
the crowd of lookers-on. Joshua con-
ducted himself in a way that he deemed
proper for a man who was about to be-
come one of our greatest men.

The cow made no movement of protest
as Joshua fastened the straps of the
machine about her body. When all had
been arranged to his satisfaction, Joshua
with the air of one who has solved a
problem of the ages, took his place upon
the seat of the machine. He began work-
ing the pedals, and to his great satisfac-
tion and the wonder of the crowd, the
milk commenced flowing into the pail.
The hour of Joshua Peterson's triumph
had, seemingly, arrived.

So far, so good. But Joshua was not
content with milking while the cow was
at a standstill, but must have her move,
that he might observe the working of
the machine while moving. Alas! this
was the undoing of Joshua's triumph.

"Move along, Star!" quoth the inventor
as he gave the bovine a gentle slap with
his open hand.

She obeyed the command and moved
forward a few steps, but an especially
tempting bunch of grass tempted her to
stop.

"Go on, you old slow poke," exclaimed
Joshua, as he gave the cow another slap
more forcible than the first.

This last blow was the one that did
the mischief. Used to gentle treatment,
Star resented the blow and started across
the barnlot at a pace that was, evidently,
intended to make up for any time lost
while she had stopped for the purpose of
securing the grass. Star had never been
made the victim of an inventor's trials,
and the arrangement she was forced to
draw along the side of her was new.

A gateway leading into the pasture
field was open and thru that Star made
her way. The milking machine collided
with the gate-post, making a loud crash,
and the contents of the milk pail were
dashed into the bosom of Joshua who, by
the way, had donned his Sunday clothes
in honor of the occasion. The collision
did not upset the machine nor detach it
from the cow, and Joshua was still cling-
ing to his seat upon the machine.

Joshua's voice rent the air with shrill
cries of "So—, So—o—o, you infernal
fool!" But Star was intent on freeing
herself from the machine and failed to
heed the impassioned commands of her
master. When the cow had reached the
freedom of the pasture field, her speed
was surprising, and the machine rocked
and bounded in a way that was not con-
ducive to any feelings of safety on the
part of Joshua, who made a vain effort
to secure a footing on the platform that
he might make a jump, trusting to his

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share of good luck, to make a safe landing. Owing to the terrible bouncing about of the machine Joshua found it impossible to leap and was forced to retain his seat upon the strange vehicle.

"Stop her! So—o— you old fool! Head her off! Can't you ketch her? So—o—: Don't let her go thru the fence!" were some of the commands and entreaties that came from the now thoroly frightened inventor.

The assembled crowd was making heroic efforts to stop the mad race of the scared bovine, but their efforts were in vain. The other cows of the herd became frightened by the strange sight and were racing about like mad, making it unsafe to remain in the field and the would-be rescuers were compelled to flee to the safety of the fence posts and other points of vantage where they viewed the strange sight with a mingled feeling of horror and amusement.

Presently the cow's tiger-like bounds brot her to a fence. She placed her legs at an angle of about forty-five degrees and stopped so abruptly that Joshua was startled. The cow hesitated for a moment as if she was considering whether or not to leap the fence. After contemplating a few seconds, she turned and continued her journey as if looking for a more promising place to go over.

The fence was of barbed wire and the cow was traveling in such close proximity to it that the milking machine was bumping into the barbs at almost every bound. Quite a number of the barbs came into contact with Joshua. His yells started the echoes. The cow now spied a place in the fence where the top wire hung loose and made a dash for that point. The crisis surely was at hand.

But when a crisis does arrive, there is always someone ready to step in and cover himself with glory. That person, in this instance, was Jack Harding, a young man of that locality who had once spent a few months upon a western ranch, and while there, had learned to use a lasso.

At the moment when the cow was about to leap the fence, Jack appeared with a lasso he had hurriedly improvised from a rope found in the barn, and swinging it awkwardly about his head, made a cast. The rope whirled thru the air and caught not the cow, but Joshua himself, and jerked that surprised person from his seat upon the machine and landed him upon the ground with a thud.

The crowd climbed from their seats upon the fence and gathered around Joshua's prostrate form. When he had been placed upon his feet and the dust brushed from his tattered garments, it was found that beyond some bruises and scratches where he had come into contact with the barbs, Joshua was uninjured.

The cow succeeded in leaping the fence and pulling the milking machine over with her. She continued her mad flight down the road for some distance, when from sheer exhaustion she stopped, and some kindly disposed person freed her from her burden.

Joshua vowed that his machine was a complete success, and that if he had tried it upon a cow instead of a hyena, there would have been no mishaps. But Joshua never continued the tests.

MY HOPE.

BY FRANK J. PHILLIPS.

Only the call of love thru life,
And that of you in darkest day;
Only your care in all this strife
Would all the sorrow drive away.

Often your smile and sparkling eyes
Have led my course thru grim-eyed
fight;
And others never knew what skies
Had made my heart so gay and light.

Now, thru the course where stars hold
sway
A clearer light shows life's great task
And straighter grows the tangled way
That leads to where the soul's unmask.

So when the day's full work is done
And what one does on earth is due;
The brightest gems in all the crown
Shall softly glow and reflect you.

THE UNANSWERED QUESTION.

BY CORA A. MATSON DOLSON.

"How can the dead rise up again?"
O, Little Questioner! In vain,
Above the dust that sleeps below,
You ask of me—I do not know!
How our loved buried ones shall rise
Is known to souls beyond the skies;
And when our work of life is past,
And we, too, sleep in earth at last,
The question's answer we may learn
That all mankind have asked in turn.

HELPING THE TEACHER.

BY MARGARET WHITNEY.

The mothers can do so many things to help the teachers when school begins again. There are many little things that possibly many persons never think of and would willingly do if their attention were called to them.

Books are, of course, all-important. If children go to school without books they have very small chance to learn anything to say nothing of keeping up with their classes. Some scholars go to school and practically have no books, or some so badly torn as to be useless, and no paper or pencils. Consequently they borrow wherever they can, either from the pupils or teacher. It does not create any surprise among the pupils for they are used to it and the teacher will either get used to it or worry along the whole term. The children are not to blame. They may have asked for books many times and when they were not provided got tired asking for them and expect to borrow.

Children's manners are woefully lacking in some things, not so much from want of teaching at home as from carelessness. Teachers correct these children only with a desire to do them good and save them from ridicule later on. Sometimes it is necessary to send children out to wash their hands and faces. Now the same children very likely have to be told the same things at home and it should not offend the mothers if they need to be reminded of them at school. After a while they will learn to do this for themselves or be careful and keep their hands and faces clean. Unclean hands make unclean books. The pages stick together and tear out when, with care, the same book would last for all the children in the family.

Help the children to find recitations to speak at school. They are not old enough to make a good selection and if not encouraged a little will soon form the habit of not speaking at all. The teacher ought not to be expected to provide recitations for everyone. There are always some children who have nothing to get recitations from and who must be helped and taught to occupy their spare time. Nearly everyone enjoys hearing children speak but if the teacher must find all the recitations and do all the drilling, there is not apt to be so much speaking done for it requires too much effort and takes time that should be occupied in regular school work.

Do not be too credulous as to all that children come home and tell about school. While few children tell stories willfully they are not able to tell things just exactly as they happen. Four or five children may see a quarrel or fight and no two of them tell the same story. There are as many pairs of eyes and ears as there are spectators and one will see and hear things that the others do not. As a rule, telling should not be allowed but there are cases where children are imposed upon and the parents should know it.

A great many mothers say to the teachers, "I do not see how you can get along with so many children. Mine nearly worry me to death sometimes." Now just remember that the teacher has from fifteen to thirty in school every day. They all have different dispositions and she is doubtless trying to do the best for each one individually and for the whole collectively. Her days will be long and tiresome enough with all the helps she may receive, and often she will close the schoolhouse door at night more tired than the housekeeper who accuses her of having nothing to do but sit in the school room all day long.

ON PREPARING OYSTERS.

BY MARY FOSTER SNIDER.

One of the best of all dishes for a holiday breakfast is creamed oysters and it is so easily and quickly prepared that its convenience counts almost as high as its delectable flavor. To prepare them in this way drain all the liquor from a pint of oysters and let them get hot in a double boiler. Thicken one pint of cream with 2 level teaspoonfuls of flour, and season it to taste with salt, white pepper, a pinch of each of mace and cinnamon, and a teaspoonful of butter. Let cook 3 minutes, then add the liquor drained from the oysters (strained, scalded, and skimmed well), and the hot oysters, letting them cook just until they begin to look plump. Too long cooking will make them tough and indigestible. Have ready two inch squares of buttered toast on a heated platter, pour over the creamed oysters and serve at once.

Oyster fritters are novel and delicious.

Drain the liquor from the oysters, boil and skim it. To every cupful add an equal quantity of milk, 3 eggs, 6 table-spoonfuls of flour and a pinch of salt. Make a small cake with a tablespoonful of batter on a hot griddle, lay a large seasoned oyster in the middle and let the fritter cook thru. These are equally good for breakfast or lunch.

An oyster pie is even more pleasing than a chicken pie and the following recipe is one of a quite noted chef. Stir together 3 pints of solid oysters, 1 quart of sweet cream, 1 dozen finely rolled butter chackers, salt and pepper to taste, and a teaspoonful of onion juice. Add a few chopped mushrooms if wished. Line a deep pie dish with thick puff paste, pour in the oyster mixture, put on a top cover of the paste, and bake in a good oven for three-quarters of an hour.

There are few dishes more epicurean than good croquettes made with oysters and chicken. Allow equal quantities of cooked chicken and raw oysters. Drain the liquor off the oysters, parboil them in water for a moment, then plump them in cold water. Chop both chicken and oysters very fine, add 1 cupful of sifted

(Continued on next page).

Western Canada as Seen by a Noted Writer.

Emerson Hough, the celebrated novelist, who made a somewhat extended trip thru Western Canada during the past summer, grows enthusiastic in his description of "The Last Best West," which comprises the Provinces of Manitoba, Saskatchewan and Alberta. The following is an extract from what he has written:

"That black strip across the landscape—it was not the shadow of a passing cloud, but the record of a plough! These yellow gray bands were the fields of stubble already reaped. These other bands of green, of pale yellow, of deep bright yellow—these were the fields of wheat, among which the binders were yet to do their work! The centuries-old soil was finding its first upturned exposure to the sun. Surely the plough had come! There is no more thrilling experience than this, of seeing the ancient wilderness just passing into the first loose fingers of civilized man's occupation."

"Here was the wheat, crowding up to the trail, high as the wagon seat as we drove thru. At the edge of a grumbling cow man's unowned but long occupied range, we reached down and plucked off ripe wheat in handfuls, crumpling out into the palm the full ears of triple-rowed kernels, magnificent grain, the food which the world must have—that grain upon which the whole civilization of the earth seems so strangely to depend; for, when the wheat has come, civilization has taken hold of the land never again to lose its grasp. One who loves the open air and the wild world cannot suppress a sigh of regret at first that of the passing plains, at the thot of the dead romance of the rancher; but, none the less, there must come the soberer that the wilderness of this world, as well as the scant fields of the older world, belong to the world and the world's peoples."

"Extended personal inquiry in the course of a long journey failed to discover one farmer who was homesick or discontented, or who declared that he was going back to Old England or to the states. Without exception they declared that they were not only contented, but prosperous. In most cases their one or two crops had given them their lands and their first farmstead buildings of rude comfort, at least, fully paid for; and this land was their own. No basement life for these settlers, nor for their children, nor their children's children; no rack rents, no struggle with a worn, exhausted soil; no cap-touching to a so-called superior class. Here was a different field for humanity. Is there any difficulty in predicting the difference between the product of such fields and those of the 'pent and huddled East'?"

"It was a fascinating sight, this middle land between the old and the new. Most fascinating of all was the air of hope and confidence. Something set the blood tingling in the veins. No one here spoke of despair or discouragement. These men made no repining at their lot as frontier farmers. Their sole and engrossing concern was the question of means of getting out their wheat to the markets—for even in Western Canada farming has run in advance of transportation."

"In such regions as this, one still travels as one likes across country, paying no attention to roads; altho now and again one comes upon roads rudely ploughed along the section lines, in some case, near the railroads, fairly well worked. The time of the 'main-traveled road' is passing rapidly, even in Canada. Soon the fences will come along the highways, and all travel will follow the lines bounding artificial rectangles. Exulting in our liberty, for the most part our party continued to travel direct toward a destination. We still held to the prairies; and still on every side of us was wheat, wheat, wheat!"

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breadcrumbs, a tablespoonful of melted butter, salt and pepper to season nicely, and a pinch of salt. Mix all well together, then stir in one well beaten egg and just enough sweet cream to make moist enough to form into croquettes. Make into long, slender rolls, roll in beaten egg, then in fine cracker crumbs and fry in deep fat to a pale brown. A frying basket should be used. Serve on a napkin and garnish with celery tops and thin slices of lemon.

Pickled oysters are a favorite luncheon or supper dish. A simple way to pickle them is as follows: Strain the liquor from the oysters, boil and skim it. Rinse the oysters, and be careful to pick out any little pieces of shell. Put the oysters in the hot liquor and let them boil 1 minute. Then take them out. Season the liquor with a few peppercorns, a blade or two of mace and a little salt. Add the same quantity of vinegar as you have oyster juice. Let the whole simmer for 15 minutes, then turn it over the oysters. Cover them and let them stand 2 or 3 days before using. Cloves and allspice may be used to spice them if preferred.

There are several ways of making oyster patties but the old-fashioned recipe of our grandmothers is still unexcelled. Put the oysters in a saucepan with just enough of their own liquor to cover them well. Let them come to a boil, season delicately with salt and pepper, and add 1 tablespoonful of butter for each pint of oysters. Stir in 2 or 3 tablespoonfuls of cream and remove from the fire. Line small, plain patty pans with puff paste, put 3 or 4 oysters in each with a little of the liquor, sprinkle over a few fine breadcrumbs, and cover neatly with rich puff paste. Bake in a hot oven about 20 minutes. When done wash over the top with beaten egg, and set the patties back in the oven for two or three minutes to glaze. Before serving the patties reheat them in a moderate oven.

For a most delicious croustade of oysters take a loaf of bread two or three days old and carefully cut out all the crumb portion, leaving only the outside shell or crust, which must not be broken or cut thru. Spread soft butter all over this, inside and out, and brown it very delicately in a rather hot oven. Grate the crumbs fine and dry them in a slow oven, then fry them in 1 or 2 tablespoonfuls of butter until crisp and yellow but not browned. For a loaf of bread baked in a two-quart pan bring 1 quart of milk to a scald, and thicken it with 3 tablespoonfuls of flour or cornstarch rubbed smoothly with a little cold milk. Stir and cook until the sauce is perfectly smooth and like thick cream. Season it well with salt, white pepper, and a pinch of mace. Put a layer of the sauce into the bread shell, then one of nicely seasoned oysters, then another layer of the sauce and one of the fried crumbs. Continue in this way until the loaf is nearly full, having the last layer a thick one of crumbs. About 3 cupfuls of the crumbs should be used in all and 3 pints of oysters for a loaf of the size mentioned. When filled bake the croustade slowly for half an hour. Serve hot.

A HOME-MADE SUBSTITUTE FOR COFFEE.

BY E. E. R.

Many people who are fond of coffee find that it injures their health and must be given up.

There are a number of preparations on the market offered as substitutes and which are harmless. One that can be prepared at home is as good as any of these and can be made out of cereals grown on the farm at a cost of a very few cents per pound.

To two quarts of clean wheat bran put one quart of coarsely ground corn meal, without the cob. The granulated meal sold at the grocery stores is excellent for this use, possibly better than that made at the ordinary country mill.

Stir with these two eggs and half a cupful of molasses, blending with the hands until thoroughly mixed. Then place the mixture in a flat baking pan and place in a moderately heated oven. Stir every few minutes until the whole mass is evenly browned and quite dark in color yet without a suspicion of being burned. To do this properly requires watchfulness, as much of the success depends on the browning.

Remove from the oven and when cool store in glass or tin cans for use. Steep the same as coffee.

To make the beverage more like the real article a portion of coffee may be

mixed with the preparation. Half-and-half will make a good drink. If a small proportion of chickory, which can be had at all groceries, be put with it it adds a richer color than the cereal alone. The chickory is not harmful. It is used in blending by the manufacturers as an adulterant of pure coffee.

To detect the presence of an adulterant in coffee sprinkle a teaspoonful of the ground article upon the top of a glass of water. If the water becomes at once tinged with yellow and the grounds settle readily to the bottom, making yellowish streaks as they fall, the presence of an adulterant may be strongly suspected.

Coffee should never be bot in ground form. To do so one runs the risk of getting a mixture of coffee and foreign matter, such as peas, chickory and so forth. And while these may not be detrimental to health no one likes to pay for a thing and then not get it.

Cheap coffee is almost certain to contain an adulterant and while the pure-food laws demand that the quality of the product be guaranteed there are ways of misleading the unsuspecting purchaser under the caption of blends or mixtures.

If one is going to drink anything but pure coffee the blending may better be done at home so that one may know exactly what other ingredient is combined with it.

For this reason the formula above is recommended. The caffeine in coffee disagrees with some persons and much against their wishes they are compelled to give it up. Such persons may use the home-made preparation without any injurious effects. When combined with pure cream or hot milk, sweetened to taste, it furnishes a very acceptable substitute indeed, one which is equally harmless to young or old. Use a heaping teaspoonful to each cup. Wet to a paste with cold water then add boiling water and simmer for five to ten minutes. To prevent boiling over put a tiny bit of butter in the pot. Fill up with boiling water and set where it will keep hot for ten minutes longer before serving.

A practical and economical way of settling coffee with egg is to beat an egg with a little cold water and pour it over half a pound of ground coffee, stirring it until every particle is coated. Put back in the can and when steeped no further settling will be required.

RECIPES FOR CURING MEAT.

In answer to an inquiry published in a recent issue of The Farmer the following recipes have been submitted:

Use 1 lb. of saltpeter, 1 lb. of pepper, 3 lbs. brown sugar, 10 qts. salt to 1,000 lbs. of pork. Dissolve the saltpeter in a little hot water. Mix all the ingredients well, then rub it on and in the meat. Place in a cool room for about two weeks not allowing it to freeze. It will then be ready to smoke.—M. M.

For each 100 lbs. of pork use 8 lbs. of salt, 2 lbs. sugar, 2 oz. saltpeter, 8 gals. of water. Place these ingredients in the water, boil all together and skim. Allow the same to get cool and place over the meat. Allow the meat to stand six weeks in this solution. Then take out and smoke.—Geo. H. Geib, Jr.

Allow 1½ lbs. light brown sugar, 7 lbs. common barrel salt and 2 oz. saltpeter. Put all in a granite kettle or dishpan, boil hard and skim. This is sufficient for 100 lbs. of beef or pork. Pack the meat tightly in a barrel and make enough brine to cover all. Pour the brine on cool.—Mrs. M. Libert.

For each 100 lbs. meat, take 10 lbs. salt, 1 qt. brown sugar molasses, 2 oz. saltpeter dissolved in hot water and cooled and 1 teaspoonful cayenne pepper. Dissolve the salt in cold water using enough to cover the meat. Put on weight sufficient to keep the meat under the brine. Leave in brine for about 5 weeks when the meat can be smoked until dry.—Mrs. L. M. Kent.

When the meat is cooled rub each piece all over with salt and allow it to drain over night. Then pack it in a barrel putting the hams and shoulders in the bottom with strips of bacon to fill any spaces, or put latter on top. For each 100 lbs. of meat weight out 8 lbs. salt, 2 lbs. brown sugar and 2 oz. saltpeter. Dissolve all in four gallons of water. Should this brine be insufficient to cover the meat, add more brine mixed in the same proportion until meat is covered. For summer use boil the brine before using. This is not necessary when using in the winter. Bacon strips should remain in this brine from 4 to 6 weeks and hams 6 to 8 weeks, according to the size of pieces. After that remove the meat and soak over night in water when the pieces may be hung up to smoke.—C. L. Houseman.

For 100 lbs. of meat use 5 gals. of water, 8 lbs. of barrel salt, 3 lbs. brown sugar, 2 oz. saltpeter and 1 oz. saleratus. Mix ingredients, boil and skim after which allow it to cool. Smoke your barrel for 12 hours with corn cobs. Sprinkle a little salt in bottom and pack meat. Pour over the meat the brine and place a weight on top to keep it submerged.—Mrs. J. E. Toman.

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TO MEMBERS OF A WEAK GRANGE.

Worthy Brother and Sister:—

You were delegates to State Grange at Saginaw last month. I met you, I remember, the first day, when everything was new to you so far as seeing the Grange on a large scale was concerned. You said you were so very glad to come, and yet you were sorry to tell me that the large, promising Grange which I once visited is now almost a thing of the past; that a few members still pay dues, but that meetings are seldom held and little or no interest is manifested in keeping the organization up along any line other than for insurance against fire.

During the busy days of the state session we scarcely met, till the closing evening when you came to say good-bye. I shall never forget the enthusiasm and pleasure of your faces as you told me what the week had been to you and of the revelation you had had of the Order's possibilities and power. "We never dreamed it was so great; we see what may be done now as we never did before and wish we lived where there is a good Grange," were among your remarks as you bade farewell to your newly-made friends.

A month and more has gone and you are once more settled into your accustomed ways. This personal word to you is to recall to your minds that vision which State Grange gave you of what the Order has done for other people and other communities. It is to suggest to you that what it has done it may still do elsewhere and for others. A possible harvest time is before you, in the next two months of comparative freedom from heavy labor, in which to re-enlist yourselves and neighbors in the effort to make something more out of your lives and that and farms than you ever have done before. Do not hesitate a moment, but begin in your own home. Begin with your two selves. Get your older boys and girls to go into this thing with you, and enthrone one and another of your neighbors to join in a fresh, determined resolution to make the next few weeks count for something fine. Let that something be how to make your farm more profitable; or posting yourselves on the movements for parcels post, postal savings banks, improved direct nomination, and the Torrens System of land transfers; or sending to the Agricultural College for books in the new reading courses and seeing whether the men can learn more new things about farm animals than the women can about essentials of homemaking in the same length of time. Here are practical, up-to-date things to do. Then add some war stories in memory of "Abe Lincoln's" hundredth anniversary, some old songs that everybody loves, and some hot coffee and doughnuts. Do this and see if all do not want to set the time for another meeting. Don't hesitate to take the lead. No matter if you are not master in name of your weak Grange. Call on your fellow members to rally about your charter with you. When they see your faith, their faith will revive and they will gradually enthrone, too. Remember, you have seen the "vision" of organization possibilities and some of them have not. Have patience and persevere.

"After it, after it,
Follow the gleam!"

JENNIE BUELL.

AMONG THE LIVE GRANGES.

Redfield Grange, of Cass Co., elected the following officers for the ensuing year: Master, Charles Bement; overseer, James Hadden; lecturer, Mrs. James Hadden; steward, Frank Kantz; ass't steward, Albert D. Martin; lady ass't steward, Mrs. Frank Bement; secretary, Wm. Van Tilberg; chaplain, Mrs. A. A. Martin; treasurer, Lewis Thompson; gatekeeper, Henry Thompson; Ceres, Elizabeth Hadden; Flora, Cora Martin; Pomona, Florence Thompson.—Cor.

Emmett Co. Pomona Grange held its annual meeting at Labadie hall, in Potosky. There were about 50 members, representing six Granges, present. An interesting program had been prepared, and was ably rendered. The fourth and fifth degrees were conferred on several members, and election of officers held. The installation of officers will take place at the next regular quarterly meeting, to be held in Harbor Springs, some time in March.

Inland Grange, of Grand Traverse Co., recently elected the following officers for 1909: Master, Clinton E. Lam; overseer, Franc C. Jaquish; lecturer, Ada Jacquish; steward, Wayne McDowell; ass't steward, Herbert Dexter; chaplain, Lillian Dexter;

treasurer, Ira L. Case; secretary, R. B. Reynolds; gatekeeper, Charles Maynard; Ceres, Ruby Lamb; Pomona, Agnes Davis; Flora, Mrs. Charles Maynard; lady ass't steward, Gladys Davis; insurance agent, R. B. Reynolds.

Kent Patrons and Teachers Meet.—A Kent Co. Pomona and Teachers' meeting was held with Sparta Grange, Jan. 6-7, the attendance taxing the capacity of the hall. Close attention was given the talks by Prof. Sawyer, of Sparta, and Prof. French, of Lansing, along the lines of progressive agricultural education. Prof. French especially decrying the effort on the part of some to make it appear a fad rather than a substantial progressive movement. At the evening session 12 were given the fifth degree. The objects of the extension reading course were then taken up by Prof. French, his talk being followed by thoro discussion. E. T. Dean said the moral condition of farm communities is not entirely satisfactory, and gave as a panacea local option in regard to the liquor traffic. A most complete paper was presented by T. H. Whittall on "Grange Farm Insurance." At Thursday evening's session reports of the State Grange delegates, Bro. and Sister Leslie Burch, were listened to and the committee on the year-book for 1909 was completed. It was decided to mail the book to heads of Grange families thruout the county. Prizes of \$15 in gold were awarded—\$10 to Rockford Grange for the largest Pomona membership, and \$5 to Success Grange for largest number of members during the year just past. Also voted \$10 to Algoma Grange towards a new hall. The annual reports of officers showed Kent Pomona to be one of the flourishing Pomonas of the state, comprising 1,485 subordinate and 170 Pomona members.—B.

Lickley's Corners' Grange, of Hillsdale Co., at its first January meeting, installed the following officers: Master, E. H. Wilson; overseer, Will Stoltz; lecturer, Nellie Tuttle; secretary, Herman Abbaduska; steward, Elmer Laser; ass't steward, Willis Tew; chaplain, Laura Drake; treasurer, Ambrose Hinkle; gatekeeper, Clyde Martin; Pomona, May Stoltz; Ceres, Lottie Abbaduska; Flora, Bessie Laser; lady ass't steward, Emma Tuttle; organist, Helen Lickley; chorister, Berton Carlisle.

Western Pomona's Encouraging Meeting.—The January meeting of Western Pomona Grange was held with Ottawa Grange, in Herrington, Friday and Saturday, Jan. 8 and 9. The program prepared by the lecturer was taken up and brief discussions held on the various topics presented; a report of State Grange was also given by Pomona's delegates. Miss Jennie Buell, lecturer of State Grange, was then called upon, and the remainder of the afternoon was taken up with an informal talk in which several good suggestions were made and numerous questions answered. The speaker thought it would be better for lecturers, when possible, to prepare their programs two or three months ahead, thus giving those to whom topics were assigned a longer time in which to prepare their subjects. She also thought a closer relationship should exist among the officers thru frequent conferences at which definite plans could be made for the work to be pursued. The evening session was taken up with recitations and music, and an address by Miss Buell on the subject of "Grange Gains," in which she mentioned many of the more prominent gains with which we are most familiar and also spoke of the less tangible, but no less important, gains which go to make for the betterment of humanity. The meeting Saturday forenoon was purely a business session at which occurred the double installation of the officers of the Western Pomona and Ottawa Granges. With but one or two exceptions the reports from subordinates showed the Granges to be in better condition than one year ago, with two new Granges, Nunica and West Crockery, added to the list.

Already Preparing for State Grange. Grand Traverse Grange, at its first meeting of the year, began its preparations for entertaining State Grange next December. It was the regular session for the installation of officers and the formal exercises were preceded by a Grange feast. The installing officer was Bro. A. P. Gray, who was worthy master of this Grange for 10 years during the eighties and nineties. All the officers were present save one, and he was installed by proxy, and later in the afternoon appeared to take his place. The retiring secretary, Mrs. E. S. Gray, who had given the Grange 21 years of service in that position, was presented a slight testimonial of the high regard which the members hold for her.

Before planning the year's work the various members were asked to name subjects they would like to have considered during the coming year and from the replies received it was clear that the exigencies of the case require that early attention be given to at least the following topics: "The Upbuilding of the Grange," "Preparations for the State Grange," "Methods for Marketing Farm Produce," "Home Making in its Various Phases," "Local Option," "Parcels Post," "County Road System," "Modern Improvements for Farm and Farm Home," "Centralized Schools," "Township High Schools," "Home Nursing."

Half an hour was taken up with a discussion regarding the problem of getting the Grange hall in condition for the meeting of State Grange. It was suggested a new carpet would be a nice improvement and almost immediately, and without any extended canvass, \$21 was pledged.

COMING EVENTS.

Pomona Meetings.

Ingham Co. with Mason Grange, Friday evening, Jan. 29 and Saturday, Jan. 30. Open meeting Saturday afternoon, with address by State Master N. P. Hull. Charlevoix Co., with Wilson Grange, Thursday, Feb. 11.

FARMERS' CLUBS

OFFICERS OF THE STATE ASSOCIATION OF FARMERS CLUBS.

President—A. L. Chandler, Owosso.
Vice-President—Mrs. Clara L. French, Pompeii.
Secretary—Mrs. W. L. Cheney, Mason.
Treasurer—D. K. Hanna, Caro.
Corresponding Secretary—Clayton Cook, Owosso.

Directors—D. M. Beckwith, Howell; D. M. Garner, Davisburg; T. B. Halladay, Norvell; E. C. Hallock, Almont; B. A. Holden, Wixom; Wm. A. Marks, Fair Haven.

Address all correspondence relative to the organization of new Clubs to Mrs. W. L. Cheney, Mason, Mich.

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.

IMPORTANT WORK FOR JANUARY.

In a previous issue a plea was made for every local club to take up the important work of club extension at its January meeting and, if possible, to interest the members in that work to appoint a publicity committee whose business it would be to let the people of the community know what the local club is doing and to interest those outside of the organization in the formation of a new club in adjacent, unoccupied territory.

If this was not done at the January meeting it should certainly be taken up at the February meeting, as there is no season of the year so favorable for this kind of work as during the winter when there is plenty of time to both visit clubs and to interest busy farmers in the proposition of organizing a Farmers' Club in their community. The club movement in Michigan has grown just this way and it can be greatly extended in the same way by just a little interest and work on the part of the Farmers' Club members in the several local clubs who appreciate the benefits to be derived from such an organization. They will generally find their neighbors who do not enjoy those benefits, in a receptive frame of mind and all that will be necessary to interest them is a little timely work and effort, and there is no better time than the present to demonstrate that fact.

CLUB DISCUSSIONS.

An Enjoyable Meeting.—The January meeting of the Groveland Farmers' Club met at the home of Mr. and Mrs. John Brandt, one mile west of Ortonville. The day being pleasant, the attendance was good, about 50 being present. Dinner was served and thoroughly enjoyed by all. Meeting was called to order at the usual hour by Mr. Frank Downey, president of the club. Opened by singing "America." The following quotations were given at roll call: Mr. Downey, "Call a man a liar, he's ready for a scrap. Call him a fisherman, and let it go at that." Mrs. Albert Kier, "He holds much who holds his tongue." Mrs. Bert Brandt, "Have a way of your own, and keep out of other people's way." Mr. Bert Brandt, "He who has a smart dog does most of the barking himself."

The Question Box followed the rendering of a good literary and musical program. The following are a few of the questions discussed: "What are we to receive for the present crop of lambs?" Mr. Downey and Mr. Coventry think we will receive a pretty fair price, when the quarantine is removed. "What is the name and population of the two largest cities in the world?" Answered by Mr. Downey as, London, 6,581,372, and New York, 4,013,781. "Which is the greatest nuisance, man or woman," also "which is the most provoking." As the majority present were women, both questions were very easily decided. Question presented by Mr. Downey, for discussion at the next meeting, "Should the state, county or township, by direct tax, vote to raise more money than is needed to bear the expenses on an economical basis?"

The Annual Meeting was held in October, and not having seen the names of our officers published, will give them: Frank Downey, president; Allan Brosius, vice-president; Mrs. Allan Brosius, secretary; Mrs. Jas. Auten, cor. secretary; Albert Kier, treasurer; Alice Thayer, organist. The February meeting will be at the home of Mr. and Mrs. Bert Brandt.—Mrs. Jas. Auten, Cor. Sec.

The Value of a Farmers' Club.—The Washington Center Farmers' Club held its December meeting at Meadow Brook, the home of Mr. and Mrs. O. M. McEnderfer, with a large attendance, notwithstanding a very stormy day. Music for the meeting was furnished by Miss Ruth Brattin and Mrs. C. M. Long. "The Value of a Farmers' Club in a community," was discussed at the morning session, and all agreed that their club, at least, was of some practical value. Strangers coming to make their homes in this locality find the club a good place to learn the methods best adapted to successful farming in Washington, and also

to form new acquaintances and friends. "Looking backwards and forwards," was the subject of a talk by O. J. Campbell, who spoke of the advancement in the methods of transportation, communication, and methods of farming, and looked forward to still greater things in store for farmers. A very excellent report of the meeting of the State Association of Farmers' Clubs at Lansing was given by Mrs. George Hill, the club's representative at the meeting, and by Mrs. Clara L. French, who was also at the Lansing meeting.

Election of Officers resulted in the following list: President, Frank Brattin; vice-president, Mrs. John Foley; secretary, Mrs. George Hill; corresponding secretary, Mrs. O. J. Campbell; treasurer, Mrs. C. N. Curren; organist, Miss Ruth Brattin; assistant, Mrs. Frank Cammet. The farm inspection committee reported Meadow Brook in fine shape, and all ready for winter. Next meeting at "Elmwood," the second Thursday in January.—Mrs. O. J. Campbell, Cor. Sec.

Elect New Officers.—The December meeting of the Ellington-Almer Farmers' Club was held at the home of Mr. and Mrs. P. C. Frost, in Ellington. The meeting was a very creditable one for the club, the attendance the best for some time back. The dinner of several courses was served by the ladies under the direction of Mrs. George S. Earle, after which the program was opened by President A. J. Bush, who, after the preliminaries were disposed of, announced the election of officers. Floyd A. Turner, president; J. Campbell, secretary; J. Wilson, vice-president, and Mrs. Jerome Sutton, organist, with Mrs. C. L. Wright as corresponding secretary, represent the choice of the club members for its directors. The financial report read by James Campbell shows the club lives within its means and the treasury is not wholly depleted.

The delegates' report of the state meeting was given and the club felt encouraged at the progress and credit paid it by the state secretary, also in securing a state office for its vice-president, Mr. D. K. Hanna, of Ellington. At the close of the report a standing vote of thanks was voted the delegate.

The Club Meeting.—In a short discussion of the different methods of conducting a club meeting, it was decided to adopt the yearly program and a committee for that purpose was appointed by the president, Elder Crandall, of the M. P. church being present, gave a short scholarly discourse on Christmas tithes and how we should spend a portion of the day.

Farm Power.—A discussion of the question, "Which is cheapest, windmill power or gasoline engine for general water purposes?" There was a wide difference of opinion on this topic. Nathan George thought that windmill, with a storage tank, was best for water purposes. Mr. Hatch said that 70 feet of a raise was a tax for one's strength and hence a depth of draw was of vital importance where one had much stock to care for, hence a gasoline engine would prove most efficient. Mr. Patterson had used both powers and was a strong advocate of the gasoline engine, the motion was more even.

"Which are most profitable, hogs or sheep with a dairy herd?" A wide difference of opinion prevailed. George Metcalf preferred hogs to sheep because pasture was an item he could not afford to sheep and the hog also aided in disposing of the products accruing on a dairy farm. James Campbell thought something that could utilize the skim milk and other by-products was profitable, still advocated keeping a few sheep, were it not a question of pasture.—Mrs. C. L. Wright, Cor. Sec.

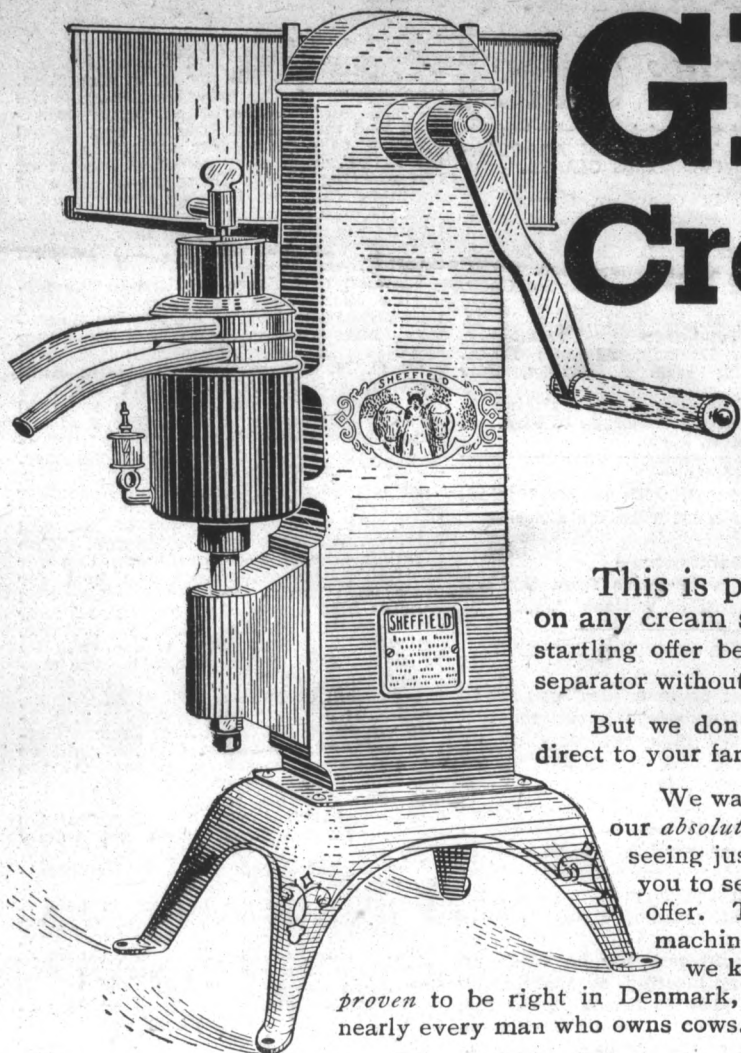
Extravagance.—Odessa Farmers' Club met with Mr. and Mrs. W. S. Augst, Saturday, Jan. 9th. Nearly 90 were served with an excellent dinner. Mr. Stinchcomb's paper on "The Injustice of the Extravagant Use of Money," was followed with a lively discussion, and Mr. Curtis thought the property he and his wife had managed to save would last 13 seconds in Newport. Next came the Question Box, then the Property Exchange, which is a new feature in the club, whereby the members may be able to dispose of any kind of property.

Hold Annual Meeting.—The County Line Farmers' Club held a lively meeting at the home of Mr. and Mrs. Martin Cole, Jan. 7. Officers were elected and things started for a glad New Year. A good program, music, and the question box made an enjoyable and profitable club. President, D. C. Richards; vice-pres., J. B. Hoyt; recording sec., Mrs. Williams; cor. sec., Mrs. Hoyt; treasurer, O. E. McDonald.

Elect New Officers.—The Indian Fields Farmers' Club held its eighth annual meeting December 17, at the home of Amos Andrews, Jr. Altho a very stormy day, seven inches of snow falling, nearly all members had assembled when the Christmas dinner was served at noon. The following officers were elected: President, J. M. Miller; vice-pres., B. H. Smith; secretary, Miss Martha Purdy; treasurer, Mrs. Geo. Carpenter; organist, Mrs. D. H. Andrews. Robt. Park, delegate to the State Association, made a very interesting report. Instead of having a regular printed program this year, the club will have printed a "wall bulletin," giving the date and place of each meeting; also the names of the refreshment superintendent and program committee. The club will meet January 21, at I. N. Taggetts.—M. R. S., Sec.

Art Calendars Received.

We are in receipt of six beautiful art calendars from the International Harvester Company, Chicago, bearing the names respectively of their celebrated lines of machinery, the Champion, Deering, McCormick, Milwaukee, Osborne and Plano. These different lines of harvesting machinery are represented by different agents, each one of which has for distribution the calendars and posters representing the machines which he handles.



GREATEST Cream Separator OFFER!

This is positively the first bona fide, no-money-down offer ever made on any cream separator. No manufacturer of any separator ever *dared* to make such a startling offer before. All others who have ever *pretended* to offer you a free trial or to send their separator without any money down have taken care to get *something* out of you first.

But we don't want *anything*. All we ask is your simple request. We send the cream separator direct to your farm absolutely without any money down.

We want you to read every word of this great offer. It is an offer which, we think, proves our *absolute faith* in the great **Sheffield Cream Separator**. You are given the opportunity of seeing just how much cream this marvelous separator will extract from your milk before we ask you to send us one cent. You never saw another manufacturer who was so open-handed in his offer. The reason is that no other manufacturer ever wanted you to know *all* about his machine *before* paying him anything. We want you to know all there is to know because we know that we have the separator that is right. The principle of the Sheffield has been proven to be right in Denmark, the greatest dairying country in the world, where this style of separator is used by nearly every man who owns cows. Now, we want you to read every word of this wonderfully liberal offer.

Sent Without a Penny Down

FREE TRIAL!

Your simple word that you would like to see this cream separator in your own barn or dairy house brings it to you instantly. We send you the Sheffield without a bit of quibbling or hesitancy. We neither ask nor want you to send a penny. We don't want a cent of your money. The Separator goes direct to you. You set it up, give it a thorough test with the milk from your own cows. We give you a free trial that is a free trial in every sense of the word. It is a free trial because we don't ask you to pay us any money down—there is no C. O. D.—no lease nor mortgage. You keep your money right in your own pocket. You pay nothing to anybody.

Some people **PRETEND** to give you a free trial, but they ask you to give them your money first. We are not afraid to let our separator speak for itself. Test the Sheffield Cream Separator in every way, watch your profits go up, watch the increase of the amount of cream, then, if you do not believe that you ought to have a cream separator, just send it back at our expense. If, however, you decide to keep this genuine Sheffield—the peer of all cream separators—the separator that gives you greater profits than any other—makes every cow you have give you 100% greater value and insures you greater profits from your dairy than you ever made before—we will allow you to keep it on extremely easy

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This is what we want to demonstrate to you. We want to demonstrate and prove beyond all peradventure that the Sheffield Cream Separator **does** pay for itself. Only a few months' use of a Sheffield Cream Separator and you will be satisfied that this statement is **absolutely correct**. A few months and the separator has paid for itself. It has not cost you a penny because the increased amount of cream has paid for the machine.

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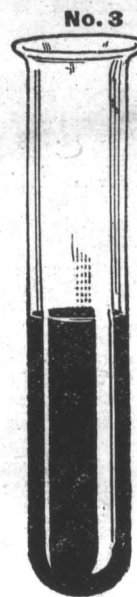
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We give you here positive proof of the superiority of the Sheffield Cream Separator over two other cream separators of acknowledged high-grade. There can be no more clinching proof than this—the proof no other separator manufacturer would dare let you make if a Sheffield were around. We show you here three test tubes, all of the very same size. Three portions of milk, each portion the very same in quantity were taken from the same cows. One portion of this milk was run through the Sheffield Cream Separator and the other two quantities were run through the other two well-known cream separators referred to. Figure No. 1 illustrates the amount of cream extracted by the Sheffield. You can see for yourself that it is at least 25% more than that extracted by the separator whose product in cream is shown in figure No. 2. This separator cost \$35.00 more than the Sheffield, and yet you can see that only three-fourths as much cream was extracted from the same amount of milk. This test was made not only once, but over and over

again until there was absolutely no doubt in the minds of the judges of the superiority of the Sheffield.

In figure No. 3 we show you the amount of cream extracted by a separator well known to the trade, and looked upon as a "good" machine. This separator costs 20% less than the Sheffield, but it extracted 50% less cream. No proof could be more positive—more **SURE** than this. Nothing could be more convincing. The Sheffield is the peer of all cream separators, and we are willing to **PROVE** this by sending the Sheffield to you without **ALLOWING** you to pay any money for it. We want to give you the proof in reality—the proof before your very eyes—that we show you here on this page. Sign the coupon and get the free book, "Profitable Dairying." This book regularly sells for 25 cents. But we offer it **FREE**. And besides we send our free catalog telling all about the Sheffield machine and all about the great Free Trial, No-Money-Down, Easy Payment Offer. Send the Coupon Today.

Notice to Dealers!

In the past so many dealers have written for our prices and terms to dealers, we wish to publicly announce that while we will sell to dealers on our regular terms—the same terms we make direct to the buyers of our separators—we prefer **NOT** to sell dealers at all, because it is impossible to allow a dealers' discount. Our prices are already so low that it is **IMPOSSIBLE** for us to make a dealer's discount. We want the friendship of the dealers, but we want to make it plain that we intend to sell to the consumer for the same price we would have to charge the dealer. Therefore, in making this public announcement, we hope to make all understand our position clearly so that in the future no mistakes may be made.

Without obligations on me, please send me free, prepaid, your FREE BOOK, "Profitable Dairying," and your free catalog in explanation of your free trial, no money-down and easy monthly-payment offer on Sheffield Cream Separators.

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