

FEB 10 1912

MICHIGAN FARMER

AND LIVE STOCK JOURNAL.
PUBLISHED WEEKLY. ESTABLISHED 1843.

The Only Weekly Agricultural, Horticultural and Live Stock Journal in the State.

VOL. CXXXVIII, No. 6.
Whole Number 3586.

DETROIT, MICH., SATURDAY, FEB. 10, 1912.

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

SOME PHASES OF DAIRYING.

ONE of the most interesting features of the recent meeting of the Michigan Improved Live Stock Breeders' and Feeders' Association was an address on the above topic by Prof. J. W. Fraser, of Illinois. This address was so replete with illustrations of the fact that while good dairy cows are profitable, poor cows are not a source of profit, that we are presenting the following rather extended summary of his talk, in the hope that it may bring home to many Michigan dairymen in a forcible manner a lesson which they cannot learn too well or too quickly.

In opening his address, Prof. Fraser stated that agriculture had advanced so rapidly in recent years that we have not fully appreciated the importance of changed conditions. Formerly what might be termed the self-sufficing farmer was the rule, that is, the farmer who produced practically everything that he needed for home consumption. But today that line of farming has given way to commercial farming, in which the farmer produces some one or more special products to sell and purchases the commodities which he needs with the proceeds from his cash products.

The dairy farmer is one illustration of this modern type of commercial farming; but the dairy farmer has not yet generally realized the changed conditions sufficiently so that he gives enough attention to the cost department of his business. The problems of breeding up the dairy herd to a point of profitable production, the best methods of feeding and caring for the dairy herd and the producing of feed upon the farm for the dairy herd are equal in importance to the problems which confront the grain farmer or the commercial farmer in any other line, and the matter of cost in its relation to cash returns is of equal importance.

With the grain farmer, the grain elevator is the marketing place for his product, but the dairy farmer markets his product through the cow. If there were several available grain elevators in the community, some of which paid twice as much for the products grown upon the farm as the others, the grain farmer would not be long in finding it out and market his products where they would bring the highest price. But the dairy farmer continues to market the product of his farm through cows of varying capacity, so far as a profitable return is concerned. Yet the production of individual cows in the dairy herd and the average production of the herd, as affected by its individuals is of just as much importance to the dairy farmer as is the best market to the grain farmer.

This difference in cows was well illustrated by a chart showing the cost of feed and the product returned by four cows kept at the University of Illinois. Of these four cows, numbers one and two, as shown upon the chart, were the two poorest cows in the Illinois station herd. These cows paid a profit of 25 cents above the cost of feed and care in one year. Numbers three and four, as shown upon the chart, were the two best cows at the Illinois station and these individuals paid a profit of \$223.27 in one year, or 893 times the profit returned by cows number one and two, whose records were used to illustrate this variation of individuals.

Prof. Fraser emphasized the fact that profit is the only thing that does any good in the dairy business. A good many farmers get pretty fair checks in return for the product of poor cows, and, not knowing what the product costs, keep on year after year in the business without

making an adequate profit on their investment or the labor which they put into their business. To further illustrate this fact, Prof. Fraser presented charts containing figures which showed the production of the best and the poorest cow from each of three different herds in northern Illinois, the cows being selected from appearance alone and the facts being brought out by their records. The following table shows the relative production of the best and the poorest cows in these several herds and the cost per cwt. of both milk and butter-fat.

No.	Lbs. Milk.	Lbs. Fat.	Cost cwt. Milk	Cost lb. Fat
85	9,592	405	\$0.86	
86	3,098	119	1.75	.45
95	14,843	469	.64	.20
96	7,686	324	1.00	.24
97	8,563	291	.90	.26
98	1,411	53	3.16	.84

Cows number 97 and 98, as indicated in the above table, were selected from a herd of 100 cows, the owner of which had kept no records of individual production and did not know which were profitable cows and which were not. This proposition of the importance of knowing something about the market in which

a profit of \$28.84, leaving a net loss from the herd as a whole of \$112.39, or an average loss of \$7.49 per cow. This loss represents the amount which this farmer paid for the privilege of being a dairyman, after the cost of keeping his herd, including feed and labor, had been deducted. The second chart used to illustrate this point, showing the production and profit from another herd of 14 cows, was as follows:

No.	Lbs. Milk.	Lbs. Fat.	Profit.	Loss.
1	3,253	122	.....	\$8.37
2	3,297	126	.....	6.17
3	3,289	135	.....	3.97
4	4,154	147	.....	.99
5	4,205	163	\$ 1.21	.....
6	4,929	196	10.60	.....
7	5,683	216	15.80	.....
8	6,232	218	16.21	.....
9	5,408	242	19.93	.....
10	6,553	257	25.16	.....
11	6,624	258	25.16	.....
12	6,805	277	29.70	.....
13	7,060	297	34.25	.....
14	8,785	307	37.52	.....
Av.	5,448	212	\$14.00	.....
Total profits on herd.			\$195.04	.....

In this case only four cows were kept at a loss, the total loss on the four being

with the result shown by the following table:

No. Cows.	Lbs. Milk.	Lbs. Fat.	Profit.	Loss.
1	5,986	252	\$22.66	.....
2	7,920	254	23.84	.....
3	7,600	260	25.75	.....
4	7,169	293	32.20	.....
5	8,300	295	35.00	.....
6	9,010	322	39.87	.....
7	9,045	333	42.07	.....
8	9,043	337	44.27	.....
9	8,877	344	44.27	.....
10	9,999	348	53.53	.....
11	11,293	376	63.99	.....
12	7,632	403	56.69	.....
13	10,289	422	69.70	.....
Av.	8,628	326	\$42.60	.....
Total profit			\$553.84	.....

As will be seen by this table, every cow in this herd produced a profit varying from \$22.66 for the poorest cow to \$69.70 for the best, and an average profit of \$42.60 for the whole herd. This is a difference of \$50.09 in the average profit per cow as compared with the poorest herd for which the statistics are here shown, while the greatest difference in profit between the individual cows in the three herds was approximately \$100.

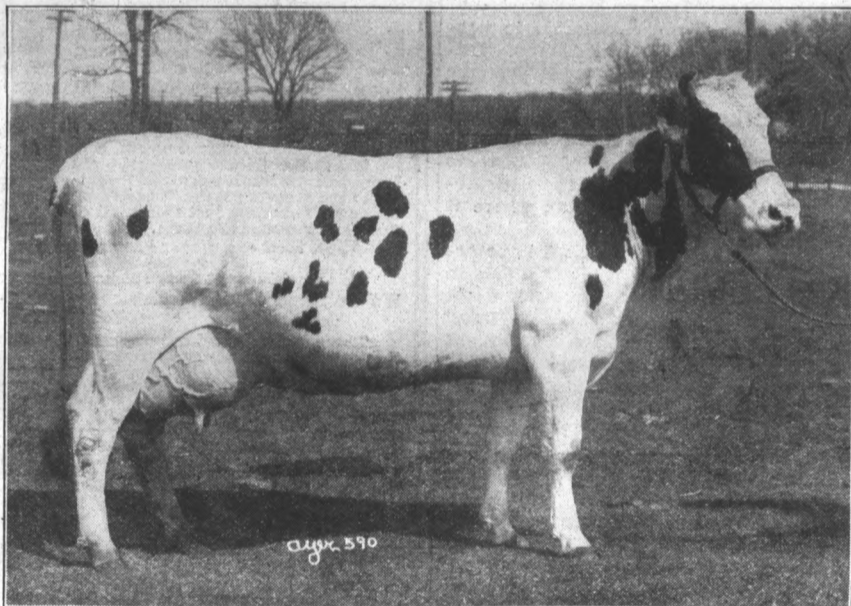
Upon the question being asked as to how much of this difference was due to difference in feeding, and how much to difference in the individuality of the cows, Prof. Fraser stated that there was some difference in the feeding, but much more difference in the cows, to illustrate which fact he stated that the man owning the first herd which showed such unprofitable results fed as high as 10 lbs. of grain per day per cow during the winter season. Thus it was apparent that the main reason why the owner of the last mentioned dairy herd made so much greater profit, was the fact that he had built up his herd by testing his individual cows and weeding out the poorer individuals.

As a means of showing roughly the kind of a market that different cows of different producing capacities afford for the different products grown upon the dairy farm, Prof. Fraser showed another chart, based upon the average market value of the production of cows giving varying quantities of four per cent milk from 2,000 to 15,000 lbs. each per annum, at the average cost of production, containing comparative figures as follows:

Lbs. Milk.	Lbs. Fat.	Profit.	Loss.
2,000	80	.....	\$18.00
3,000	120	.....	9.00
4,000	160	\$ 0.00	.....
5,000	200	10.00	.....
6,000	240	20.00	.....
7,000	280	30.00	.....
8,000	320	40.00	.....
9,000	360	50.00	.....
10,000	400	63.00	.....
11,000	440	76.00	.....
12,000	480	89.00	.....
13,000	520	102.00	.....
14,000	560	115.00	.....
15,000	600	128.00	.....

It will thus be seen that on an average every cow kept upon the farm that produces less than 4,000 lbs. of four per cent milk is kept at a loss. From the figures previously shown Prof. Fraser declared that one-third of the dairy cows in the country are kept at a loss, which requires the profit derived from the next third to make up, hence the only profit derived by the average dairyman is on the best one-third of his cows.

From the above table, Prof. Fraser showed that cows giving 5,000 lbs. of four per cent milk would make a profit of approximately \$10.00. Increase the production one-fifth and the profit is doubled. Double the production and multiply the profit six times, and so on up to the limit of production. Regarding the phenomenal production which is sometimes attained, (Continued on page 149).



A Dairy Cow of Unquestionably Good Dairy Type, but Only the Scales and the Babcock Test Can Reveal Her Real Worth.

the dairy farmer sells the products of his farm, or the cows to which he feeds those products, was further illustrated by other charts, which showed the results of different herds in the best dairy section of northern Illinois. The first of these charts shown gave a record of 15 cows kept by one farmer, as follows:

No. Cows.	Lbs. Milk.	Lbs. Fat.	Profit.	Loss.
1	1,204	49	.....	\$27.52
2	1,326	50	.....	27.20
3	2,944	88	.....	15.17
4	2,597	91	.....	15.33
5	2,548	98	.....	13.18
6	2,475	99	.....	13.18
7	2,569	105	.....	10.98
8	3,164	117	.....	8.37
9	2,829	123	.....	8.67
10	3,380	149	.....	1.58
11	4,582	158	\$1.41	.....
12	4,146	174	3.41	.....
13	4,103	177	5.41	.....
14	4,993	191	8.40	.....
15	4,435	200	10.21	.....
Av.	3,147	124	.....	\$7.49
Total loss on herd				\$112.39

As will be noted by this table, 10 of the 15 cows kept upon this farm were maintained at a loss instead of a profit, the total loss from the 10 cows being \$112.39. The other five cows in the herd returned

of \$10.50. The other ten were kept at a total profit of \$215.54, or an average profit of approximately \$14 per cow.

Here Prof. Fraser mentioned the labor problem as a factor upon the dairy farm, which is made more difficult of solution by the keeping of poor cows which do not return a profit for their feed and care. The importance of the labor problem on the dairy farm was emphasized by the statement that when the cost of the feed has been estimated we are only half through computing the cost of maintaining the cow, as the labor cost will about equal the cost of feed. This has been shown to be true by investigations conducted in different stations. In Minnesota the cost of feed was found to be about 48 per cent of the total cost of maintaining a cow, while in Illinois it was found to be 52 per cent, an average of these results will show that the cost of feed and labor are about equal.

In the next table presented, Prof. Fraser showed the same figures relating to the production of the best of three herds selected to show the difference in the average cost of production of the dairy herd. This dairyman kept 13 cows

THE BUZZ SAW.

The circular wood saw is a means of saving considerable labor since it is operated by some other power than backbone and elbow grease. Some few mechanical conditions are quite necessary to its successful operation.

First.—The saw must be round and hung by the exact center. This condition may be obtained by jointing the saw. Turn the saw by hand on the mandrel while holding a file on a solid rest so as to cut down the longer teeth until all the teeth are even.

Second.—Since a buzz saw usually has no rakers the cutting teeth must serve and so should be filed on quite a short bevel on the front side of the tooth, thus leaving a prominent shoulder which will carry out the sawdust. The back of the tooth should be filed on a longer bevel. Keep the front of the tooth on a line drawn from its point to the center of the saw.

The writer uses a saw having every seventh tooth a raker when sawing large and knotty hardwood timber. These rakers are filed square across and a little shorter than the cutting teeth, using a home-made raker-gauge curved to fit the saw. There is no advantage in the use of rakers except for large, hard or tough timber.

Third.—A good way to set the saw is by means of a heavy block of iron and a hammer. File a bevel on the end of the block and make a small mark on the bevel with a prick punch. Place the point of every tooth to the mark and strike with the hammer.

Fourth.—The speed for good cutting should be about as high as can be run without making the saw shake or "slop." For a saw of good temper this will usually be a surface speed of about 9,000 feet per minute or 1,200 revolutions per minute for a 28 or 30-inch saw, and faster in proportion for a smaller saw. In case the saw will not run at a good speed without stopping, the trouble may be remedied by having it hammered, which is a job for a saw expert.

Fifth.—Don't let your engine or a balance wheel "out of balance" jerk your saw. Allow a little end play to the mandrel, just enough to be felt.

Sixth.—Be sure the saw-table swings square with the saw. Try it by laying a small stick on the table with the end just touching the saw, then swing the table and adjust things so that the stick will follow the side of the saw.

Seventh.—To prevent binding and consequent bending or breaking of the saw, be sure that the timber lies down solidly on the table when making a cut. Keeping the saw sharp will help in this matter. A dull saw has a tendency to roll the stick being cut, thus if the stick be crooked suddenly it will bring the saw kerf to a new angle with the saw.

Clinton Co. IRA BIRMINGHAM.

ECONOMY OF THE LOW DOWN WAGON.

The use of the low-down farm wagon has been widespread and rapid in recent years. There are so many advantages in using a low wagon that it is strange its merits were not discovered long ago. Possibly the prejudice against the use of low-down wagons is due to the general belief that with wide tires there is a little heavier draft. It has been conclusively shown, however, that although a low-wheeled wagon may pull heavier under certain conditions, such as rough or muddy roads, than does a wagon with high wheels, there are so many uses to which the low-down wagon may be put on the farm that every farmer should have one or more.

However, it is still a debated question whether the wagon with low wheels and wide tires pulls much heavier, if any heavier, on solid roads. Careful tests have shown little difference. The great work in connection with hauling comes in loading and unloading. As a labor saver in this direction, there is nothing to compare with the low-down wagon. Even though it may take a little more team power to pull the load, there will be plenty of horses after the owner is gone to the great beyond.

The wagon with low wheels is a great saver of strength. It is the last inch or two of the lift that taxes one's strength. In the loading and hauling of hogs, stone, earth, potatoes, apples, corn fodder, grain in the sheaf and farm machinery, the wagon with the low wheels has so many advantages that the ordinary high-wheeled wagon is hardly to be considered. With the low-wheeled wagon, one man

can frequently do the work which would otherwise require two.

There are two ways in which wagons with low wheels can be secured. One way is to buy low steel wheels and use them on the running gears of the high-wheeled wagon. Another is to purchase the complete wagon, which possibly has axles and other equipment a little stronger.

The height of the wheels is the matter of importance. A good many farmers do not favor the extremely low-wheeled wagon, as they claim it pulls heavier and has no particular advantage. My experience has shown that about 28-inch front wheels and 32-inch rear wheels are the most satisfactory for general farm use. This, however, is somewhat a matter of taste, but the lower the wheels, within reasonable limits, the better. Of course, they should have four-inch tires or wider.

Illinois. R. B. RUSHING.

GOOD ROADS.

In the Michigan Farmer of January 27, is an article by C. L. Emery, which practically favors road districts. Last spring the township of Adams, Hillsdale county, Mich., by a vote of the town meeting, requested that the town board and highway commissioner should divide the township into twenty or more road districts and appoint an overseer for each district.

This was done, and in the main this system has worked well and will undoubtedly be continued the next year, with a proviso that the district overseer shall be selected by the district.

Some of the advantages of this system are that each district receives their share of the road money, to be expended on that particular section of road to the advantage of the taxpayers in that district. The work in each district is done under the supervision of the highway commissioner.

Second.—We have home rule on a small scale and can hold the commissioner and overseer responsible for faithful work.

Third.—We have the satisfaction of coming nearer to the old road law and giving the new law a black eye.

Under the new law, as usually carried out, the commissioner is unable to perform his work as the law requires. Under this home rule system an overseer usually secures his help in his own district and at a time of year that farmers can work the road to good advantage and accomplish something of benefit to the roads. Again, we have the satisfaction of expending our road tax where it will benefit our property.

I realize that in this article I have arrayed a host against me, who are in favor of the present road law in its worst form. "By their fruits shall ye know them." What fruit that law has brought to market for the last few years in this section of the state has been of a poor quality.

Hillsdale Co. M. G. MOSHER.

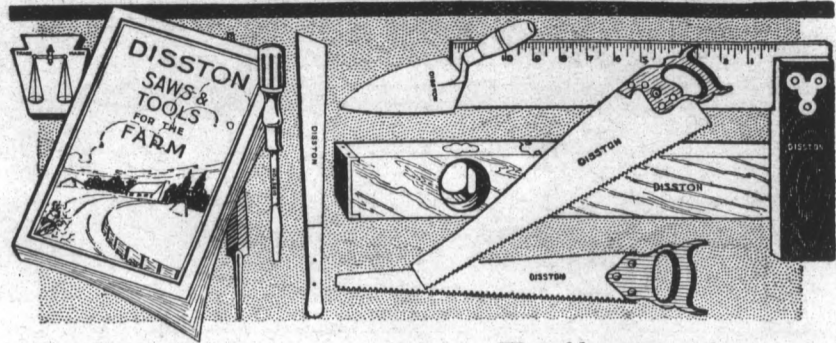
A PLEASANT DIVERSION FOR THE WINTER.

For a number of years past, eight or nine families, (among which the writer's is included), have met at some one's house once every week after the close of the holiday season. We get together about 10 a. m. and leave for our homes between three and four p. m. We spend the day in general visiting, music and playing games. At noon the farmer's wife, where we meet furnishes a good dinner, after which all the women present take hold and clear off the table and help wash the dishes, which makes this task a quick and lively job. And it is interspersed with a lot of visiting at the same time. While the women are doing this work, the men go out to the barn and feed their teams, and look over the stock and chat awhile. On coming back to the house the women are then ready to assist in the music and singing, and also to engage in some of the innocent games which we play. In this way the afternoon passes away very pleasantly, and sometimes all too quickly. We families who have thus met and associated together for so many years, feel almost as though we were one family. We have certainly found it to be one way of spending the winter very pleasantly.

Ottawa Co. JOHN JACKSON.

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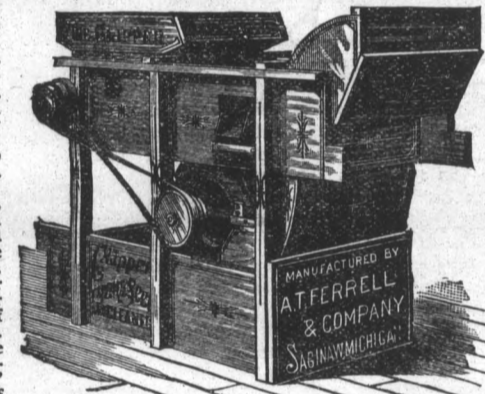
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A DOUBLE WALL CONCRETE CELLAR BUILT ABOVE GROUND.

During the summer of 1911 I built a double-wall concrete cellar above ground and for the benefit of my farmer friends I give my experience in so doing.

My cellar has two six-inch concrete walls with a two-inch air space between them. It has brick gables plastered over with cement, a four-inch concrete floor, double window in the back and a double door in the front. Casings of doors and windows should close the air space. It is ceiled overhead on the under side of the rafters with ceiling lumber and has a ventilator in the roof.

It was built late in the summer and the walls did not thoroughly dry out before cold weather came. The frost followed the moisture, so, of course, during our extreme cold January weather frost showed in the cellar, but it did not freeze.

Another summer after it has well dried out I shall oil the walls inside and out. Then I expect entire satisfaction in its use.

And now just a word as to my house, which appears in the foreground of the accompanying cut. It will be noticed that it seems small for a farm house, yet it has all the conveniences and ample room for our needs. It has no bed-rooms; instead the living-rooms are furnished with disappearing davenport beds, so that in a moment's time the handsome furniture of the living-rooms may be converted into the necessary beds. They are

crop rotation and soil fertility, reason that pea growing or the growing of some similar crop has rendered the soil toxic to peas.

The conditions are of such importance and of reasonable seriousness that the Department of Agriculture should send some of their men to these pea sections for investigation. As noted before, seed contractors are going to the irrigated sections and reasonably high altitudes to secure seed, and also to Austro Hungary. It seems rather unusual for seedsmen to arrange for seed peas at distances so remote, when formerly this crop responded so favorably in Michigan. It is also of interest to know that certain varieties of wax beans become so weakened in vitality from anthracnose that their growth seemed impossible and their extinction seemed inevitable. However, seed from California was obtained and these beans were given a new lease of life in Michigan.

Wide observers of the crops of white beans are inclined to see deterioration in yield in Michigan. The prize offered by the Michigan Bean Jobbers' Association for the best five acres of beans for next season was in response to the belief that improved cultural methods were needed. My own observation is that the man who would win the prize should look well to the seed. For several years the bean vine has had its spots of rust and under perfect, or well nigh perfect, conditions of soil and season there seems to be an excessive number of ill nourished pods



Farm Home of T. E. Hassen, of Genesee County. Out-Door Cellar at Rear.

neater and cleaner than the ordinary beds, and make lighter work and a tidy house all of the time.
Genesee Co. T. E. HASSEN.

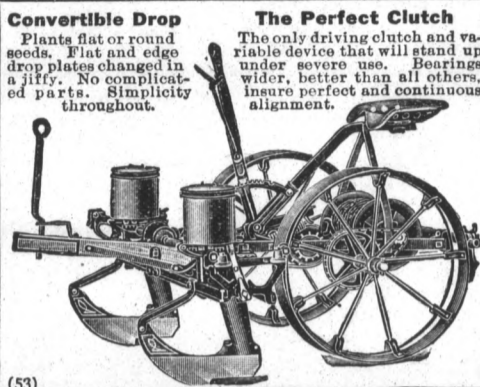
PEAS AND BEANS.

One of the interesting phases of Michigan agriculture is the waning of the pea growing industry. On the shores of lake Michigan the great canning factories have felt this seriously. Where heretofore peas were easily and profitably grown there has been for several years lessening crop returns and decreasing acreage. On the east coast in the "Thumb" counties field peas and seed peas were a prominent feature of farm crops. Acreage for seed houses, in growing the garden varieties, was a safe and sane cash crop. Recently the various seed houses have been obliged to go to the irrigated districts in the west, especially in Montana. Last year's crop in that state, at an elevation around 5,000 or 6,000 feet, has been productive and of excellent quality. There seems to be a belief among some pea growers that for the past few seasons climatic conditions have been largely, if not solely, the cause of failures in the pea crop. Heavy spring rains followed by excessively warm weather, has been the unfavorable features of these seasons. Other pea growers admit these conditions but claim that in years gone by the pea crop has passed through just such weather, and sustained no serious injury. One intelligent grower, who lost a crop of 40 acres last year, described the pea vines as turning white or at least losing the proper green color, all over the field, with many pods not filling at all. He suspected some form of blight, just as a potato field might almost simultaneously, under favorable weather conditions, be stricken with blight. Other growers reason that the soil is lacking in some one of the essential elements of plant food, or else, following the Whitney-Cameron theory of

and beans in the pods. Reasoning from analogy is necessarily very uncertain, but the history of these wax varieties and their regeneration on the Pacific coast, together with the success of peas, both legumes of related families, in the high valleys in the mountain states, would suggest some experiment in beans. No one wants to be a pessimist, but if the bean business in Michigan were to reach the stage that now exists with pea growing it would be a far-reaching calamity. The cash return for beans and the investment connected with handling the crop, I think exceeds that of the sugar industry. The business interests in Michigan dependent on crop successes are many, and it is little wonder that they see the necessity of an agricultural unification and supervision. In the San Luis Valley, in Colorado, at an altitude around 7,000 feet, the Canadian and Mexican pea flourishes. Around the Mexican homes is invariably a garden and no garden is complete without some "frigoles" or beans. The advantage of this section for beans is that grown under irrigation, with no rainfall and almost continuous days of sunshine, the opportunity for bacterial propagation is slight. The lima bean growers of California desire seasons with absolutely no rainfall from the time the crop is planted until harvested. In certain belts near the coast subject to ocean fogs lima beans are not grown on account of external moisture. It is these observations on the pea and bean crop that allows the suggestion to be made that the bean jobbers' association, or possibly, if not independently, in conjunction with some seed house, arrange for growing some seed beans at points of reasonably high altitude, high valleys or mesas under irrigation or sub-irrigation as the case may be, as in the San Luis Valley. I am very certain that the point of altitude should be insisted upon, otherwise the experiment would be a failure. A very noticeable fact was the growth of peas on the irrigated mesas

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Send a card tonight. Book comes all the interesting, money-saving particulars that have made this planter famous. Don't put off. Write tonight.

Rock Island Plow Company
233A Second Ave., Rock Island, Ill.

Old Abe Fertilizer
Chicago Fertilizer Works

Richer Than Claimed
Every bag of "Old Abe" Fertilizer is stamped with a guaranteed analysis and is sold with a guarantee of satisfaction if directions are followed. The State authorities of Wisconsin and Illinois who have tested "Old Abe" Brands have found

"Old Abe" Fertilizers
richer in plant food than we guarantee them to be.

Ask your dealer about our Universal, a wonderful fertilizer for wheat, and our Corn Special; or write to us for booklet and prices. We sell direct where we have no dealer. If you follow directions we guarantee satisfaction or refund your money.

Write today for our Free booklet, "The Farmer's Handy Pocket Companion." It has just been re-written and is a mighty valuable little book for every man with an acre.

Reliable Dealers Wanted Everywhere
CHICAGO FERTILIZER AND CHEMICAL WORKS
Dept. C, Union Stock Yards, Chicago, Ill.

60 bu. of solid corn per acre resulting from the use of 200 lbs. of Old Abe Fertilizer per acre.

20 bu. of sub-subs per acre—no fertilizer. Loss 40 bu. or \$24 per acre.

VALUE of MANURE When properly pulverized and evenly distributed over the ground, manure is the best and most economical fertilizer that can be used. The additional crops produced will ordinarily more than pay for the spreader each year it is used. Besides much labor is saved.

SUCCESS MANURE SPREADER

Spreading is generally done when ground is rough; large and heavy loads are usually hauled. Success spreaders are built to withstand severest tests. Firmly mortised, trussed and bolted frame, is made of second growth ash.

the Success reduce the draft at least one horse and add years of life. They insure all shafts running in line and retaining oil. Success Spreaders are the lightest draft spreaders on the market.

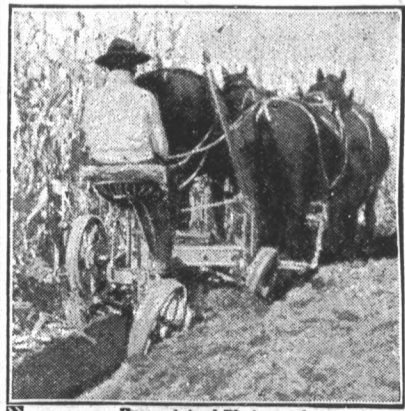
Beater Starts Free
Throwing machine in gear slides beater back out of load. When the machine starts, the beater is free. It is revolving when load comes in contact with it. Thus strain is off the beater as well as the pull necessary to start the load greatly reduced.

Roller Bearings
Seven complete sets of roller bearings on

Get This Book. Be sure to ask us for a copy of our new book, "Better Farm Implements and How to Use Them," if you do not already have one. Answers every question concerning the most complete line of farm implements. To get our latest Spreader Book, ask for package No. 55.

JOHN DEERE PLOW COMPANY, MOLINE, ILLINOIS

Doubled Corn Yield—Made Big Ears



Fred Bossen, Platte, S. D., writes Nov. 7, 1911: "My neighbor's corn from land plowed 6 inches deep with ordinary moldboard plow is just exactly half the yield of corn from my land tilled 12 to 16 inches deep with the

SPALDING Deep Tilling Machine

His yield was 20 bu. to the acre; mine 40 (notwithstanding drought). It took 180 ears of his corn to make a bushel, and only 120 of mine."

Joseph E. Wing writes Dec. 27, 1911: "I saw worthless land made to yield \$75 an acre by Spalding Deep Tilling Machine." If the Spalding does so much on other farms won't it increase your crops? Write for our free literature about Deep Tillage. Drop a postal or mail coupon today.

Spalding Deep Tilling Machine preparing a 12 to 16 inches deep, level, mellow, moisture-retaining seedbed, all in one operation.

Spalding Department R2
GALE MFG. CO., Albion, Mich. (25)

Send me your Free Books on Deep Tillage. This places me under no obligation.

Name.....

Post Office..... R. F. D.....

or table lands in San Miguel county, Colorado, and their failure as the altitude declined into the valleys around 5,000 feet. In the San Luis Valley, an unusually high valley, in fact, too high to grow alfalfa successfully, peas introduced first by the Sylvester Bros. in a small way changed the whole system of agriculture. The effect of this change is felt in Michigan in the lamb-feeding districts, for there is always a desire on the part of the Michigan feeder to avoid the market period of pea-fed lambs, since from 150,000 to 200,000 lambs are finished on peas annually. In the present stage of pea and bean growing, after experiments in fungicides, there seems to be nothing so promising as seed grown in the districts where conditions make for immunity.

Sunshine in the arid districts has been recognized as a greater factor in agriculture than in the east. Potato growers in Colorado have abandoned the use of formaldehyde for potato scab and "green" the potato seed before planting. It had been noticed that a sunburned potato was never scabby, so they took a hint from this observation and expose the potatoes to sunlight sufficient to "green" them, with better results than with any other remedy for the scab. Other favorable conditions for seed beans are the high ash content of these soils—lime, phosphoric acid and potassium—and also the almost certainty of perfect weather conditions at harvest time.

Shiawassee Co. JAS. N. McBRIDE.

LILLIE FARMSTEAD NOTES.

I have refrained from writing for some time about farm operations at Lillie Farmstead because there seemed to be but little to write about except the weather. As one fellow says, we have had one continuous spell of weather since about the middle of September and after one writes about weather conditions for a few times he is afraid that it may be a bore to the readers, but it is remarkable, however, how much storm we have had since the drought was broken in the middle of last September. It has really been one storm after another. When the number of stormy and cloudy days are tabulated I am sure they will indicate that we haven't had such a rainfall before within the remembrance of this generation. So much bad weather has made it very expensive doing fall work, even when you take into consideration simply the labor, but when we take into consideration that many of the crops were severely injured by so much wet weather, the loss to the farmers of Michigan it is appalling. On the bean crop alone the loss to growers will never be known, and the people who are talking now about the high cost of living and think that the farmer is getting more than his share of prosperity wouldn't think so if they had a few thousand dollars invested in a bean crop the past fall. And it is the same way with the potato crop and the corn crop. It was almost impossible to get the potatoes dug at all. Many of them were injured by the wet weather and by the untimely freezing weather, and while corn ripened the corn-stalks are seriously injured by being exposed to so much wet weather all during the fall.

We didn't succeed in getting our sugar beets all harvested before the first freeze up. There wasn't a time after the beets were ready to harvest that the harvesting could be done without working in the mud. We lifted beets when in many places on the field the teams would go in as deep as the ground was plowed and after the first freeze-up it was simply awful to work in the mud, but yet it had to be done. It not only cost more but so much cloudy weather prevented the incorporation of sugar in the beets and my beets tested the lowest this year that they ever tested. The highest test on any particular carload was 13.8 per cent sugar while the lowest one fell a little bit below 13 per cent, and while I had a good tonnage the loss in percentage of sugar cut the gross returns of the beet crop down two or three hundred dollars less than I had figured on.

Our potato crop has also been disappointing. Some of them rotted in the ground. We dug them all in the mud. I had a new potato digger that I wanted to try and never unpacked it. It was simply impossible to use a potato digger. We had to dig them out with forks. Some of them were frosted, and I have figured it, taking all the losses combined, that I have lost at least one-third of the potato crop. We had a poor stand owing to the fact that much of the seed did not

come up because of the extreme hot weather at the time of planting and it makes a pretty poor potato crop, and very little, if any, profit.

Clover Seed.

On the other hand, we had a nice little present in the form of about 50 bushels of good June clover seed. Some years we get none. I expected but very little this year because the second growth was very poor but it was exceedingly well filled and this little present will offset some of the loss on the potato crop and on the sugar beet crop.

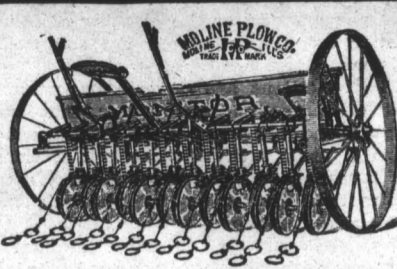
The ground was so wet that it was entirely impossible to do any fall plowing. We haven't a single furrow plowed. This simply means a lot of extra work to be done next spring. I have ordered a deep-tilling machine and I intended to give it a thorough test by plowing land with a deep-tilling machine 12 or 15 inches deep and then land by the side of it with a common plow and note next summer whether the land plowed with the deep-tilling machine held the moisture better or not. I wanted to make a thorough test but I was not able to plow a furrow and so it will be a year before I can perform this experiment on fall plowing. My intention is to test the machine on spring plowing but I don't imagine that we will get as good results on spring plowing as we would on fall plowing. I believe that there is something in the principle of this deep-tilling machine. I know from experience that you can't plow land too deep with a common plow; that is, you can't plow very much deeper one time than you do another. If you bring up too much of the sub-soil it doesn't make a good place for seed germination and growth, and if we want to deepen the plow furrows it should be done slowly and a little at a time and it ought to be done by fall plowing to bring this raw sub-soil up so that it will be frozen and acted upon by the weather before we intend to grow crops. The deep-tilling machine, however, does not bring all of the raw sub-soil on top but mixes the sub-soil which is loosened up thoroughly with the top soil, all is mixed together. In this way we get a deeper surface soil for the storage of moisture and the incorporation of vegetable matter and break up the plow pan which has been produced by continually plowing with the common plow but do not get all of the sub-soil turned on top and while we will know more about this machine in a few years from now it does seem to me that the principle is worth trying and I propose to test it.

High Price of Dairy Products.

The high price of dairy products, especially butter, is causing very much comment by the consumer in the city, especially the city dairies, and yet the high price of butter is warranted by the condition of affairs. We are not producing enough butter to go around. Many farmers haven't as many cows as they had a year or two ago. They have been getting rid of their poor cows, and some of them have been getting rid of all of their cows because they figure that they can make as much money raising other crops at present prices as they can in dairying and it is much less confining. And now, on the other hand, in my own herd I can see very plainly that the cows haven't done as well as usual since the extreme hot weather of last summer. After we had that extreme hot weather they shrunk in their milk and I know that they were injured by the extreme temperature. They aren't affected so by the cold because we can protect them from the weather in a good warm barn that is well ventilated. But in the summer time when the temperature gets around 100 degrees there is no protection, and the cows actually suffer and they have shrunk in their milk and they have never done so well since as they did before. That, I am sure, is one cause of a lessened production. Besides this, grain is exceedingly high and many farmers would rather take what they can get without feeding very much grain and let it go at that, than to make the investment and indulge in the speculation of buying such high-priced grain and feeding to dairy cows with the expectation of getting a profit out of it. If the city editor only knew something about these things he would be more cautious about his statements, but he doesn't know and I doubt if he ever will.

COLON C. LILLIE.

An Illinois feeder was asked not long ago if his cattle made him any money, and replied: "No, they just about paid the market value of the corn they ate, but they left 300 wagonloads of manure on the farm that money cannot buy."



Monitor Double Disc Drill

The Drill That Pays for Itself

How? It requires one-fifth less seed. It increases the yield. It raises the grade.

The Monitor is the only Drill that deposits the seed at the bottom of the furrow in two rows, at an even depth, with a uniform covering of moist earth. By this method you secure more normal plants to the acre, as all the seed grows; comes up at the same time; has ample room to stool; withstands drouth; and matures evenly.

This is accomplished by our patented device, which drops the seed in front of the bearing with the downward turn of the disc.

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For a disk harrow that will stand the hard work of its numerous new uses go to the line of the


Johnston Farm Machines

The "Johnston" Field Disk Harrows and Special Reversible Disk Harrows for Orchard and vineyard work are the favorites of up-to-date farmers—men who know the value of disks and disking. Their light, direct draft; perfect, double lever control of gangs; simple, strong frame construction; dust proof, wood-bearing draft standards; steel weight boxes; center bumpers; variety of styles and sizes; and high grade material throughout are among the features in the "Johnston" that make them the disk harrows for the best and widest range of work for modern farmers.

Send today for free catalog. Every farmer and orchardist needs it. Write a post card now.

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Bates All Steel Tractor

Built for General Farm Use.

Especially adapted to Michigan Farmers' Uses.

25-30 H. P., will do as much work as 16 horses, yet weighs only 8,000 pounds. Takes the place of hired men—even your boy can run it. Simple in construction, easy to operate. Great saving over horse power. Heavy duty engine. Has large bearings. Driver's cab is comfortable and enclosed. It handles plows with great ease and satisfaction, also will serve as general power plant to operate all farm machinery. Price is reasonable.

You should have our catalog which is full of information—ask for it and we'll send it free.

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Perfect Beet and Bean Cultivation

Every grower of these crops can save time and money and get the biggest crop-yield by using the Planet Jr No. 53 Pivot-Wheel Two-row Beet and Bean Cultivator. No name is so certain a pledge of value as

Planet Jr

All steel but the handles. Light, easily handled, steers perfectly, close to crop, and leaves ground level. Wheels adjust in width. Works two rows at once 16, 18 or 20 inches apart—or with extensions, 22, 24 or 26 inches.

FREE! A 64-page illustrated farm and garden book!

You can't afford to miss this valuable fund of farm and garden facts. And it shows 55 tools for beet, bean, orchard and all cultivation.

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No. 53 Cultivator

Admirable for thorough beet and bean cultivation. It cultivates within 2 inches of crop at each side and carries also irrigation steels, discs, weeders. Designed and made by a practical farmer and manufacturer with over 35 years' experience. Fully guaranteed.

WINTER PROTECTION OF ALFALFA.

Now is a good time to protect the new alfalfa seeding against the early spring thawing and freezing which is apt to cause the plants to heave out of the ground. The danger of heaving is especially great on those fields that were seeded late last season and where the plants have not become deeply rooted in the soil. A top-dressing of stable manure at the rate of 12-12 loads per acre makes an efficient protection when properly applied. A manure spreader should be used whenever possible so as to get the manure spread evenly on the field. If the manure is spread by hand, care should be taken to have it evenly distributed and that no large lumps are left on the field. When the manure is spread on the snow and frozen ground, it will tend to keep the frost in the ground until spring actually arrives. This will check the thawing and freezing, and lessen the danger of heaving of the alfalfa.

As early in the spring as it is possible to work the soil, and after the soil has settled, go over the field with the disc set at a small angle. This is injurious to weeds, loosens up the soil, and aids in saving moisture. If the soil is light, and the seeding is new, a harrow may be used effectively the first season and the disc the second. On heavy soils, the disc will be found to be the best tool to use.

The manure will not only act as a protection to the young alfalfa plants against heaving, but will build up the physical condition of the soil, prevent the ground from cracking in dry seasons, and prevent the loss of water from the field by evaporation. Manure applied to an alfalfa field will always pay in the extra amount of hay harvested.

If no nodules of bacteria were found on the roots of the alfalfa last fall, it would be a good plan to inoculate the soil this spring. Use some soil from an old alfalfa field, or where there is some sweet clover growing, and spread on the field just before discing.

Lime may be spread on the field just before discing, or any time during the winter when time permits.

Ingham Co. C. H. SPURWAY.

TAX DISCUSSIONS.

Just a few words as to the taxation of mortgages. I see by the article of Mr. C. J. Reed, in The Farmer of December 30, that he is in favor of taxing mortgages because it would increase the amount of property on the tax roll and consequently lessen the tax rate.

Suppose Mr. A. and Mr. B. own farms side by side, each worth \$10,000, and Mr. C. comes along and purchases Mr. A.'s farm, paying down \$2,000 and giving a mortgage of \$8,000 for the remainder. I fail to see where the transaction has added \$8,000 to the wealth of the nation that should be added to the tax roll. I agree with Mr. Reed when he says he is in favor of every dollar's worth of property bearing an equal burden of taxation. And it is not equality to make a farm that is worth \$10,000 pay taxes on an assessment of \$18,000 when a neighboring farm pays on only what it is worth. Where the farm and mortgage are both taxed, the full amount of the taxes must come out of the farm, directly or indirectly.

The chief point to Mr. Reed's argument that I see is that, if he can make his neighbor's farm pay a double taxation he himself will gain by not having to pay his just share of the taxes. And that, I think, is contemptible. There might be a just cause for disagreement as to whether the mortgage or the farm should pay the tax, but no double taxation for me.

I might further add that unjust laws tend to bring all laws into contempt.

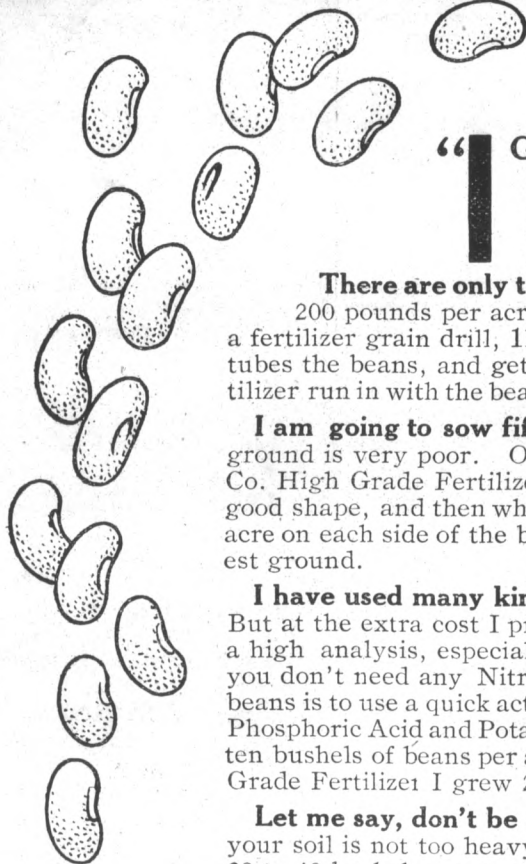
Washtenaw Co. C. A. JEWELL.

BOOK NOTICES.

Farmer's General Dairy and Record, by J. B. Werlinsky. This book provides a system whereby the progressive farmer can keep accurate record of his business as well as of the events of the year. Besides the daily record there are a number of blanks for keeping annual crop records, general information which a farmer should have for ready reference and a cash account book. This volume contains nearly 300 pages, is printed on good paper and sells at \$1.00 per volume. Published by the Rein Co., of Houston, Texas, and can be secured through the Michigan Farmer offices.

Third Year Latin for Sight Reading. Edited by J. Edmund Barss, Hotchkiss School, Lakeville, Conn. This book is made up of readings bearing on the Catiline episode, consisting of selections from Sallust's Catiline, and from Cicero's Second and Fourth Orations against Catiline. Cloth, 12mo, 123 pages. Price, 40c. American Book Company, Chicago.

Do You Grow Beans?



An Up-to-Date Farmer Tells How to Make the Bean Crop Profitable.

"I Grow beans as a cash crop and that is my hobby. I have fertilized beans for eight years, and what I know I have learned by experience.

There are only two ways to use fertilizer on beans. Either sow 200 pounds per acre on each side of the bean row, that is, by using a fertilizer grain drill, 11 hoe, and let six tubes sow fertilizer and five tubes the beans, and get on 200 pounds to the acre. Don't let the fertilizer run in with the beans as there is too much danger of burning them.

I am going to sow fifty acres of beans this Spring. Some of the ground is very poor. On the poorest I will sow 300 pounds of A. A. C. Co. High Grade Fertilizer broadcast with a drill and work the ground in good shape, and then when I sow my beans will sow 200 pounds more per acre on each side of the beans, making 500 pounds per acre on the poorest ground.

I have used many kinds of fertilizer—different kinds and analyses. But at the extra cost I prefer A. A. C. Co. High Grade Fertilizer with a high analysis, especially for lighter soil. Some authorities claim that you don't need any Nitrogen for beans. My experience in growing beans is to use a quick acting fertilizer with high percentages of Nitrogen, Phosphoric Acid and Potash. Last season on a soil that would not grow ten bushels of beans per acre, by using 500 pounds of A. A. C. Co. High Grade Fertilizer I grew 28 bushels per acre.

Let me say, don't be satisfied with 10 or 11 bushels per acre. If your soil is not too heavy, and if you get it rich enough, you can grow 30 to 40 bushels per acre. I am speaking of pea beans. They are the kind I grow. Sow from three pecks to one bushel per acre according to size of beans. Above all, don't use cheap Fertilizers, for they are

too dear to buy for the plant food they contain." (Name given on application).

We furnish quick acting, high grade Fertilizers of many different compositions to meet the requirements of all crops grown on various kinds of soils. We make grades where either the Nitrogen, Phosphoric Acid or Potash are component parts, with the right percentages of the other elements of plant food to properly balance the Fertilizer to use on muck land, clay, light soils, etc.

If your land is rich in Nitrogen you will save money by using Phosphoric Acid and Potash to balance out the plant food in the soil. Progressive farmers who study

out these things are more successful than those who have not realized the great difference in Fertilizers. Even at the same price, one grade of Fertilizer under certain conditions will produce more profitable results than another.

In selecting Fertilizer the farmer cannot be any too careful. He should make sure that the goods are manufactured by a reliable firm, so that he may depend upon getting full percentages of plant food and of the highest agricultural value, also in first-class mechanical condition. The reputation of the manufacturer is very important.

Write us and we will tell you how to fertilize properly and economically. Will also send booklet on Fertilizers, including article by John A. Widtsoe, Ph. D., telling how to fight drought with fertility and why richness of soil makes up for lack of moisture. Every farmer should read it. There is nothing so expensive to the farmer as a poor crop. Some farmers are satisfied with fair crops and ordinary Fertilizers because they have never used the best. We want agents for unoccupied territory.

THE AMERICAN AGRICULTURAL CHEMICAL COMPANY
DETROIT SALES DEPARTMENT, DETROIT, MICHIGAN.

Largest manufacturers of high grade fertilizers in the world.

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Detroit-American Tongueless Disc Sold Direct From Factory, With Hitch Free

The only all steel tongueless disc made. Practically no chance of breakage—no repairs—no delays—no waiting for new parts—no express bills. Steel wheels have wide tires. Steel axle is high arched and gives good clearance. Trucks are flexible. Wheels pass over uneven places and stones without disturbing balance. Double levers—each section works independently. Adjustable hold-downs enable you to regulate depth of cut. Disc sections do not strike together. End thrust taken up by hard maple ring

bearing. Only harrow with steel separators between blades. Hitch free—size suited to harrow. Mail Postal! Get our big book which fully explains the above and many other features. Detroit-American All Steel harrows are made in sixteen sizes, cut from 4 ft. to 10 ft. in width, 16, 18, or 20 inch blade as ordered and cut-away style if desired. Book also shows descriptions and prices that prove greatest values in manure spreaders, engines and cultivators. Send postal now.

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The Only Real Tongueless Disc—The Only All Steel Tongueless Disc—The Only Perfect One.

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LIVE STOCK

THE LABOR PROBLEM.

An excerpt from the address of Pres. R. C. Reed, of the Michigan Improved Live Stock Breeders' and Feeders' Association, delivered at the recent meeting.

Perhaps there is no question that comes before the common people of the nation, that is so badly misunderstood as that of the condition that confronts the agriculturalist in regard to the labor problem. There are several reasons for this misapprehension; the first of which is that the farm laborer is not receiving a compensation as great as that of the city laborer of the same ability. Nothing can be farther from the truth than this. Your own observation and the year book of the Department of Agriculture for 1910, page 198, will show you that these statistics, carefully gathered, shows that the farm laborer receives a compensation so much greater than the city laborer, even the conductors and motormen of the city railway, that the comparison is as 100 to 141 in favor of the farm laborer.

The reason for this misapprehension is that, the agriculturalist does not take into proper consideration the supplementary wages paid to the farm laborer, consequently the farm laborer has come to appreciate less and less the things that you give him as a supplementary wage. During all the period of the contract of the laborer, this man has in mind but two things, the hour's labor and the money consideration. You say that you will give him his house rent, garden spot, fruit, keep of cow, fuel, and often the use of a horse and buggy. Now, if he is to make the comparison with the city laborer you should put a city value on these considerations, which the government in its compilation of these statistics has not done. Should we put this upon a city basis of comparison with his rent, his meat, his milk, his fuel, his vegetables and those things, the agricultural laborer would find that his supplementary wages would be one-half of his earning power in the city, to say nothing of the increased purchasing power of the money wage that he receives, which the government shows to be \$1.17 as compared with the city man's \$1.00.

What is the cause of this misapprehension? The trouble largely lies with the agriculturist himself, and there ought to start from this meeting at this time such a change in these methods that we may get on to a better basis of understanding in the immediate future.

Every ounce of energy and muscle that is given you by the man you hire is taken into calculation, and can you tell me any reason why you and he should not take into our calculations all that we render him for his services? When you hire your help make your stipulations such that he shall appreciate not the money value only of the consideration but also the value of all the supplementary wage that you render him. Put a reasonable price on the rental of your house, on the firewood that he burns, the keep of his cow, the fruit he has, the rental of the land that he occupies for crop purposes, the meat that you furnish him, add them to the money wage and I am sure that you and he will have better understanding and appreciation of what he receives as a compensation for his labor. Sell him what you let him have, and buy what he renders you.

Another thing and one of the most serious objections of the present method, is the lack of appreciation of the obligation that the farm laborer feels toward his employer as compared to the obligation that the city laborer feels toward his employer. The street car man, the man at the lathe and the bench in the city has to be in his place absolutely on time, he has to run the business as prescribed by his employer and any interference with the prescribed methods of procedure on the part of the employe is met with the severest rebuke. The street car man would no more think of interfering with the schedule of time and conditions than of taking hold of the wire that conveys the power, he would not think that it was his privilege to stop his car, let it remain standing upon the track while he engaged in an hour's visit with a friend; he has to serve notice if he desires to be absent, except in the case of sickness. Not so with the farm laborer. He considers it an infringement upon his right if his employer objects to his leaving the team standing in the field while he visits with a friend. If he fails to appear for work in the morning it seems to be up to his

employer to hunt for him, to find when he will return, and when the business can go on as usual. Friends, there is not a business that is on anything like a parity of importance with the farm operations that is run in so slack and un-systematic a manner.

We desire that the farm laborers shall be well paid, that they shall have every advantage obtainable, but we should like to have the world know that the agriculturalist of the great producing areas of the United States is paying more today for that labor which is necessary to bring forth the food products of this nation than any other industry is paying for the same class of labor. Another thing that the agricultural laborer ought to consider at this point is his comparative freedom from responsibility and amenability to the laws of the land. The street car man is liable to the law to that extent that his care and responsibility is a greater tax than the actual labor. He will be called before the bar of justice because he is negligent in his duty and disaster and death has come to those entrusted to his care. His own life is in constant danger.

Can we not at this time settle upon some well concerted basis of action by which we can cause the laborer and the American people at large to understand, not only the comparatively high price of labor to the American farmer but also understand the great opportunities and advantages of life in the country? Can we not cause the great consuming population to understand that their well-being depends on the utmost harmony and cooperation with the producing public?

How shall we best be able to direct the thought of the people of this nation to our wasted resources? Our unusual opportunities? Do we realize the vast area of unoccupied land within our own borders? We would think that it was a great accomplishment if we were to purchase from an adjoining nation seventy-four and one-half million acres of virgin land, to open up for food production for the republic. Yet we have this and we are ignoring it year after year, while some people have been in a spasm of anxiety over reciprocity with Canada, and the inducements of the Canadian Bureau of Immigration have led 103,789 young men into Canada to find homes, during the year of 1910. While a greater area than all of the Philippines, which is more desirable, available and tillable than Canada, if proper drainage were offered, lies within our borders and we have in Michigan 4,400,000 acres of land, which according to government statistics should yield us, when redeemed, better than \$17,000,000 each year. The cost of draining this land according to government statistics would not be over \$24,000,000. This land cut up into forty-acre farms would yield the average family \$350 each year to spend and would mean \$38,500,000 in wealth to the state of Michigan.

If this exodus of the best blood could be stopped and sufficient desirable citizen laborers procured the price of actual food supply would be reduced; but with producing population decreasing and our consuming population increasing, the price of the food supply must continue to advance.

Brothers, a great heritage is ours. A mighty responsibility rests upon us. Will we be true to the trusts committed to our care?

Unborn generations will either laud or condemn the history we make. Let us be true.

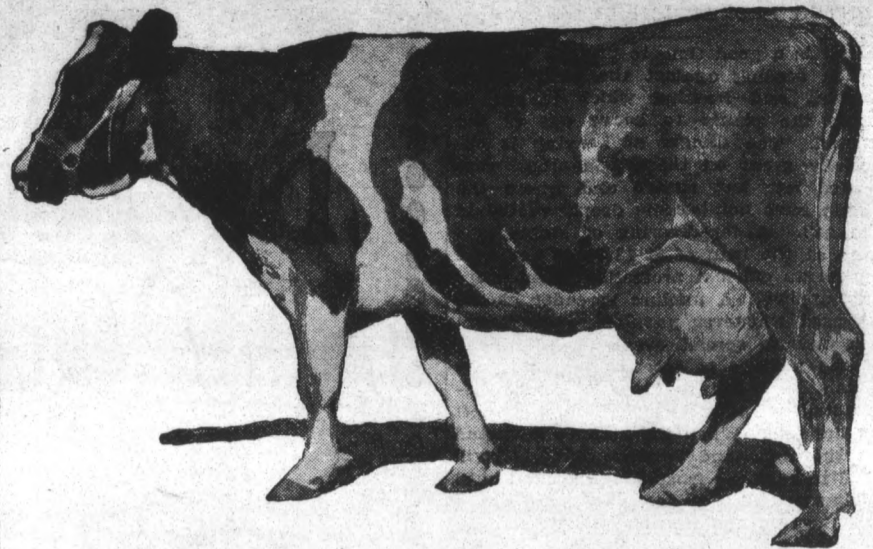
FEEDERS' PROBLEMS.

Feeding Rye to Horses.

How much rye should I feed to a horse to be equal to four quarts of oats? Is it all right to feed whole or should it be ground? Can I feed rye to a mare in foal?

Charlevoix Co. R. M.
Rye has approximately the same feeding value as corn, but it is not nearly so good a horse feed on account of the fact that it is very sticky when ground and is not a suitable feed. With grinding to make it available for horse feed it should be fed with bran and oats to improve its mechanical condition or fed moistened in the feed as otherwise it will be found to adhere to the horse's mouth and will not be readily digested. It should not be fed to brood mares on account of the fact that it is more likely to contain ergot than other grains. At present price of rye as compared to corn, it is not an economic feed for horses.

Buckwheat feed, consisting of buckwheat middlings and hulls, is a mis-nomer.



What do your cows earn?

Are you getting as much milk as you should, and do you get satisfactory prices for it? These are pertinent questions, because the difference between profit and loss lies in whether or not you produce butter fat at a low cost and market it at a good price. The right location, nine times out of ten, throws the balance in favor of success.

60 Gallons a day—market unlimited

Mr. C. F. Patton, after 27 years of general farming on his 80 acres near Villa Ridge, Mo., turned his attention to dairying. He was so successful that in less than a year he built a concrete block barn and two concrete silos. He is now shipping 60 gallons of bottled certified milk a day to St. Louis. His 80 acres will produce all of his feed and provide ample pasture.

Mr. Patton's location, on the main line of the Rock Island Lines between St. Louis and Kansas City, is ideal for dairying. The climate, the abundance of pure water and native grasses enable him to keep his cows at the highest point of productiveness with the minimum cost. He is close to two big markets, St. Louis and Kansas City, where dairy products bring high prices the year around. He is located right.

This matter of location is worthy of your serious thought. Just a few miles often makes the difference between profit and loss. If your profits are not large it may be due to your location.

There are some particularly good locations for profitable dairying along the Rock Island Lines. Professor H. M. Cottrell, an expert of national reputation,

formerly Professor at the Kansas and Colorado Agricultural Colleges, and now in charge of the Rock Island Lines Department of Agriculture, has made a careful study of every locality along the Rock Island Lines. He knows the best places for dairying, and can tell you the very place where you are most likely to succeed. He will also give you the benefit of his wide experience on the best methods to pursue to make a success in your new location.

Drop me a line and tell me how many cows you have and what you are getting from them. Tell me what prices you get and what it costs you to keep your cows. If your location is right you will be frankly told so—if it is wrong you will be given personal, expert assistance in finding a location that is right.

Book on expert dairy methods, FREE!

Prof. Cottrell has written several books on expert methods of farming. His book "Making Money in Dairying" is the next best thing to a course in an Agricultural college. It is worth dollars to any farmer who will read it. No matter where you live you'll profit by it. You may have a copy free, if you will write me today.

The statements herein made have been fully investigated and can be absolutely relied upon.



L. M. Allen, Passenger Traffic Manager, Rock Island Lines, 431 LaSalle Station, Chicago
John Sebastian, Third Vice-President

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This trademark on the harness you buy means a great deal to you. It stands for over 22 years of successful experience in making high-grade harness, using only the best materials, put together by careful, expert workmen. Before you buy harness, send for the booklet that tells about our goods. **PIERSON & HOUGH CO., Detroit, Mich.**



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the first day you use a water cooled engine.

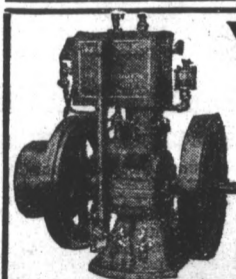
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BREEDERS' MEETINGS.

Michigan Horse Breeders' Association.
This association met with a good attendance on the afternoon of January 17, at M. A. C. Considerable enthusiasm was shown regarding the future of horse breeding in Michigan by representatives of the various breeds recognized in this association. Officers were elected for the ensuing year as follows: President, G. A. Brownell, Detroit; vice-president, August Miller, St. Johns; secretary-treasurer, Ralph F. Hudson, East Lansing. These last two offices were formerly separated but were connected at this meeting. Directors representing the various breeds were chosen as follows:

Percherons—Geo. King; Clydes, Shires and Suffolks, G. Ackerman, Elkton; Belgians, J. D. DeGus, Alicia; Coachers, C. F. Sattler, Charlotte; Shetlands, A. P. Green, Olivet.

Michigan Holstein-Friesian Association.

The Holstein-Friesian Association held their annual banquet in the Masonic Temple in Lansing. One hundred men and women, all enthusiastic believers in that breed of cattle, were there, and listened with keen enjoyment to the after-dinner speaking. Prof. Anderson, of M. A. C., as master of ceremonies, proved equal to the occasion. The following day the regular program was carried out at the College. H. W. Norton showed some interesting figures proving that more and better records are being made in Michigan each year, four 30-lb. cows having been produced in a year. All of the full aged cows tested in the last two years averaged over 20 lbs. of butter in seven days. An interesting discussion of feeds and methods of feeding followed, which brought out the remarkable fact that three of these 30-lb. cows had each consumed an average of 26 lb. of grain while under test. Steps were taken toward a movement to require the superintendent of the advanced register to publish semi-annually a book containing a list of Holstein sires and dams with officially tested daughters, giving their production of milk and butter, this book to be distributed free to all members upon application. The following officers were elected: President, Fred R. McDonell, Lansing; vice-president, John B. Stranger, Grand Ledge; secretary-treasurer, Chas. P. Reed, Howell; directors, E. W. McNitt, Grand Rapids; N. A. Cole, Ypsilanti; I. W. Worthington, Howell; John Hull, Dimondale.—Chas. P. Reed, Sec.

Michigan Jersey Cattle Club.

At a meeting of this club held at the College in connection with the live stock meeting of January 17, new officers were elected for the coming year as follows: President, Clayton Deake, Ypsilanti; secretary-treasurer, Irwin Elmer, Devereaux. The Jersey breeders present were enthusiastic in their view of the outlook for this dairy breed in Michigan.

Michigan Guernsey Cattle Club.

At the meeting of this club on January 17, officers were elected for the ensuing year as follows: President, Allen Kelsey, Lake View; secretary-treasurer, A. M. Brown, East Lansing. As a means of advancing interest in the breed the officers were appointed as a committee to get cows entered in the demonstration test at the state fair.

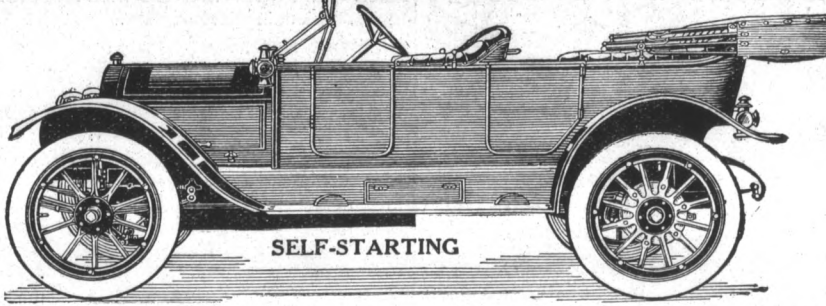
Michigan Shorthorn Breeders' Association.

The thirty-first annual meeting of this association was held in the new agricultural building at M. A. C., January 17. An animated discussion of the future outlook for Shorthorns in Michigan was indulged in by the goodly number of breeders present, it being the unanimous opinion of the breeders that the Shorthorns were bound to retain their popularity as the farmer's cow, while the growing scarcity of good stockers and feeders from the ranges will necessitate an increased production of beef cattle upon the farms of Michigan, where the Shorthorns have always been favorites. Officers were elected for the year as follows: President, G. F. Ottmar; Merle Beach; secretary-treasurer, Del Dawson, Sandusky; directors, A. H. B. Peters, Burton; Floyd Anderson, St. Johns; Geo. T. Fuller, Battle Creek.

Hereford Breeders' Association.

The Hereford Breeders' of Michigan met at the Agricultural College on January 17, 1912. The meeting was called to order by the president, R. E. Allen. There was a goodly number present and a good meeting was had. We found our membership has increased to our entire satisfaction. About thrilled in the last two years. We find that Hereford cattle in Michigan are increasing very fast and

Our 70-Year Reputation for Mechanical Perfection is Behind the GREATER CASE 40



The Greater Case—our new self-starting "40"—is a car with a name that for three generations has stood for high-class machinery.

We staked that 70-year reputation—that world-wide prestige—when we entered the automobile field.

And the car on which we risked so much has won new laurels for CASE.

The Greater Case is great in size and magnificent in appearance. It has all the elegance and style and luxurious comfort of the most expensive cars. But the dominant factor in its supremacy is the powerful, silent engine that's under the hood of the Case.

"The Car With the Famous Engine"

It took 18 years to perfect the engine that makes the Case supreme.

These 18 years devoted to designing, experimenting, refining, improving and perfecting this wonderful engine, have brought forth what we believe to be the masterpiece of America.

The engine—rated at 40 horsepower—shows 52 horsepower on brake test.

A Big, Handsome, Roomy Car

The Greater Case is big and roomy, with a straight-

line body and sweeping lines that give symmetry and grace. It is richly finished and upholstered, handsomely trimmed, luxuriously appointed and up-to-the-minute in style. Its splendid lines and stunning style command universal admiration. No modern car at any price surpasses it in appearance.

Case machinery was famous for quality when your grandfather was a boy.

And for three generations that high standard of quality has steadily been maintained.

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The Greater Case is a high-grade car at a medium price. Fore-door ventilation—combination oil and electric side and tail lamps with storage lighting battery—reliable self-starter—36x4-inch tires—120-inch wheel base—11-inch clearance—4 1/2 x 5 1/4-inch cylinders—Rayfield carburetor—Brown-Lipe transmission—Timken full-floating axles—cellular-type radiator—regulation trimmings—demountable rims—English mohair top with side curtain and dust hood—high-grade windshield—12-inch acetylene gas head lamps—Prest-O-Lite tank for head lamps—one extra demountable rim—complete set of tools—jack and tire-repair kit—pump. These are some of the special features that belong to the Greater Case. If you want a lighter, less powerful car, investigate the well-known Case 30.

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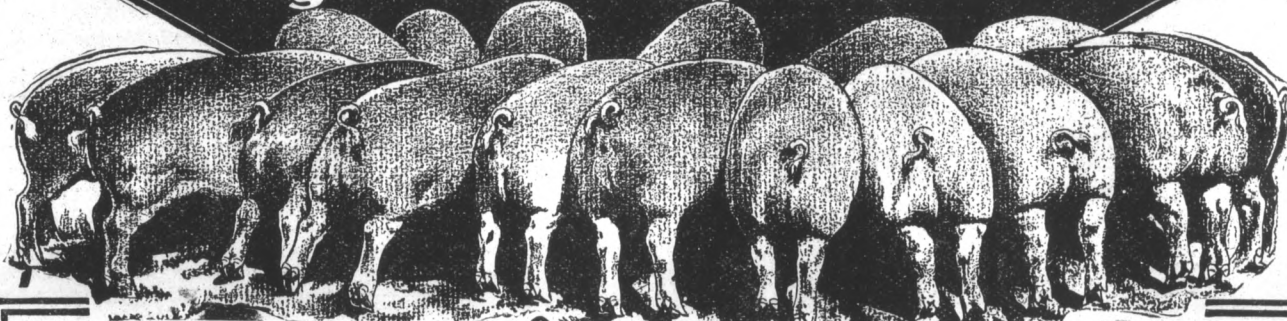
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Pigs Without Worms



S. R. FEIL Pres.

I'll Stop Your Losses From Worms I'll Prove It 60 Days Before You Pay

I'll drive out the deadly pests that steal your profits. I'll make every animal on your place worm-free, thrifty, and put them in condition to get the full benefit of their feed—make them bring you the most profit—if you will just send me the coupon below.

Sal-Vet is not a stock food, but a medicated stock salt. It is saving farmers hundreds of thousands of dollars by breaking the grip of deadly worms on the live stock industry. No dosing, no drenching, no bother—just let your stock doctor themselves 60 days before you pay. You will be astonished at the results. **Prominent breeders endorse Sal-Vet.**

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"Please send us two more barrels of Sal-Vet at once. This is the best preparation we have ever used. We give all our sheep, horse, and over 100 hogs free access to it. It is all you claim."—A. J. LOVEJOY, Roscoe, Ill., Sec. Berkshire Breeders' Association.

Little Pigs only a few weeks old are often found loaded with worms. Hogs of all ages suffer from these parasites. They become run down, weak, then cholera gets in its deadly work. Read these letters. See what it means to have healthy, worm-free hogs when cholera breaks out in your neighborhood. Protect your stock at my risk.

"The hog cholera is all around us in this neighborhood, but so far there is not a single case among the hogs belonging to the men who are feeding Sal-Vet."—THOMAS CANNEDY, Roodhouse, Ill.

"Since giving our hogs Sal-Vet, all of them are well and doing finely, although hog cholera is all around us."—ED. COLLINS, Delphos, O.

All farm animals need Sal-Vet to make them big profit makers. I offer you Sal-Vet on a plan that makes it easy for you to try. You don't risk a single penny.

Don't Send Any Money—Just the Coupon

If you will fill out this coupon—tell me how many head of stock you have—mail it to me, I will ship you enough Sal-Vet to last them 60 days. You simply pay the small freight charge when it arrives and when the 60 days are up, report results. If Sal-Vet does not do what I claim—if it does not rid all your stock of the deadly stomach and free intestinal worms—I'll cancel the charge—you won't owe me a cent. Send this coupon today.

PRICES: 40 lbs., \$2.25; 100 lbs., \$5.00; 200 lbs., \$9.00; 300 lbs., \$13.00; 500 lbs., \$21.12. No orders filled for less than 40 lbs. Never sold in bulk; only in Trade-Marked "Sal-Vet" Packages.

SIDNEY R. FEIL, Pres.
THE S. R. FEIL COMPANY
Dept. MF, CLEVELAND, OHIO

[54]

Send me enough SAL-VET to last my stock 60 days. I will report results in 60 days and will then pay for it. If it does what you claim, I'll cancel this charge.

Name _____
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Shipping Sta. _____
State _____
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Cattle _____
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Guaranteed for 15 years
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Reliable Agents Wanted.
"Buy a Nappanee and get a guarantee"

Nappanee Lbr. & Mfg. Co.,
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NAPPANEE, INDIANA.

giving entire satisfaction. We intended to have a sale this spring but found no one had stock to sell to amount to enough to make a sale. Meeting adjourned to meet again with the live stock breeders in 1913.—Louis Norton, Sec.

Michigan Red-Polled Breeders' Association.

At the meeting of this association on January 17, in the new agricultural building at M. A. C., officers were elected for the ensuing year as follows: President, J. M. Chase, Ionia; secretary-treasurer, F. S. Freeman, Lowell. Mr. Freeman succeeded the former secretary, Mr. W. W. Woodman, of Stanton, whose demise was a matter of regret to the patrons of this breed.

Duroc-Jersey Breeders' Association.

The fifth annual meeting of the Michigan Duroc-Jersey Breeders' Association was held January 17, 1912, at Michigan Agricultural College. The meeting was called to order at two p. m., by President Chas. H. Bray, who opened the meeting by a very interesting address, on the future outlook for swine breeders in general, notably the Duroc breeders, stating that the breeders of Durocs are fast coming into their own, as more than 75 per cent of public swine sales are of Durocs, and no breed of swine has been brought to its present perfection in so short a time as the Duroc, and no hog is as popular with the breeder, the feeder or the packer as is the red hog. "They will make their own bed, grind their own feed and, when fat, carry their own carcass to market." After the president's address the secretary and treasurer's report was read and accepted. Then we had a general round-table talk by Mr. A. W. Mumford, of Ann Arbor, and several others. The officers elected were as follows: President, Chas. H. Bray, Okemos; secretary-treasurer, M. T. Story, Lowell; directors, C. U. Edmonds, Hastings; J. C. Barney, Coldwater; H. G. Keester, Cassopolis; L. S. Marshall, Leslie.

Thus ended one of the best and most interesting meetings ever held by the association.—M. T. Story, Sec.

Michigan Berkshire Association.

At a meeting of this association held at the College January 17, officers were elected for the ensuing year as follows: President, E. Salisbury, Shepherd; secretary-treasurer, C. B. Scully, Belmont; directors, C. S. Baldwin, Bennington; C. C. Corey, New Haven; J. L. Miller, Caledonia; C. S. Bartlett, Pontiac; W. H. Shantz, Hastings. It was decided at this meeting to have an exhibition of judging at the meeting to be held at the College next year. It was also decided to offer a \$25 trophy for the best Michigan bred stuff exhibited at the state fair in 1912.

Michigan Shropshire Breeders' Association.

At a meeting of this association held on January 17, new officers were elected for the year as follows: President, H. E. Powell, Ionia; vice-president, W. P. Pulling, Parma; secretary-treasurer, W. H. Shantz, Hastings; directors, C. S. Baldwin, Bennington; C. Alexander, Gd. Ledge; C. R. Leland, Ann Arbor; R. E. Whitney, Onondago; O. F. Gibson, Brant; F. R. Otway, Flushing.

Aside from the good program which was enjoyed, the members present discussed the matter of premiums at the state fair, with the result that it was decided to ask the American society to double its former appropriation for Michigan, while the Michigan association will offer \$30 in special prizes for sheep bred and owned in Michigan.

Michigan Oxford Downs Sheep Breeders' Association.

No formal meeting of this association was held, the time being devoted to an informal discussion of prospects and viewing the Oxford Downs maintained at the College, by the breeders present. The old officers hold over for the ensuing year.

GIVE THE BROOD SOWS EXERCISE.

There are but a few who raise spring litters of pigs that realize the importance of giving the brood sows an abundance of exercise through the winter. In the spring following a hard winter, when there has been a good deal of snow, and long periods of cold weather, the percentage of loss among the pigs at farrowing time is large, and farmers seem to fail to understand why they are pestered with such "bad luck." It is not alone a case of "bad luck," but the result of bad management with the sows.

Is is a discouraging outlook for profits on pig raising, when one has valuable sows bred and fed through the winter, to

see them dreamy and partially lifeless at farrowing time, the pigs come with just life enough to crawl out of the nest, squeak a little, and die. Sometimes the sow will manifest life enough to jump up and, step around if she hears a pig squeak, step on what live pigs there happens to be in the nest, and make pretty nearly, if not quite, a clean sweep of the litter. Such conditions are as fatal to the pigs, and are more sure to cause severe losses than severe cold weather, for if pigs are nimble and brisk enough to get around they can get against the mother and keep warm unless the weather is cold enough to chill them before they are dry.

Plan for Exercise.

Instead of putting the sows in the pens, throwing corn to them two or three times per day, and letting them pass most of the time in the nest, night and day, make plans that will insure a considerable exercise each day. Give them a warm, dry place in which to sleep, and a good nest to lay in, but do not make a habit of feeding either slops and grain in the pen or place where they sleep. Place the feed troughs at some distance from the nests and compel the sows to go out regularly, twice per day, for their feed. In severe weather it may seem a little tough to make them walk a considerable distance to eat, but it will be best for them, and the owner, too, when spring comes.

Sows that are in the habit of exercising will stroll about the yard during moderate weather; it seems to be a pleasure and a benefit to them. When there is exercise enough to maintain a good degree of health, a chance to use the muscles at walking increases the more rapid circulation of blood, and with it comes an increase of life itself and a greater enjoyment of life.

When sows are allowed to spend a good deal of time in the nest, sluggishness becomes a fixed habit, and they seem to care for nothing but to eat and sleep; the adipose membrane increases, the strength of muscles diminishes, the circulation of blood is retarded, and the animal does not seem to be more than half alive. If they are compelled to move about they seem to be partially paralyzed, and are lame in one or the other of the hind legs. Such sows are not in a condition to impart life and vigor to the pigs. They must be aroused from their morbid drowsiness, exercised to gain possession of themselves, both physically and mentally, or sore disappointment and loss will be the result.

What to Feed.

In the first place, one should use a little common sense about feeding. Instead of giving feed rich in carbohydrates, (feeds that produce fat), use such feeds as are required to produce bones, muscles and vital organs. Such feeds strengthen the nervous system and help to give life to the sows and enable them to impart life to the pigs. The fact should be kept in mind that in breeding, life to live, and constitutional vigor to enable the young to continue to live, is among the prime essentials. Clover hay or cornstalks, given in small quantities regularly as forage, are among the best of coarse feeds. A mixture of peas and oats ground together with which to make slop is a good grain feed. Corn and oat chop mixed with an equal amount of wheat middlings, makes a good mixture. A proportion of five per cent of wheat bran to the mixture recommended will insure against constipation, a condition that should always be avoided, especially as they are nearing the farrowing time. A light feeding of roots, occasionally, during moderate weather, will also help to prevent constipation, and be a benefit to the sows.

Wayne Co. N. A. CLAPP.

Here is a startling fact that should cause farmers to stop and consider how seriously they are cutting into the future beef supply of the country: A total of 499,941 calves were marketed at Chicago in 1911, beating all past records and running 21,759 ahead of the preceding year. The number of calves received was almost double that of 1904. This great increase is in the face of the cutting up of the vast ranges of the country into small farms and thereby greatly curtailing the cattle production. The time has come when farmers should begin holding their good beef calves to become fat heaves.

Conditions in the hog market are such as to encourage owners to hold on until their swine are good and heavy. But most stock feeders appear to look upon the matter differently, as the western markets are receiving plenty of lightweights and comparatively few matured barrows. Late reports say that there is still considerable sickness among droves of hogs in Illinois and other states.



Horse Story
"KATE and QUEEN"

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King of Horse Trainers

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Prof. Beery has skillfully woven into this intensely interesting and true story, many valuable suggestions for handling horses—a result of a lifetime's experience.

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Prof. Beery desires that every horse owner, trainer, breeder—everyone interested in horses—should read this great story. To make it possible, for a short time he offers every interested horseman a copy, worth \$1.00, for the remarkably low price of

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are the choice of the wise boys who've tried 'em all. Made of quickest and strongest spring steel, jaws with the right spread and broad faces that don't break the leg. Single and double spring, all sizes, from gophers to timber wolves.

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Insist on the Silver Strand

It costs no more than ordinary rods and gives better protection. Send for our free book (illustrated in colors)—which tells why Silver Strand is the best and how you can always be sure of getting it. Write today.

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FREE

Beautiful Painting of Dan Patch

Reproduced on Extra Heavy, Fine Enamel Stock and in 14 Perfectly Blended Colors and Shadings by the Marvelous, Newly Invented "Original Colors" Process. Size of picture I will send you is 21 x 25 inches, making a Splendid Picture to Hang in any Home or Office as it is Absolutely Free of Advertising. It will be mailed, postage paid, in an Extra Heavy Mailing Tube to insure safe delivery.

This Splendid Painting of Dan's Head was made From Life and I want to Personally assure you that it is as Natural and Lifelike as if Dan stood right before you, in his Present Splendid, Vigorous, Physical Condition.

This is an Elegant Picture to Hang in the Finest Home or Office. It is an Exact and Perfect Colored reproduction of the Finest Painting ever made of the Sensational and World Famous Champion Stallion, Dan Patch 1:55. I think so much of this painting that I had it Reproduced in a Beautiful Stained Art Glass Window in my Country Home. This picture will be a pleasure for you as long as you live because it shows Dan's true expression of Kindness and his Lovable disposition as natural as life. You cannot buy a picture like this because I Own The Painting and have reserved it Exclusively for this use. Would you like the Finest 14 Color, Horse Picture ever published in the world of the Fastest Harness Horse in all Horse History? People are Perfectly Delighted with this Splendid Picture and are constantly writing me, from all parts of the world, that it is the Finest they have ever seen and thousands of them are hung in fine Homes and Offices. A Splendid, 14 Color Reproduction of Above Painting mailed Absolutely Free, To Farmers or Stockraisers OVER 21 YEARS OF AGE, If You Own Stock and Answer Two questions. Write Me Today, a Postal Card or Letter and Answer These Two Questions: 1st. How Many Head of Each Kind of Live Stock and Poultry do you own? 2nd. In What Paper did you see my offer? Picture will be mailed free but You MUST Be A Stockowner And MUST Answer The Two Questions.

DAN PATCH IS THE GREAT WORLD CHAMPION OF ALL CHAMPIONS THAT HAVE EVER LIVED. He has paced more Extremely Fast Miles than all the Combined Miles of all Pacers and Trotters in the world's history.

Do You Expect To See The Day When These Wonderful Dan Patch Records Will Be Even Equalled?

Dan Patch 1:55

1 Mile in	1:55
1 Mile in	1:55 1/4
2 Miles in	1:56
14 Miles Averaging	1:56 1/2
30 Miles Averaging	1:57 1/2
45 Miles Averaging	1:58
73 Miles Averaging	1:59 1/2
120 Miles Averaging	2:02 1/2

Dan Has Broken World's Records 14 Times. Dan is also the Leading 2:10 Sire of the World for his age. Dan is Sire of "Dazzle Patch," the Greatest Speed Marvel of the World's History, which Paced a Half-Mile in Fifty-nine Seconds and One-eighth of a Mile in Thirteen Seconds, - a 1:44 Clip, - when only 28 months old, in 1911. Also of Pearl Patch 4 year old trial 2:04. He also has 49 in Official Speed List. Some of Dan's Colts will be Future Champion Trotters as well as Pacers. Why don't You Raise or Buy One?

For over 25 years I have been Guaranteeing that "International Stock Food" as a Tonic purifies the blood, aids digestion and assimilation so that every animal obtains more nutrition from all grain eaten and produces More Nerve Force, More Strength and Endurance. Over Two Million Farmers endorse superior tonic qualities of International Stock Food for Horses, Cattle, Sheep, Hogs. It Saves Grain. Dan Patch 1:55 has eaten it Every Day, mixed with his grain, for over Eight Years, just as you eat the medicinal mustard, pepper, salt, etc., mixed with your own food. Minor Heir 1:58 1/2; George Gano 2:02, Lady Maud C 2:00 1/2 and Hedgewood Boy 2:01, have eaten it Every Day for past Two to Four Years and they have all lowered their very low records during this time which is additional, indisputable proof that "International Stock Food" as a Tonic gives more speed and more strength and more endurance because everybody thought these Five Horses had reached their speed limits before I got them. It will also keep your Work Horses fat, sleek and in Extra Strength to do More Work. It Saves Grain.

ASK MY DEALER IN YOUR CITY FOR MY STOCK BOOK.

International Stock Food is a high-class, medicinal, vegetable tonic and is equally good for All Kinds of Live Stock. I feed it every day on my "International Stock Food Farm" of 700 acres to my 200 Stallions, Champions, Brood Mares, Colts, Work Horses, etc. You can test 100 lbs. or 500 lbs. at my risk. Over 200,000 Dealers sell it on a Spot Cash Guarantee to refund money if it ever fails to give paying results. ITS Feeding Cost is only "3 FEEDS for ONE CENT."

ANSWER 2 QUESTIONS FOR THIS SPLENDID PICTURE.

I DO NOT BELIEVE YOU WOULD TAKE \$10.00 for the Picture I will send you Free if you could not secure another copy. Write me at once and ANSWER QUESTIONS and the Beautiful Picture is yours FREE. Over Two Million Farmers and Stockowners have written me for a Dan Patch Picture.

Address, M. W. SAVAGE, Minneapolis, Minnesota OR, INTERNATIONAL STOCK FOOD CO., Minneapolis.

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

Advice through this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also name and address of writer. Initials only will be published.

Indigestion.—Have a gelding six years old, in good flesh, but when he is driven or exercised bloats some, has some pain and I am inclined to think it is bowel trouble.

Shoulder Lameness.—My 12-year-old mare is troubled with shoulder lameness which increases the farther I drive her.

Indigestion.—Worms.—Last spring I bought a mare in Detroit and for several weeks she seemed to have good life, then became dull and has never thrived real well since.

Sprained Foot.—I have a mare that sprained her tendon and went lame for about four months, but is not lame now; when traveling she places foot well out in front of body, but there is no swelling.

Chronic Garget.—I have an old mare that foaled last May and seemed to be all right, until September, when right side of udder commenced to enlarge and seemingly caked.

Leucorrhoea.—Fourteen-year-old mare seems to have whites and considerable discharge. G. H. B. Caro, Mich.—Give your mare 1 oz. doses bicarbonate soda in feed two or three times a day and dissolve 1 oz. of the same medicine in 1 qt. of clean tepid water and inject her through a small rubber tube with tin funnel once a day, using one or two quarts at a time.

Abscess on Fetlock Joint.—On account of my horse interfering and bruising fetlock an abscess came which opened and since then I have been unable to heal sore. The horse holds foot off floor almost continually.

Stocking.—Bunches on Hind Leg—Farcy.—My seven-year-old horse stocks in right hind leg and bunches the size of a hickory nut form and pus accumulates underneath. His appetite is good and he is in fairly good condition.

Light Milker.—Our six-year-old cow came fresh Dec. 15; since then she seems to shrink in milk flow. She is not sick. J. P. S., Owosso, Mich.—This is a case where good care and proper feeding counts. Increase her grain supply, feed plenty of clover and well-cured corn fodder and her milk flow will increase.

Barren Cow—Rheumatism.—Have a cow that should have calved last December but had miscarriage in August and since then she has been mated several times but failed to get with calf.

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

PEERLESS SELF RAISING GATE. Discourages the animal that is always breaking out—can't get through, and the barb wire top prevents crowding and reaching over. The Peerless is extra heavy, frames nearly two inches in diameter; filled with the famous Peerless fencing of all No. 9 wire—a fence that stands the hardest usage.

KITSELMAN FENCE. Get It From the Factory Direct. We make you the same price we would make the Dealer or Jobber. That is why we can save you money. Look at these very low prices.

BROWN FENCE. FREE SAMPLE. STOUT STRONG DURABLE BROWN FENCES will outlast any other because of heavier wires and thicker galvanizing.

STRONGEST FENCE MADE FROM FACTORY DIRECT TO FARM. 26-inch Hog Fence, 15c. 47-inch Farm Fence, 23 1/2c. 60-inch Poultry Fence, 30c. 80-rod spool Barb Wire, \$1.40.

CHEAPER THAN EVER! Every Kind of Woven Wire Fence also Wrought Iron Picket Fences, Gates, Etc. Write for free Catalog.

DRAIN TILE INDESTRUCTIBLE. Well drained land produces big crops. Invest in high grade clay tile and you will have a permanent drainage system. We have been manufacturing indestructible drain tile for several years.

A Choice Registered Percheron Stallion coming four years old. Perfectly sound. QUALITY as well as QUANTITY is what is wanted in the farm horse.

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

BULLS-HOLSTEIN-BULLS. One \$50 Bull. One \$60 Bull. One \$70 Bull. One \$80 Bull. We have some very choice ones a little higher. Write for description and pedigree.

"Top-Notch" Holsteins. A fine young bull from an Advanced Registry dam. Beauty Pieterje Korndyke King No. 78950. Born Nov. 26, 1910. SIRE—Willowbridge Bos, who is a grandson of Beauty Pieterje, who has an official record of 30.51 lbs. butter in 7 days and was the first 30-lb. cow of the breed to produce a 30-lb. daughter.

I Did Not Sell 20 Holstein Bulls in Nov. I Want to Finish the Job in December. Send for my Dec. Announcement. Select a bull from it, order him QUICK. Several from A. R. O. dams, and sired by Johanna Concordia Champion, the only bull in service whose grand dams average 34.06 lbs. butter in 7 days.

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

JERSEYS AND DUROC JERSEYS FOR SALE. A few high class boars from such champion boars as Orion Chief, Instructor, and King of Illinois. Also a few bred sows, Jersey bulls, cows and heifers.

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

Lillie Farmstead JERSEYS. Cows all in yearly test. Several splendid Bull Calves. A few Heifers and Heifer Calves. I guarantee satisfaction or money refunded.

JERSEYS of the best breeding. A few bull calves from cows making splendid records. SAMUEL ODELL, Shelby, Mich.

SHEEP. Reg. Rambouillets—Wish to both sexes. All ages, low price. Farm—2 1/2 miles E. Morrice, on G. T. R. R. and M. U. R. J. Q. A. COOK.

BERKSHIRES—12 Gilts at \$25; 8 at \$30; 5 tried Sows at \$35 and up. All bred. Best blood lines. Elmhurst Stock Farm, Almont, Mich.

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

O. I. C.'s For Sale—Best quality, large growthy akin, some fine bred type, either sex, pairs not akin. OTTO B. SCHULZE, Nashville, Michigan.

O. I. C.'s—A few tried sows to farrow in March, fall pigs also. Buf Rock cockerels and cock birds. FRED NICKEL, Monroe, Mich.

O. I. C. Sows bred for spring farrow. OTIS GREENMAN, R. 4 Bellevue, Mich.

DUROC JERSEYS—Nothing for sale at present. CAREY U. EDMONDS, Hastings, Mich.

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

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

LARGE TYPE P. C.—Largest in Michigan. Pigs from mammoth sires and sows. Weigh 160 to 175 lbs. at 4 months. My motto—"Not how cheap but how good."

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

Butler's Big Type Poland-Chinas—size, bone, quality, for everything in Poland Chinas. We are headquarters for everything in Poland Chinas. If you want a nice boar to head your herd, a brood sow or fall pig, write not akin, or a reg. Jersey bull of any age write us. Our prices are very low. J. C. Butler, Portland, Mich.

SPECIAL SALE on Poland China Boars, Sows' Bred and fall pigs. Also Dairy bred Shorthorn Bull Calves. ROBERT NEVE, Pierson, Mich.

YORKSHIRES FOR SALE—Gilts bred for farrowing, also Aug. pigs, both sexes. WATERMAN & WATERMAN, Ann Arbor, Mich.

STALLIONS

The Place to Buy
G. W. SOUERS & SONS,
Huntington, Indiana.

Write about them.
It Will Save You Money.

DUNHAM'S PERCHERONS

Our summer importation, in our estimation the best lot of horses we have ever had at Oaklawn, has arrived. Numerous important prize-winners are included, then the high average is the main thing, as every animal would be a credit in any herd. Write us.
DUNHAMS, Wayne, Illinois.

METZ BROS. NILES, MICH.

We have a fine lot of imported and American bred

Percheron Stallions

on hand and we can sell them for less money than any other importer. Write us your wants.

METZ BROS., Niles, Mich.

BELLS' HORSES

Percherons & Belgians

At reasonable prices.
New Importation Arrived January 3d.
Write for Catalog.
BELL BROS., Wooster, Ohio.

Percheron, Belgian, Shire, Hackney STALLIONS and MARES

Two to 4 years old, imported and American bred. Choice colors, weighing or maturing 1800 to 2300 pounds. Three importations last few months, others to follow soon. Prices on most of my stallions \$700 to \$1200 at my barns.

LEW W. COCHRAN,
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A. A. PALMER & SONS, BELDING, MICH.

The Pioneer Percheron Breeders of Michigan, offer for sale a choice lot of black

Percheron Stallions and Mares

All registered and young. Fifty head to select from.

Breeders of Jacks and Percheron Horses—20 three year old jacks, 15 yearlings. Some nice Percheron Stallions, Mares, Colts and Tamworth swine. All stock registered or subject to registry. We would be glad to have you visit our farm or write for circulars. H. T. Brown & Co., 156 W. Short St., Lexington, Ky.

For Sale, Pair Percheron Mares, 4 yrs. old, weight 3300. One imported Percheron mare 8 yrs. old, weight 1700, all in foal. One imported Percheron stallion 3 yrs. old, wt. 1800, a first prize winner at Grand Rapids. One American bred Percheron stallion 14 yrs. old, wt. 1650. All black and all reg. First class in every respect will be sold right if taken soon. **WM. BIRD, St. Johns, Mich.**

Percheron Stallions and Mares for Sale

I have black & gray, all young and registered, with quality, bone and weight. **Earl W. Barnard, Saranac, Mich.**

REGISTERED PERCHERON and Light Harness Horses, Short-horn cattle, Duroc Jersey swine, Shropshire Sheep and Buff Cochins chickens. M. A. BRAY, Okemos, Ingham Co., Mich.

JACKS.

Biggest jack offering ever made. 90-day sale on 55 head of extra big registered Mammoth jacks at 60% of their value. Prices \$250 to \$1,200 each. I am importing 200 Percheron and Belgian mares and 80 stallions and must close out a lot of jacks to get money and make room. Write for catalog, photograph, description and price list.

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

JACKS and MULES

Raise mules and get rich. 18 jack and mule farms under one management, where can be seen 460 head fine large jacks, jennets and mules, 14 to 17 hands high. Good ones. Stock guaranteed. Write for prices today. Address

Krekler's Jack Farm
West Elkton, Ohio
Branch Barn—Clinton, Indiana

Mich. Agri. College, East Lansing, Mich.

has for sale two black PERCHERON STALLION COLTS out of Calypso mares—one coming two years old in June the other one year old in April.

Imported and pure bred Stallions. We make a special Belgian & Percheron Stallions, all of Quality, Bone and Weight. **G. & H. LOCHER, Bluffton, Ohio**

Please mention the Michigan Farmer when you are writing to advertisers.

Too Much Appetite—Nervousness.—I have a four-year-old horse that prances in stall at feeding time and seems to have such a ravenous appetite, that he plunges nose deep into grain as if he had been starved. I have also noticed that his urine is tinged with blood—he also gnaws on manger. **H. J. O., Fennville, Mich.**—Your horse needs a little more exercise, also give him a tablespoonful of bicarbonate soda, 1 dr. ground nux vomica and 40 grs. urotropin at a dose in feed twice a day for 10 days.

Coffin Joint Soreness.—I have a mare that has been sore and lame in front for the past two years. I consulted our Vet. and he located her trouble in coffin joint. When she stands her feet are usually well out in front of body and when moving does not lift them off ground. **G. W. S., Charlotte, Mich.**—Chronic coffin joint lameness is usually considered incurable; however, if you will blister cononets with cerate of cantharides, it will perhaps relieve her.

Sprained Back.—I have a driving mare 12 years old which walks fairly well, but trots lame after going a mile or two. She is very lame at times, almost too lame to trot. **G. H., Clio, Mich.**—Apply equal parts spirits of camphor and alcohol to back and hip once a day.

Poisonous Drugs.—I would like to know if the following recipe is correct: Powdered sulphate of copper, 3 ozs; powdered Spanish Fly, 1 dr.; powdered gentian root, 4 ozs. This medicine is recommended as a blood purifier and my druggist tells me that I had better consult a Vet. before giving it to my horse. I copied this formula from a horse book and would also like to know if there would be any danger in giving it to a mare in foal. I am giving it to a mare that is supposed to have farcy. **O. S. T., Bayshore, Mich.**—You do not state the dose you are giving, but I would advise you to discontinue giving this poisonous mixture, for there are many drugs that will give you much better results and be a great deal safer. In my practice and at my hospital I seldom give sulphate of copper (blue vitriol) or cantharides (Spanish fly), because they are both irritating drugs. I frequently apply them externally. Farcy and glanders are both incurable ailments. Veterinary books written by horse tamers and trainers are full of such mistakes as you mention. A veterinary book should be written by a veterinarian who has studied theory and had many years of experience in practice.

Surfeit—Sores on Legs.—Having watched the columns of The Farmer closely and finding no parallel case to ours I write to inquire about one of my cows. Last winter she had a breaking out on legs; I applied home remedies and they got some better, but not well, until she was on grass some time. She remained well all summer, but is now worse than ever and I would like to know what to do for her. The legs are covered with many small sores and hair seems to pull off each sore spot. These sores itch and my cow is kept in stable nearly all the time. **F. E. S., Kinsman, O.**—Apply one part bichloride of mercury and 500 parts water to sores twice a day. Give her two tablespoonfuls bicarbonate of soda, a tablespoonful of salt and two tablespoonfuls sulphate of soda at a dose in feed three times a day. Her legs should be kept clean.

Spinal Paralysis.—My three-year-old cow got down on the 18th of this month and has been unable to get up since. Her calf is alive, she eats well, turns over several times a day. Thinking she might have hollow horn or wolf tail, I split tail open, put salt in it and black pepper in her ear, but it fails to help her. **Mrs. H. C. C., Oberlin, Mich.**—There are no such diseases as hollow horn or wolf tail, these are results of other debilitating ailments of cattle. Give 1 dr. ground nux vomica, 1 oz. ground gentian and 1 oz. ginger at a dose in feed three times daily. Rub her back daily with one part turpentine, one part aqua ammonia and four parts olive oil. Her bowels should be kept open and this is best done by giving small doses of epsom salts or feeding roots.

Contagious Abortion.—Several of my cows lose their calves when six or seven months pregnant. Have four more cows to calve next July and if their calves can be saved I would like to know how it can be done. **G. P., Pittsford, Mich.**—Give your pregnant cows 40 drops of carbolic acid in one quart of water as a drench or in feed every three days for two months. By dissolving 1 dr. of permanganate of potash in six quarts of tepid water and injecting cows that are not with calf and who have a vaginal discharge three times a week it will help correct this trouble.

Mammitis—Abortion.—We have a sow that farrowed last August which was troubled with caked udder but seemed to recover. Will she always have udder trouble after farrowing? If a cow aborts is it a pretty sure symptom of tuberculosis? **J. M., Sr., Zeeland, Mich.**—She is perhaps a little more likely to have another attack but may not. Abortion is not a common symptom of tuberculosis. Infectious abortion is not easily stamped out.

Gastritis—Stocking.—I have a three-year-old colt that does not appear to be sick, but drinks altogether too much water and his legs stock. **G. L., Greenville, Mich.**—Give your colt a teaspoonful of powdered nitrate potash and a tablespoonful bicarbonate soda at a dose in feed three times a day.

Laryngitis.—Have 30 pigs four months old that kept in colony house where it is warm, but when they come out to eat they cough. I feed them cooked beans, some corn and oats. **H. S. T., Ovid, Mich.** If it is convenient warm their feed and mix in some ground ginger and licorice.

Worms.—I would like to know what kills my fall pigs and what to do for them. I am sure they have worms for they pass

them. Two of them have died, when opened the bowels were filled with worms and before death they had regular worm fits. They are fed warm separator milk, chopped feed and corn. I consulted our home Vet. and he advised giving them turpentine, but this has failed. I forgot to say that when the pigs have a coughing spell, it is not unusual for them to throw up a handful of worms. **D. L., Adrian, Mich.**—Your hogs need heroic treatment or you will lose quite a number of them. You should get busy and give 1/2 oz. of equal parts fluid extract of spigelia and fluid extract of senna. I prefer to give this medicine every four or five hours until purging sets in, then discontinue its use. The dose I prescribe is enough for a hog weighing 100 to 150 lbs.

Sore Mouth—Rabies.—I have lost seven sheep this winter from what appears to be a sort of mouth ailment or disease. When first noticed one ear drops, the mouth is slightly open, mucus runs from mouth and gradually increases as the disease progresses, the nose also runs and the sheep die after two days' illness. They may be sick more than two days but every one of the sick ones have died in 48 hours or less, after we discovered them sick. **H. W. M., Battle Creek, Mich.**—They may perhaps pick up some irritating poison with the feed or water. It is also possible that they suffer from dumb rabies. Apply listerine to mouth twice a day or one part hydrogen peroxide and eight parts water twice daily. If the sheep have rabies there is no remedy for it.

LIVE STOCK NOTES.

The provision market has become overloaded with stocks, for the large numbers of hogs shipped to various packing points have resulted in extremely rapid gains in stocks of pork, lard and other hog products at a time when high retail prices are materially lessening the domestic consumption. Foreigners continue liberal buyers, as wholesale prices are on a much lower scale than a year ago, pork selling about \$4.60 per barrel lower than at that period and other articles correspondingly lower. The steady gains in the stocks have led to frequent additions to the Chicago regular warehouse capacity, a pretty good indication that professional carriers were doing a good deal of trading, and some of the smaller operators whose warehouses had become filled have been disposing of new made products.

Peter Hopley, of Iowa, paid \$8 per 100 lbs. for the grand champion car load of feeder cattle shown recently in Denver at the National Western Stock Show, as well as securing the second prize yearling feeders, which cost him \$7.80. These two sales were at record prices, while plenty of loads of feeders were sold in the auction ring for \$6@7. The only time previously that the grand champion feeder cattle brought \$8 was two years ago. About 12,000 cattle were exhibited at the show.

A prominent ranchman of Texas says he has orders for more breeding heifers than he is able to fill, and he could have sold far more this season had the supply been equal to the wants of intending buyers. He has been parting with heifers not much more than a year old for \$27 per head, a higher price than was ever known in the past, 500 head having been sold at that figure. Calves have been sold for \$20 each, and breeding heifers have been sold for shipment to all parts of the south and west, including Louisiana. This breeder is awake to the fact that the farmers of the country are making an effort to raise more cattle, and he is largely increasing his breeding force.

A Kansas stockman has marketed at Chicago during the last three months 400 head of cattle that averaged 1,300 lbs., receiving on an average about \$7.50 per 100 lbs. The owner says these cattle returned him net profits of close to \$40 per head. A recent shipment comprised 137 head of Shorthorn and Hereford steers which brought \$8 and averaged in weight 1,326 lbs. The cattle were bought at the beginning of last November as feeders, when their average weight was 1,170 lbs., their cost being \$4.75. They were on feed 60 days, their ration being composed of ground corn, cottonseed meal and alfalfa. Despite the extremely cold time the cattle were on feed, they showed a 60 days' gain of 256 lbs.

W. A. Thomas, the owner of a farm covering 1,200 acres in Missouri, always feeds cattle every year regardless of the ruling prices of corn and other feed, and only a short time ago he purchased in Kansas City 206 head of feeding cattle, his plan being to rough them along for a period of about three months and then place them on feed. The big end of his feeding is carried on during the summer months, and he has continued a regular feeder for over 30 years. He has found a mixed ration the most satisfactory, with ear corn taking precedence, the adjuncts embracing cottonseed meal, molasses and alfalfa meal. He has found for many years molasses an extremely good side ration for cattle, it being a famous appetizer, as well as a genuine fat producer.

During the recent annual institute of farmers at Manhattan, Kansas, there was general discussion regarding hog cholera serum. Kansas has two million hogs, and has suffered greatly from cholera. **John Troutman,** who owns hundreds of hogs, said: "Too many farmers try to save the veterinarian's fees when cholera appears. Many do not buy the serum until numbers of their hogs are sick, and then, without previous experience, try to vaccinate their hogs themselves. It doesn't take many hogs to represent \$50, about what a veterinarian would cost. Some day our farmers will apply this serum without a veterinarian's aid, but at present there are not many who can do it. The serum worked satisfactorily in my drove of hogs, but it was used before they became sick."

How to Make a Quick, Sure Cough Remedy

Stops Even Whooping Cough Quickly.
A Family Supply Easily Mixed
at Home for 50c.

If someone in your family has an obstinate, deep-seated cough—even whooping-cough—which has yielded slowly to treatment, invest 50 cents in this Pinex plan of home-mixed cough syrup, and watch that cough vanish. If it fails, money back promptly, and no argument.

Get a 50-cent bottle of Pinex and mix it in a pint bottle with home-made sugar syrup. This makes a full pint—a family supply—of the most effective cough remedy that money can buy, at a saving of \$2. Gives instant relief and will usually wipe out a bad cough in 24 hours or less. The sugar syrup is easily made by mixing a pint of granulated sugar with 1/2 pint of warm water, and stirring for 2 minutes—no trouble at all.

Pinex cough syrup has a pleasant taste—children take it willingly. It stimulates the appetite and is slightly laxative—both good features. Splendid for croup, hoarseness, throat tickle, incipient lung troubles, and a prompt, successful remedy for whooping-cough.

Pinex is a special and highly concentrated compound of Norway White Pine extract, and is rich in guaiacol and other elements which are so healing to the membranes.

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

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. Impossible to produce scar or blemish. Every bottle sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars. **THE LAWRENCE-WILLIAMS CO., Cleveland O.**

MINERAL HEAVE REMEDY



MINERAL HEAVE REMEDY CO., 463 Fourth Ave., Pittsburg, Pa.

"NEVERBREAK" TUBULAR STEEL SINGLE TREES, DOUBLE TREES, TRIPLE TREES AND NECK YOKES

Will Not Bend Cannot Break No. 200—TWO HORSE PLOW DOUBLE TREE



They weigh no more and cost no more than wood. They stand up to the hardest strain and last forever.

Thousands of farmers have given up the old-fashioned, breakable wood whiffletrees for the "NEVERBREAK." Ask your dealer, or write for information and prices. Address Dept. N **DIAMOND FORGING & MANUFACTURING COMPANY** PITTSBURGH, PA.

Steel Horse Collars Are Humane

No hames to buy or bother with; adjustable in size; wear forever. Endorsed by Veterinaries. Over 30,000 in use. Cheapest and best. Ask your dealer and take no other. Write for our Free Catalog. Salesmen wanted; exclusive territory. **Johnston-Stocum Co., 852 State St., Caro, Mich**

9 CORDS IN 10 HOURS



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THE DAIRY

CONDUCTED BY COLON C. LILLIE.

BEET PULP OR EAR CORN FOR COWS.

Will you please give information as to which is the more profitable feed for milch cows having cornstalks, straw and mixed hay—ear corn at 35c per bu., or dried beet pulp at \$24 per ton
Ingham Co. B. W. C.

Chemical analysis shows but very little difference in the per cent of the food nutrients in beet pulp and corn. What few feeding experiments we have had in this country with beet pulp go to show that dried beet pulp can be quite successfully substituted for corn meal as a feeding stuff, therefore from the standpoint of chemical composition there would be but very little choice. But neither corn nor beet pulp is a good grain food to feed with the roughage given—cornstalks, straw, and mixed hay. These two grains are both deficient in protein and thus it would be quite an expensive ration because it would be unbalanced, i. e., if you fed enough of it to get the required amount of protein to secure a maximum yield from your cows. Now what you want is a food like wheat bran, gluten feed, cottonseed meal, or linseed meal to feed in connection with this roughage. These foods are richer in protein than the roughage food and consequently would help balance up the ration and give the proper proportion between protein and carbohydrates. I would suggest that you feed beet pulp and cottonseed meal. Moisten the beet pulp several hours before you feed it. Put it down on a cement floor where it will not freeze, it will necessarily have to be in a fairly warm cow stable, sprinkle it thoroughly with water and shovel it over and leave it a few hours. It will swell up to its original size. Now, feed four or five pounds of this beet pulp to each cow and then give the best cows 2 lbs. of cottonseed meal, one pound night and morning, and the poorest ones a little less, and I am positive that you will have much better results than you can get by feeding ear corn and beet pulp. Ear corn ought not to be fed to cows because they won't masticate it sufficiently so that it will be properly digested and assimilated. It should be ground, cob and all.

BROWN SWISS CATTLE.

Will you kindly tell me the rank of the Brown Swiss cattle as butter-makers, as compared with the Jersey, Guernsey, Holstein and Durham? Will you tell something of the history of the Brown Swiss?
Berrien Co. H. F. W.

I think no authority classes the Brown Swiss cattle as a distinct dairy breed, although there are some splendid dairy cows in this breed. At our own Agricultural College some Brown Swiss cows there made very creditable records. Prof. Plumb, in his work on types and breeds of farm animals, classes them as dual purpose animals; that is, good for both milk and beef. They are prized in Switzerland as milk producers, and as beef producers as well. In this country the breeders of this breed of cattle are striving more particularly to make a distinct dairy breed out of them, and there is no doubt but what they are succeeding, and eventually they will perhaps be classed as a special dairy breed. Some of the cows of this breed rank with the cows of the four distinct dairy breeds; Jerseys, Guernseys, Ayrshires, and Holsteins, but I do not think that as a breed they could be classed with the other breeds of cows for dairy purposes. The Brown Swiss is an extremely hardy and vigorous breed of cattle. Their environment in Switzerland has made them so. They possess a lot of constitutional vigor.

ENSILAGE FREEZES.

My silo has hollow wall but ensilage freezes a foot inside. If I made the space in the wall a dead air space by closing at top would it stop the freezing? Is frozen ensilage injurious to feed?
Ottawa Co. W. J. F.

There has been considerable complaint this winter about ensilage freezing, and in fact there always will be when we have a week or more of zero weather. I don't believe you can build any silo that will prevent ensilage from freezing when you have a long spell of zero weather. It will be some protection if you stop up the openings at the top of the hollow wall because a dead air space will be a better protection against freezing than it is now. You can just as well take some

old burlap sacks and stuff them into the top of these openings at the present time, but undoubtedly the severest weather of the season is over now and you will not be bothered so much from now on. In the extreme cold weather the best way to prevent the ensilage from freezing is to hang a lighted lantern or place a little oil stove in the silo during the cold weather. A little extra heat like this will go a good ways towards preventing the ensilage from freezing. Frozen ensilage is not injurious to cows so far as known. It is not advisable, however, to feed it when it is in a frozen condition because, if the cows ate too much it may cause indigestion, and it may also chill the cow. The best way is to pitch it down into the stable where it is warmer and let it thaw before feeding. If the ensilage is undisturbed on the sides of the silo wall until after a warm spell comes no particular inconvenience will be experienced from the freezing of the ensilage for it will thaw out and fall down when it can be fed.

WHERE DAIRY INTERESTS STAND ON OLEOMARGARINE LEGISLATION.

The existing oleomargarine law was framed with a desire to promote commercial honesty and to protect both consumer and producer.

The food value of oleomargarine does not depend on its color, while the dishonest sales of the article are possible solely on its color being such as to counterfeit butter; the fallacy of the claim that oleomargarine is colored to make it more palatable is shown by the fact that different colors are natural to different products, that no color is—in and of itself—more palatable than another—the color desired for oleomargarine is the color of butter.

In consideration of these facts the present law was enacted with the idea (1) of reducing the tax on natural oleomargarine from two cents per pound to a nominal figure for administrative purposes so that the consumer could get it as cheaply as possible, and (2) of increasing to 10 cents per pound the tax of oleomargarine when colored so as to be a counterfeit of butter.

The commissioner of internal revenue asserts now that this law has been to an extent a disappointment for three reasons (1) adverse decisions of some courts as regards certain administrative features; (2) adverse decisions of the courts through the presence of the word "artificial" before the word coloration; (3) the great disparity—40 to 1—in the tax on colored and uncolored oleomargarine. The first objection has been removed by a recent decision of the supreme court. The Dairy Union directors after a full consideration of existing conditions, and taking counsel of those representing the National Grange, the Farmers' National Congress and other organizations has decided to meet the other objections to the law, and also to show that the dairymen do not want "to tax the poor man's butter" or "to add to the cost of living" by favoring a reduction of all taxes to a nominal figure. But the dairy interests will insist that no oleomargarine shall be manufactured or sold in imitation or semblance of butter of any shade of yellow.

The Dairy Union believes that the line between genuine and dishonest oleomargarine is based on color, and that some form of color regulation is necessary to maintain that line. A bill has been drafted expressing the ideas of the Union, and members of congress should be promptly informed by letter and telegram of the wishes of the dairymen. Lose no time.
G. M. WHITAKER,
Sec. Nat'l Dairy Union.

DR. WILEY'S OPINION OF OLEOMARGARINE.

Certain oleomargarine manufacturers are advertising, in magazines and elsewhere, statements made by Dr. Wiley favorable to their product, at congressional committee hearings.

Dr. Wiley also said oleomargarine is not as digestible as butter. It does not digest so well as butter because it contains more of the higher series of acids and practically none of the lower series, which are more easily decomposed. * * * Butter is more easily digested than oleomargarine. It requires less effort. * * * The fraud in selling oleomargarine for butter is perhaps the most pronounced of any food fraud in this country, and is deserving of the most rigid punishment. * * * The sale of oleomargarine as butter is a criminal offense.

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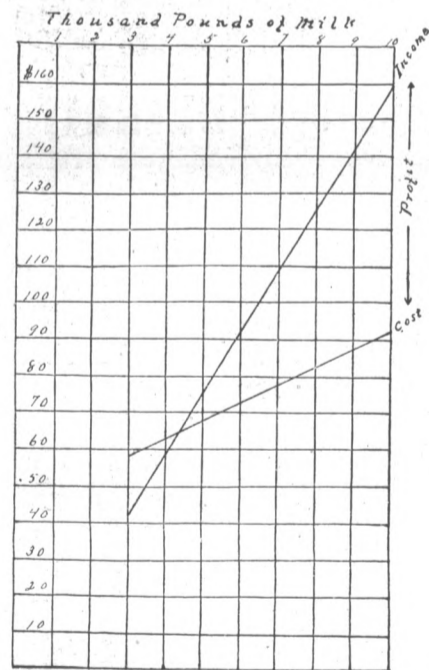
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SOME PHASES OF DAIRYING.

(Continued from first page).
and for which comparative figures are shown in the above table, Prof. Fraser stated that they were, of course, not attainable by the average dairyman, but he was emphatic in the statement that the average dairyman ought to get at least half way down the list and attain a production of between 8,000 and 9,000 lbs. per cow, and thus secure a profit on the cows kept of between \$40 and \$50 each above the cost of maintenance.

The fact that this can be done by proper methods of selection was demonstrated by figures showing the gain in production in four years by one dairy farmer who tested his individual cows and weeded out the poorer ones in this way. This gain was consistent each year, running from an average production of 5,800 lbs. of milk and 224 lbs. of butter-fat per cow the first year, to 8,628 lbs. of milk and 324 lbs. of butter-fat per cow the fourth year of this weeding out process. That this production is not near the limit in building up the dairy herd by this plan, was shown by the fact that the best herd tested in the work of the Illinois station showed an average production of 397 lbs. of butter-fat and an average profit of \$61.88 per cow above the cost of maintenance. The four poorest herds tested in the work of this station showed an average production of 130 lbs. of butter-fat and an average loss of \$6.17 per cow, after the cost of maintenance had been deducted. In one community where the milk was sold to a condensary, the poorest three herds tested showed an average income of \$30.62 per cow for milk sold, while the best three herds tested showed an average income of \$98.94 per cow for milk sold.

These figures are so startling in their nature that they should prove of great interest to every dairyman in the state who reads them, as they did to those who were assembled at this meeting and heard Prof. Fraser's discourse. As a final argument for individual cows and the weeding out of the poorer individuals from the dairy herd, as well as the improvement in the character of the herd by breeding for a better standard of production, Prof. Fraser presented another chart which showed the conclusions reached from statistics as compiled from all of the herds tested by the Illinois station during the past ten years. This chart was arranged so as to show the difference in the rate of increase in the cost of production and the profit per cow as the standard of production increased. A brief study of the illustration presented below will bring this important fact forcefully to the mind of the reader.



The longer of the two diagonal lines in the above cut represents the amount and value of the product from cows of varying capacity and indicates the angle of increase of profit as compared with the increased cost of keeping cows of high producing capacity. The cost line in this diagram shows that the high producing cow will profitably assimilate more feed than the low producing cow. The angle of this line varies from \$59, as the estimated cost of keeping the low producing cow of 3,000 lbs. capacity, to \$93 as the total cost of keeping a 10,000 lb. producer. The income line crosses the cost line at a point between the 4,000 and 5,000 lb. mark and the distance between cost and income, which represents profit, widens

with the increase, in production until in the case of the 10,000 lb. cow it reaches a point between \$60 and \$70. This comparatively large increase in the profit as compared with the cost of keep between the poor and good cow, was the strongest argument presented by Prof. Fraser for the elimination of the poor cows from the herd and for breeding to increase production, and was the last thought presented to the consideration of his hearers.

THE VALUE OF COWHORN TURNIPS.

What is the feeding value for cowhorn turnips and are they good for milch cows? Montcalm Co. SUBSCRIBER.

Another name for cowhorn turnips is mammoth purpletop. The food value does not differ materially from other varieties of turnips, or in fact from other varieties of roots like carrots, beets and rutabagas. These root crops contain about one per cent of protein, six to seven per cent of carbohydrates, two tenths per cent fat. Turnips are valuable food in a ration for a dairy cow where no other succulent food is obtainable. One must be careful, however, and not feed to many turnips at first or they will taint the milk, but if you feed a small amount at first and gradually increase and never feed abnormal amounts, you will have no trouble.

BUCKWHEAT MIDLINGS.

Give your opinion of the use of buckwheat bran and middlings mixed as a food for dairy cows. Could a balanced ration be made of corn silage, oat straw, cornstalks, cottonseed meal and buckwheat middlings. This will weigh about 100 lbs. to a common grain bag. How do you value oats and peas for dairy cows and would they, with corn silage, make a good balanced ration? Would corn stubble ground be the best place to sow them? What amount would you sow per acre, and where can we obtain the best seed peas? OAKLAND CO. READER.

Buckwheat middlings are an excellent dairy food. This product is rich in protein and consequently is a valuable food to mix with the ordinary roughage grown on the farm, like corn silage, hay and cornstalks, to balance up a ration. Buckwheat bran is not very valuable. It is simply the hulls of the buckwheat which are practically indigestible. Where the bran is not separated from the middlings and both are ground together the product is more valuable, the hulls are so light that it does not affect the quality of the entire product so very much. You can make a good balanced ration for dairy cows out of the products you name by feeding them in about the following proportions: Thirty lbs. of corn silage; 10 lbs. of oat straw; 10 lbs. of corn stover for roughage, with 4 lbs. of buckwheat middlings and 2 lbs. of cottonseed meal per day. Feed the cottonseed meal and buckwheat middlings in tw. feeds, night and morning, and I would put it on the ensilage. It is not so important that you get just the right amount of ensilage and the other roughage. It is a good enough rule to follow to feed all the roughage the cattle will eat up clean and then proportion the grain as above described.

With regard to oats and peas we can say that there is no better food for dairy cows than ground oats and peas. Peas are an excellent food to help balance up the ordinary roughage grown on the farm, being just about as rich in protein as the buckwheat middlings. But using the peas and oats as a grain you would want some roughage besides the corn silage, that is, you need a dry food in the ration. To make a good ration with the oats and peas for the grain clover hay should be one of the roughage foods. Now you can make a splendid ration out of corn silage, clover hay, and peas and oats for grain.

Corn stubble ground is an excellent place to raise peas and oats. Disk it up thoroughly in the spring, as early as you can get onto the land, and sow the peas and oats in the proportion of one bushel by measure of peas to one bushel of oats and sow at the rate of 2½ bushels per acre. Put them in rather deep. Harvest them before they get so ripe that the pea pods will burst open and lose the peas. I do not know where to get the seed peas except through some reliable seed house. They get their seed mostly grown on contract by northern growers. Undoubtedly, if you could get in touch with some northern grower you could buy your seed peas direct. While seed peas are worth much more than they once were, it must be remembered that all other feed stuffs are higher, so that food elements bought in the form of peas are perhaps as cheap as where purchased in other grains, or meals.

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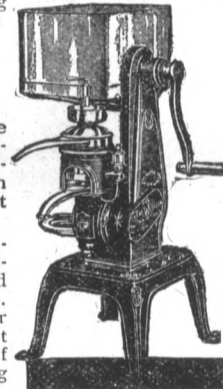
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CLEAN UP THE DAIRY.

A prominent man of business in a small place recently spoke as follows concerning the local creamery of the place. "He must clean things up. Today I took three bars of butter back to him. They were very dirty. My wife complains about the dirt. Unless he does clean up I am afraid that we will be obliged to quit patronizing him. He is a good fellow and a fraternal brother, and I would like to see him succeed, but he must clean up his creamery." Such is too often the situation with local creameries and dairies. There is a high-class trade anxious for a clean, first-class product. That same first-class trade is willing to pay well but they want everything to be clean. There is nothing about which people are so sensitive as they are in regard to their milk and dairy products. Indeed, they are justified in this as there is no other food so easily contaminated. In the same town there is a big hotel which is supplied with milk from a dairy nearby. The guests complain about the milk being sour and of ill flavor. An investigation of the dairy showed very clearly reasons for the unfavorable conditions. The dairy barn is dark and poorly ventilated. The cows are dirty. They may have tuberculosis or any disease for all any veterinary inspection may have shown.

Clean milk and other dairy products can be produced only in clean, sanitary quarters. The above mentioned creamery should have the floor scoured. The ceilings should be whitewashed. All wooden parts should be replaced so far as possible with some moisture proof material. His coal bin opens into the butter-making room and probably the door is never closed. On the opposite side of the room a door opens upon the street from which street dust blows, or can blow, directly into the churns. The buttermaker's clothes are dirty and his fingers leave stains upon the butter. All that should be changed, and conditions just the opposite produced.

Much depends upon the location of the creamery. It should be on a high, well-drained spot. Sunlight must have access in order that the building be dried out and disinfected. It should be located, if possible, where the breezes will not carry contaminating material of any kind into it. That the coal bin and other accessory rooms should be well partitioned off, it is needless to say. To have the engine in the churning room means, also, a big source of dirt that should not be allowed. To be absolutely clean in all details connected in any way with the handling of the milk is the first commandment in the catechism of good dairying. No man should be allowed to sell dairy products unless all things are cleanly. No conscientious man will do so if he fully realizes the dangers of the practice. Iowa. H. E. McCARTNEY.

WHY SHOULD A COW HAVE A LONG SLIM TAIL?

Will you write me just what each of the scale of points indicating dairy type signifies in dairy production, or are they simply to give beauty of form? Especially, why should a cow have a long, slim tail, as far as production goes? Does it matter whether the tail is long and slim or short and thick?

Originally, all individuals of the bovine race had points or characteristics very much in common. Gradually by selection and breeding, individuals became adapted to special functions or conditions. These special functions or conditions have gradually developed breeds. The best authorities divide cattle into two classes; beef cattle and dairy cattle, and the scale of points in a dairy cow differs from the scale of points in a beef animal in many ways. This has resulted, as I say, from selection and breeding to a given ideal or purpose. The form of the dairy cow has changed from the original animal until now the difference between a dairy cow and a beef animal is very marked and distinct. The dairy cow is much thinner on the shoulders. She has a prominent backbone with large vertebrae and spinous processes, a well developed pelvic arch, thin and incurving thighs for a large developed udder. People describe a dairy cow as being wedge-shaped. If you stand off to one side of a good dairy cow and look at her she is much deeper and heavier behind than she is forward. A line from the lower part of her udder to the top part of the pelvic arch would form the base of the wedge which gradually tapers to her nose. If you stand above a dairy cow and look down upon her you will find her wide across the

hips, narrower across the back, still narrower across the withers, and finally completing the wedge point at the head again. It goes without saying that a large, well developed udder is an essential characteristic of a dairy cow because there is where the blood elaborates the milk. It is the milk factory of the cow. Unless you have a good-sized factory you cannot expect to turn out a large supply. We can go over the different points of a dairy cow and compare them with the same characteristics of the beef cow and find that there is an essential difference because the dairy cow has different functions to perform and having performed these functions for untold ages she developed a different conformation than the beef animal.

Now to answer the direct question of H. P., of why a dairy cow should have a long, slim tail, it is admitted by all of the good, careful observers of dairy cow characteristics that she should have a well-developed nervous system. It seems to be absolutely necessary for the elaboration of milk that the dairy animal have this nervous system well developed. Now the seat of the nerves is largely in the backbone, constituting the spinal cord. The back bone is made up of a chain of bones separated from each other by pads of cartilage. The spinous processes project upward and are very prominent in a dairy cow. Now, since the spinal cord is the great nervous center of the animal and since she requires a well-marked nervous temperament, then she must have a large spinal column. Then, too, the nerves which branch off from the spinal column and pass through openings between its separate bones must be large and have large openings. If you have large openings then the vertebrae or individual bones of the spinal column cannot fit closely together but are separated by thicker pads of cartilage to make the larger openings. This extends or lengthens the spinal column. A dairy cow with a short tail would give one the impression that the vertebrae or bones of the spinal column were fitted close together, that there were no large openings for the spinal nerves, and therefore that she did not have a well-developed nervous system. On the contrary, a cow with a long tail having the bones of the tail extend down below the hock would indicate that she had a well-developed spinal column, that the vertebrae were not close together, that there was ample size to the openings for spinal nerves to pass out to the various parts of the body and perform their functions. And so the long tail has come to be considered as indicative of a well-developed spinal column and nervous system which, as stated above, is one of the chief characteristics of a good dairy cow.

COW FEEDING EXPERIMENTS.

The North Carolina experiment station recently concluded a number of experiments to determine the relative efficiency of narrow and medium wide rations for milk production, a report of which has reached the Department of Agriculture.

Eight cows from three to six weeks in lactation were fed three periods of 28 days each. In the first and third periods the feed consisted of five parts cottonseed meal, four parts wheat bran, three parts corn meal, and 50 pounds of corn silage. The nutritive ratio of this ration was about 1:4. During the second period the ration was the same as the above, except that 2.5 pounds of cottonseed meal was replaced by 2.5 pounds of corn meal, giving this ration a nutritive ratio of about 1:5.7. The results of this test indicate that the narrow ration produced 7.5 per cent more milk fat, and increased the fat test 0.24 per cent and the live weight 30 pounds. The milk yield was practically the same. This trial was duplicated with five cows, except that the narrow ration was fed during the first and third periods, and the medium ration during the second period. The narrow ration produced 7.6 per cent more milk fat, increased the fat test 0.17 per cent and the amount of milk 93.4 pounds, the live weight remaining the same.

In an experiment to test the relative feeding value of cottonseed meal and linseed meal for milk production, it was found that the former gave only slightly more returns than linseed meal. Notwithstanding the greater cost of linseed meal the station officials advise the use of small quantities on account of its tonic effect.

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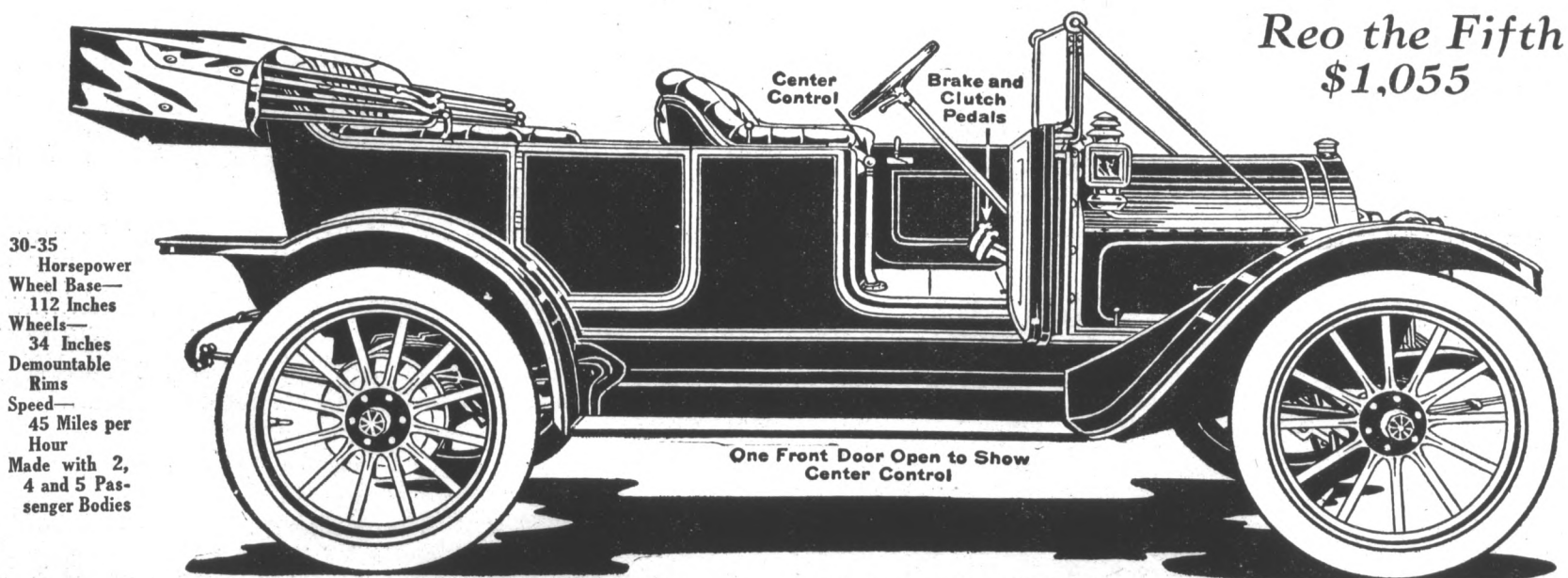
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ESTABLISHED 1843.

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39 to 45 Congress St. West, Detroit, Michigan. TELEPHONE MAIN 4525.

NEW YORK OFFICE—41 Park Row. CHICAGO OFFICE—600 First Nat'l. Bank Building. CLEVELAND OFFICE—1011-1015 Oregon Ave., N. E. GRAND RAPIDS OFFICE—5 & 6 New Hawkins Building.

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DETROIT, FEB. 10, 1912.

CURRENT COMMENT.

Needed Amendments to Banking Laws. The recent stir in banking circles caused by the uncovering of crooked work by bank officers in Michigan, has brought out some good suggestions contained in the annual report of State Banking Commissioner Doyle, which was made public last week. Suggestions are made toward the elimination of dummy bank directors, who are at least indirectly responsible for most bank failures and such fraud as has been perpetrated by bank officers. Mr. Doyle suggests that the law should be so fixed that no director who is an active officer of a bank could take part in the regular directors' examination of the bank, which would prevent crooked officers from deceiving unsuspecting directors by the devices which are too often employed for that purpose.

In order to exercise greater control over the capital of the state banks, Commissioner Doyle would require each director to place with the state treasurer ten shares of his bank stock to prevent hypothecation. He would also make overdrafts on the part of the bank officers or employes a misdemeanor and discourage overdrafts by depositors, as well as limit the amount of capital which a bank might loan to any manufacturing or commercial company in which the officers or directors are interested.

As a means of making bank directors more attentive to their duties in connection with the affairs of the bank, he would recommend an amendment of the law, which would make a director ineligible for a period of five years who inexcusably missed a directors' meeting for three consecutive months. Certain other suggestions with regard to changes in the general banking laws which would add to the safety of bank deposits in reserve cities are made. Another good suggestion is made in advocating a provision of the law by which information can be obtained with regard to the individual loans in all banks, both state and national, each six months, in order that the total loans of large borrowers could be checked up and thus eliminate a weakness which exists in the banking laws of the country as a whole at the present time.

Numerous other recommendations are made, but without doubt the most important of these is the recommendation providing for the elimination of dummy

directors and making the discharge of duties mandatory upon the directors of state banks. In practically every case where a bank gets into trouble it is due to a too great confidence in the officers of the bank on the part of the directors and a consequent neglect of duty on the part of the directors. Our banks cannot be too well safeguarded, not alone that the interests of depositors may not be jeopardized, but that the confidence of the public may be always merited by these necessary conveniences in the transaction of modern business.

A Suggestion to Bean and Pea Growers. On another page of this issue will be found an article on the subject of "Peas and Beans," which should be carefully read by every Michigan farmer who is interested in these crops. These crops, and particularly the bean crop, are of great importance in Michigan agriculture and many warnings have been published in the columns of the Michigan Farmer, urging bean growers to make a careful and judicious selection of seed in order that they might escape the damaging effects of anthracnose and other fungous diseases to which the bean crop is subject.

The only method by which these diseases can be properly controlled is through the planting of clean seed, and absolutely clean seed is difficult to get in Michigan, except by the laborious process of hand gathering of healthy pods and growing seed in a seed breeding plot. The suggestion made in the article referred to is that arrangements be made by seed houses or by growers through seed houses by which clean seed can be secured from high altitudes in the west, where moisture is supplied by irrigation in the growing of the crop and where almost constant sunshine insures weather which is unfavorable for the development of these fungous diseases.

It is certain that one or the other of the measures noted must be taken in the near future if our bean industry is to retain its present importance. Hence the imperative necessity that bean growers give this matter early and careful attention. It always pays to look on the bright side of things. The man who is uniformly cheerful is not only better equipped to conduct his every-day affairs in a satisfactory manner, but this condition of mind makes life better worth living, not only for himself but for others with whom he associates. In talking with the farmers one meets it is quite a common thing to hear them say that last year was the best year they have ever had from the standpoint of financial success in their farm operations. When one refers to the midsummer drouth and to the unusually wet fall which hampered farm operations so greatly, they will remark with a smile, that things did look pretty blue at that time, but that they came out much better than they expected. As a matter of fact, things generally do, and the man who suffers from periodical attacks of "blues" may well stop to consider whether it would not pay to break himself of that habit, for it is largely a habit and one that can be overcome by a little persistent effort. It is an effort, too, which is well worth putting forth from the standpoint of immediate results in the much better enjoyment of life and in the making of life pleasant for those about us. It has been well said that there are two things in this world that it pays not to worry about, viz., the things you can help and the things you can't.

While the season of institutes is at hand the reader may well ask himself if he is profiting by them to the greatest possible extent. Every farmer should attend all of these institute meetings within his reach. He may not agree with the opinions of the speakers on all the topics, but he is certain to get something from each institute meeting which he attends which will contain valuable suggestions to him in the conduct of his own business. In fact, one should make use of every avenue by which he may add to his store of knowledge, and at the same time use discrimination in gleaning the sound ideas by which he may profit from the sum of information which he may acquire from whatever source.

One of the hardest things for the college graduate to learn is that some of the things he learned at college may not be true, but this is not an argument against a college education. Neither is the fact

that all that one may hear at a farmers' institute is not applicable to the conduct of his own farm an argument against the value of the farmers' institute. Many of the ideas which can be gleaned from this source, as well as from other sources of information, will be valuable, and we should miss no opportunity to acquire valuable ideas from any source. For this reason we should attend every institute meeting within reach that we may get the greatest possible profit from this educational work.

Good ideas are at a premium everywhere, and are as valuable to the farmer as to any other business man.

HAPPENINGS OF THE WEEK.

National. Bonds and stocks, worth \$282,000,000 were removed from the vaults of the old Equitable Building, which recently burned in New York City.

An ice bridge, which had formed across the Niagara river just below the falls, went out last Sunday and three persons are known to have been drowned. Five others who were on the large floe succeeded in reaching shore before the ice arrived at the whirlpool rapids.

President Schurman, of Cornell University, has instituted a scheme for grading the fraternities of that institution by averaging the standards of members belonging to each. He hopes by this arrangement to raise the standard of the men belonging to fraternities to that of the non-frat men.

The federal grand jury's investigation at Indianapolis in the dynamiting conspiracy is expected to result in the return of at least 30 indictments. The jury examined 30 witnesses. The records of the American Federation of Labor will be taken to Los Angeles to be used in the trial of Clarence Darrow.

The bath-tub case is being considered in the federal court at Detroit this week. The charge against the defendants is that they have conducted a business in violation of the Sherman anti-trust law and attempted to monopolize the bath-tub trade of the country.

Twelve persons were badly hurt in a train wreck on the Big Four road at Myer's Station, Ohio. A broken rail was the cause of the accident.

The International Joint Commission, appointed by the United States and Canada to settle matters of an international nature, which is in session in Washington this week, does not have jurisdiction to prevent the lowering of the water in the Great Lakes as is resulting from the drainage of Lake Michigan through the Chicago drainage canal. Vesselmen have suffered a great loss due to the lowering of the four upper lakes 8 of a foot by the diversion of water through the Chicago canal. The last lake surveys show that the water level is still dropping and it is evident that by the end of 1912 the level will be 1.5 feet lower than for the average of the past 51 years. There appears, however, to be no way whereby this damage to shipping on the lakes can be remedied, except, possibly, through some act initiated by Canada, since the effect of the lower water is as damaging to her shipping interests on the lakes as to those of the United States.

The task of raising the old battleship Maine from the Havana harbor has practically been completed, so far as the difficult work is concerned. Much of the old vessel has been carried out into the ocean and buried. However, about two-thirds of the ship remains and it is planned to tow that portion out into the Gulf of Mexico and sink it in deep water where it will not interrupt navigation. Six bodies of soldiers were found by the workmen this past week.

In a message to congress last week, President Taft urged an international inquiry into the high cost of living. Authority was asked to invite the nations of the world to a conference in Washington, or at some other point, to make plans for the work.

Orders have been issued to several army posts in the United States to have men in readiness for shipment to the frontier along the Mexican border on short notice. Activities of rebels who are opposing the present government of Mexico are directly responsible for this movement. How large the scope of the rebellion is, is difficult to learn. Juarez appears to be the nucleus of the disturbance as it was of the former one against the Diaz regime. Vasquez Gomez is said to be the leader of the present uprising.

Foreign.

Germans have succeeded in perfecting a combustion engine which it is believed will revolutionize the construction of navy boats and make the great dreadnaughts of little use. The engine uses any kind of crude or refined petroleum. Engines developing 18,000 horse-power would use about 100 tons of oil per 24 hours when running full speed.

King George and Queen Mary arrived at Portsmouth, Eng., Sunday, from Delhi, India, where his majesty was crowned as Emperor of India. There was no salute from the shore batteries due to the fact that the vessel containing the royal party was fourteen hours ahead of the schedule time.

An edict was issued by the Empress Dowager of China instructing Premier Yuan Shi Kai to establish a republic in co-operation with the republicans of the southern part of the country. While the Premier has asked that the provisional government now established at Nankin be dissolved and the whole country be placed under the control of a provisional government at Peking, and while it is believed that this arrangement will meet stubborn disapproval on the part of the Nankin government, yet it is not thought that the latter will cause any serious disruption since the republicans have offered the premier the presidency of the new

Republic. This latter is the hopeful feature of the situation and the general impression is that the end of the bloody conflict which has raged for the past several months along the Yangtze Kiang river and far in the northern provinces will cease. The Manchu government appears now to be entirely on the defense, and with the abdication of the throne it is certain that the Republicans will have matters much their own way in the reconstruction of the government of the country.

THE STATE CORN SHOW.

The eighth annual meeting and contest of the Michigan Corn Improvement Association was held at Kalamazoo last week, opening on Tuesday morning and closing Friday evening. The spacious and well-lighted exhibition and audience room furnished by the Western State Normal School proved very satisfactory and confirmed the good judgment of the officers in their choice of a meeting place, while the courtesies extended by the Normal School and by the business men's organization of the city were so thoroughly appreciated by the Association that its members voted to return to Kalamazoo for their 1913 meeting.

Judged by the exhibition of corn and the high-class program provided by the Association the meeting was a complete success, but the attendance of growers was hardly what the advantages offered by such a meeting would seem to warrant. The program proper, which occupied the forenoon and evening sessions of each day, was replete with topics directly bearing upon, or closely allied to, the betterment of the corn crop upon Michigan farms, presented by specialists of standing and ability. Comment upon this feature of the meeting, however, can not be made at this time. The afternoons were devoted to the judging of exhibits and to informal demonstration work and discussion under the supervision of Mr. H. A. Winter, of Illinois, well known to the farmers of this state as a successful corn grower and a judge of national reputation.

As a whole the exhibit of corn was without doubt the most satisfactory that has been seen at a state show. A slightly larger total of samples have appeared at some former shows, and representation from more widely separated sections of the state has been had, but for uniformly good quality this show has had no equal in the history of the Association. Among the 70 or 75 samples entered for prizes there were only two that were seriously defective on the score of condition, and these two loose, chaffy, immature samples served the useful purpose of showing, in a forceful way, the futility of trying to grow too large varieties of corn in this state. While there were individual ears in other samples which were lacking in vitality and seed condition, the exhibits as a whole were pronounced strong in vitality and, in general, showed careful handling and a knowledge of what is required in selecting corn for seed and for show purposes. The scores tell the story of high quality and close competition in the leading classes.

Class A—Yellow Dent.

As usual, the southern section furnished the bulk of the entries, the strong class here being the yellow dent, in which there were 29 entries. The seven prizes offered in this class were awarded as follows, names of exhibitors and scores being given:

- 1. Earl Pickett, Kent Co.....83.6
2. Glenn Pickett, Kent Co.....82.6
3. E. G. Read, Kalamazoo Co.....78.7
4. Arthur Kleinheksel, Allegan Co.....77.1
5. Otto Schantz, Kent Co.....76.5
6. Lee Conklin, Hillsdale Co.....75.2
7. S. M. Garvey, Lenawee Co.....74.7

Class B—White Dent.

In this class there were but nine entries and the scores did not average especially high. The prizes went to the following:

- 1. Glenn Pickett, Kent Co.....78.
2. Rollin Simmons, Jackson Co.....76.8
3. R. D. Simmons, Jackson Co.....73.8
4. Roy Grossman, St. Joseph Co.....73.5
5. W. R. Jewett, Ingham Co.....72.9

Class C—White Cap Dent.

This was an exceptionally good class, not only high in quality but very even and requiring close scoring. There were 16 exhibits, with less than 10 points separating the highest from the lowest. This class yielded the highest scoring exhibit of the show, the sample shown by Miss Florine Folks scoring 84.3 and being awarded the silver cup for best 10 ears in the entire show. This exhibitor was the winner of the automobile sweepstakes last year and, in accordance with the rules of the Association, was barred from competing for the prizes offered in this class. The prize-winning exhibitors were placed as follows:

- 1. Leo Wooden, Jackson Co.....82.5
2. E. C. Snyder, Lenawee Co.....82.3
3. Lyle S. Turner, Hillsdale Co.....82.1
4. George Clapp, Lenawee Co.....81.4
5. William Folks, Jackson Co.....81.3
6. R. D. Jewett, Ingham Co.....81.2
7. D. E. Turner, Hillsdale Co.....79.4

Class D—Mixed Dent.

This class contained one very high scoring sample. The following were awarded prizes:

- 1. Otto Schantz, Kent Co.....83.3
2. F. H. Thorne, Jackson Co.....70.2
3. W. R. Jewett, Ingham Co.....65.8

Flint corn was very scarce. Two very high-class exhibits constituted this class, one shown by G. J. Friedrich, of Jackson Co., and the other by J. W. Pickett, of Kent Co. They were probably the best samples of flint corn ever seen at a Michigan show and an honorary award was made to each exhibitor, since each has won at least three first premiums at former shows and is therefore ineligible to compete for other than honorary awards. Mr. Friedrich's sample scored 91 and Mr. Pickett's 90.7.

District No. 2, or the upper half of the lower peninsula, was not as well represented as usual. No competition developed except in the yellow dent class, in which there were seven entries. These,



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Look at the picture; doesn't this Rocker look inviting with its high, broad, shapely back and deep roomy spring seat? It's made to last forever, and its wide arms, supported by six neatly turned smooth spindles, and massive front-curved posts, give it the exclusiveness and style that cannot be had in any other rocker. Frame thoroughly seasoned oak, high golden and gloss finish. Best quality Black Royal Leather; workmanship first-class. Price but \$3.85 makes it the biggest bargain ever offered. We can afford such values because we own our own timber lands, sawmills, factories and salesrooms. Money back if it is not worth double. Send for our large FREE cash catalogue of Furniture, Rugs, Curtains, etc. Learn at once how much cheaper and better you can buy for cash direct from the manufacturers. We save you all extra profits. Write NOW; better still, enclose \$3.85 for this comfortable rocker. Order by number 870. Address: (11-1) Lincoln-Leonard & Co., 3862 W. 37th Street, Chicago.

BIG CATALOG FREE

Fish of Guaranteed Quality

- Fresh Frozen.
- Silver Herring, Round.....3½c
 - Pickeral, Round.....5c
 - Dressed, Headless.....6c
 - Pike, Round.....8½c
 - Trout, Dressed.....8½c
 - Whitefish, Round.....8½c
 - Perch, Round.....3c
 - Perch, Skinned, Dressed, Headless.....6½c
 - Tullibees (Large Canadian Herring).....3½c

Salted Fish.
Lake Herring, 100 lbs., \$2.25; 50 lbs., \$1.50
Bayfish, 100 lbs., \$2.25; 50 lbs., \$1.50

Ask your neighbors about our goods.
WISCONSIN FISHING CO.,
Dept. Y, Green Bay, Wis.

BOYS and GIRLS

If you want a genuine Shetland Pony and Outfit, write me today for my new and the easiest plan you ever heard of. Don't send any money, just a postal, and say you want a pony. I will be glad to help you. Address **F. YOUNG, Agent** Pony Farm, Box No. 755 Springfield, Ohio

SPORICIDE Sure cure for in oats. Guar. SMUT Simple to treat.
SPORICIDE CHEMICAL CO., Atlanta, N. Y.

WANTED To trade NURSERY STOCK for GOOD MOTOR BOAT.
GALBRAITH NURSERY CO., Fairbury, Neb.

EXCELLENT worker, good plain cook. Young Polish woman with child 5 months, wishes position. References if required. Woman's Hospital, Detroit, Mich.

WANTED—Walnut Logs in large quantities. Can send men to inspect. Geo. I. McClure, 3-724 Chamber of Commerce, Detroit, Mich.

JOB WANTED—single man, age 25, wants place as manager or foreman on farm. Excellent references. A. GAINDEE, Cressy, Mich.

however, showed remarkable quality for the section. The prizes went as follows:
1. Roy Rossman, Montcalm Co.....83.7
2. Earl Zingery, Isabella Co.....79.8
3. Fred D. Graft, Ionia Co.....75.9
4. John Dow, Muskegon Co.....73.8
5. E. O. Ladd, Grand Traverse Co.....71.6
6. Clare Rossman, Montcalm Co.....67.4

The only other exhibit from this section was a sample of the white cap variety shown by Hugh Watson, of Isabella Co., which received a score of 70.8.

The prizes in the Junior class, open only to boys and girls under 20 years of age, were awarded as follows: 1st, Earl Pickett, Kent Co.; 2d, Lyle S. Turner, Hillsdale Co.; 3d, Artie Jewett, Ingham Co.

In the single ear class there were more than 20 entries, the majority of which showed much care and judgment on the part of contestants in making selections. In addition to the Michigan Farmer silver cup, a special prize had been offered for grand champion single ear and both prize and cup were awarded to J. R. Duncan, of Kalamazoo Co., on a superb ear of yellow dent.

Business Meeting of Association.
At the annual business meeting, held on Tuesday evening, the dent score card was discussed at length, ending in a revision which makes several changes in the card. It was also agreed that, in future, three dead ears in any one sample shall be sufficient to disqualify it. Considering the important matter of premiums in the regular classes other than certificates of merit, badges, ribbons, and trophy cups. Other premiums will, however, continue to be offered for exhibits made by junior members.

Invitations for next year's meeting were received from Pres. Waldo, of the State Normal and from the Commercial Club of Kalamazoo; also from Dean R. S. Shaw, of the Agricultural College. As stated earlier in this report, Kalamazoo was chosen.

The committee on nominations appointed at this session reported at an adjourned meeting held on Thursday afternoon, at which time the following officers were elected for the coming year: President, Chas. H. Sudborough, Adrian; vice-president, L. L. Lawrence, Decatur; secretary-treasurer, L. J. Bradley, Augusta; directors, W. F. Raven, East Lansing, R. D. Simmons, Jackson, and J. J. Nyenhuis, Hudsonville; state vice-president National Corn Association, W. F. Raven.

CROP AND MARKET NOTES.

Jackson Co., Feb. 2.—There is every indication that the hay crop in Jackson county will be short again in 1912, on account of the showing of the young seedling. However, the facilities for obtaining marsh hay are so good that the farmer considers his marsh one of his most valuable assets. Timothy may come on later. It is the city buyer and feeder that feels this great shortage. Marsh hay is selling at \$9@11 per ton. The present cold weather is eating into the feed supply but naturally the live stock are doing well. Ice is about harvested and ranges in thickness from 12 to 20 inches; potatoes will no doubt be higher because a great many have been frosted in the cellars. Apples are bringing a good price and seem plentiful. Butter and eggs are scarce and are advancing each week. Corn and oats are short and are bringing the producer a good round sum. Fatted cattle are scattering and butchers have hard work obtaining some. Hogs and sheep seem to be more plentiful. The fall showing for wheat was just fair.

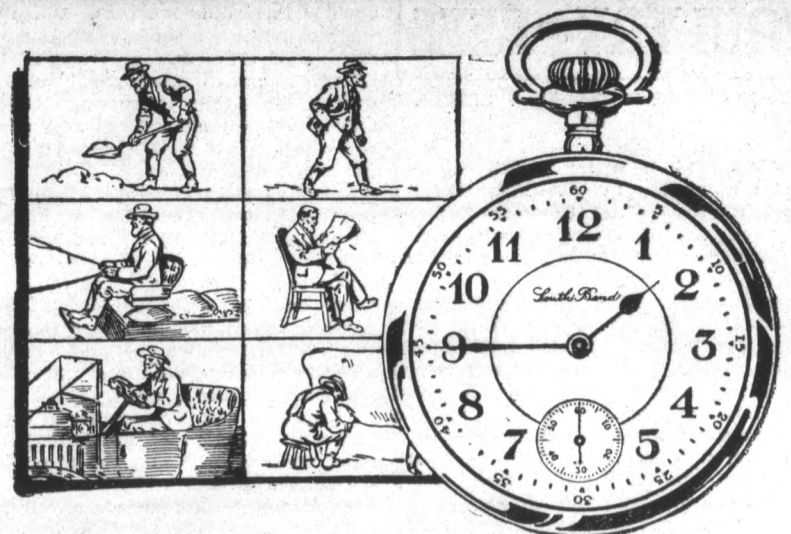
Emmet Co., Jan. 30.—The temperature for the month has been around and below zero much of the time. For the past two weeks the fall of snow has been light. The drifting snow during the first half made many roads all but impassable and the snow has been so dry that there has been no really good sleighing at any time. Some farmers are hauling wood either to the city or nearby lime kilns, while some others who have no work of this sort to do are putting in their time fishing on the bay. Hay is firm at \$20 per ton and straw at \$10. Dressed hogs, \$8. Except where exposed side hills have been swept nearly bare, the fields are pretty well covered by snow, which is about 20 inches deep in the woods.

Mecosta Co., Jan. 23.—The weather has been the coldest in years for about three weeks. About all that has been done in that time has been chores. Hay has begun to move at \$17@18 per ton, baled. Quite a number have been drawing in their potatoes at \$5@8c per bu. Baled straw cannot be had at any price from the farmers. Beef cattle are worth 4c; hogs, 5½c; veals, 5@6c; chickens, 7c; eggs, 26c; butter-fat, 37c; butter, 36c.

Lapeer Co., Jan. 18.—Severe cold weather continues, said to be the lowest temperature on the 5th that we have had for several years. Frost has entered many cellars and felt of the perishables therein. The price of potatoes at the local station has reached 80c. One can see an occasional piece of sugar beets yet in the ground, and every farmer did not harvest all his bean crop. Lots of corn yet in the fields. Some farmers are already short on hay and prices are away out of sight. Some stock looking well, while some is not. Lots of wheat and other grains marketed lately.

ANNUAL CEMENT SHOW.

The fifth annual Chicago Cement Show will be held at the Coliseum in that city, February 21-23. Here will be gathered exhibits from over 200 exhibitors, comprising cement exhibits proper, concrete machinery, water-proofing compound, reinforcing bars, etc. Here the interested user can study concrete construction as nowhere else. This show is the best possible place to study the problems relating to concrete construction on the farm.



How Your Peculiarities Affect Your Watch

YOU ought to write us for the FREE book, "How Good Watches Are Made." It tells a lot of interesting things about watches. Did you know, if you bend over a great deal in your work, or ride in a jolting farm wagon more than other people, or in an auto, or walk faster or take life easier—all those things—that it makes your watch run differently than the watches of your friends, who do things differently? And do you know the reason poor watches and most mail order watches don't keep time for many people is that these watches are not sensitive enough to be perfectly regulated to your personality by an expert retail jeweler in your town? It's true. You must get a watch so well made that it is sensitive to good

regulation and you must have it regulated by an expert retail jeweler. The South Bend Watch is such a watch and it is sold only by expert jewelers. If your jeweler hasn't a South Bend we'll name one near you who has. A South Bend Watch is often a full year in the factory before it is ready to stand its final inspection. It gets 411 inspections, and must run right in a 700-hour test for accuracy. Regulate such a watch to your personality and it will keep perfect time for you for a lifetime; you'll be proud to wear and show it. It's because we know how important this jeweler regulation is that we don't sell through mail order houses; mail order houses can't get good regulation for their watches. You shouldn't buy a watch until you know all about this. Write us for the free book. We'll tell you all about it.

"The South Bend" Watch

The South Bend Watch, you know, is the famous watch that keeps perfect time even when frozen tight in a cake of ice. You can get one at \$7.50 or up to \$75 (in solid gold case).
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The Range With a Reputation

Before deciding upon a range you should examine closely into the superior points of merit of the Great Majestic—the range with a reputation—built on honor of the best materials. The only range made entirely of malleable iron which can't break, and charcoal iron which will not rust like steel. Oven lined with guaranteed pure asbestos board covered with an iron grate. No heat escapes or cold air gets into oven thus assuring perfect baking and fuel economy. The Majestic is put together with rivets making it absolutely air tight, like an engine boiler.

The Great MAJESTIC Malleable and Charcoal Iron RANGE

Outwears Perfect
Three Baker—
Ordinary Ranges Fuel Saver

All doors drop, form rigid shelves—no springs. Open end ash pan—ventilated ash pit—ash cup prevents ashes from falling on floor—all copper reservoir—removable—in direct contact with fire—boils 15 gallons water in a jiffy. Don't buy a range "unsight, unseen"—what ever range you buy get it from a local dealer—and it will pay you to drive many miles to examine the Majestic before buying any range. Best range at any price—sold by dealers in nearly every county in 40 states. Write for booklet Range Comparison.
Majestic Mfg. Co.,
Dept. 21
St. Louis, Mo.

It Should Be In Your Kitchen

Please mention the Michigan Farmer when you are writing to advertisers and you will do us a favor.

POULTRY AND BEES

GOOD RETURNS FROM A SMALL FLOCK.

Having read with much interest the articles appearing in The Farmer from time to time regarding the profits in poultry on our Michigan farms, I will submit the results secured from my small flock during the past year.

The average number of fowls kept was 36, of which eight were pure White Leg-horns, the remainder being mixed breeds, mostly Barred Rocks. A calendar record was kept of the number of eggs received from January 1 to December 31, and the price received for them; also of poultry sold from this flock, and of all feed consumed by the fowls, the feed being charged at ruling market values.

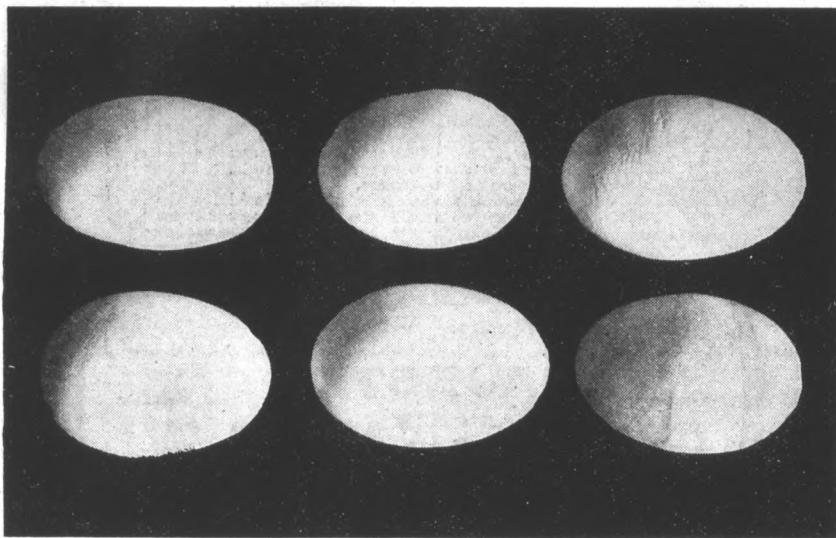
As it would require too much space to give all details, I will give in brief the receipts in cash through sales as follows: Eggs, \$62; poultry, including young produced from this flock, \$28.40, being mostly young fowls sold at 20c per lb. on early market. There remained, at the end of season, 20 old and 72 young fowls. Figuring the 72 pullets to be worth \$36 we have a total of \$126.40. The charge against the flock for feed consumed is \$47.30. Deducting this and \$2.40 for eggs purchased for hatching, leaves \$79.10 as net returns for labor.

It must be admitted that there is much lacking in the number of eggs received and in explanation I will say that these fowls were kept under the most unfavorable circumstances. We are new beginners on cut-over timber land and they were housed in a 10x12 coop made of rough boards and tarred paper. Their winter care was not what it should have been as I was engaged in harvesting the still remaining products of the forest and could not give them proper care. My object is to show that there is profit in keeping poultry on the farm, even for beginners under the most unfavorable conditions. The beginner, as well as the farmer on limited acreage, has greater need of the profits from a flock of fowls in most instances than the more fortunate farmer. My flock is now much larger than it was last year, is better housed and is yielding a handsome profit by way of the egg basket.

Antrim Co. WM. KOOYERS.

FEEDING FOR FERTILE EGGS.

Proper feed and proper care go a long way in securing hatchable eggs. Feeding for fertile eggs is just as necessary as feeding for winter egg production, or for size and weight in growing fowls.



Eggs that Should be Rejected when Selecting for Incubation.—Discard eggs that are extra large or very small for the breed; also those of unusual shape, or having shells that are thin, papery or porous, or that are rough or ridged.

Whole grain fed alone is not conducive to fertility. Green and fresh vegetable and animal matter of some kind is absolutely necessary and should be supplied.

Green cut bone and beef scraps are perhaps two of the best animal feeds available. They may be fed mixed with the mash or separately. It is not advisable to feed the breeders too much meat or green bone, however, as the breeding stock should never be forced for eggs. Hens that lay heavily cannot produce strong-germed, fertile eggs. Too liberal feeding of animal food will produce looseness of the bowels, which is liable to put the fowls out of condition, if it does not cause serious bowel trouble.

Avoid feeding wet, sloppy mashes to breeding stock. It is inadvisable to give

such to any fowl, but is especially to be avoided in feeding breeders. When using the wet mash system have the mash just moist and crumbly, not sticky or sloppy. Overfeeding with mashes will make hens overfat, resulting in many soft-shelled and imperfectly shaped eggs. A quart of soft feed is about the proper allowance for a pen of ten fowls.

Small potatoes that are of no use for cooking purposes can be used to good advantage in the raw state for feeding breeding stock. Raw potatoes are, I believe, one of the best vegetable feeds. They tend to keep the bowels in good working order, and also help secure fertility. The best way to feed them is to grind in a food chopper and mix with the mash three times a week.

Selection and Treatment of Eggs.


Careful selection of the hatching eggs must also be insisted upon if we are to derive the best results. Do not allow eggs to remain in nests for any length of time during this cold weather. Gather them often. It does not take long for eggs to become chilled to such an extent as to lessen their value for hatching purposes. Keep them in a room where the temperature will remain around 50 or 60 degrees until used for hatching. I lay the eggs on their side in a pan of dry bran and cover with a cloth to prevent drying out of the shell. They are turned every day. Do not use those that have thin, rough, ridged or spotted shells, or that are imperfectly formed. Select those of normal size and shape and that have smooth, strong shells.

Dipping the eggs in a solution of coal tar previous to incubating is now considered a preventive for white diarrhoea. I make a practice of dipping all my hatching eggs in such a preparation before placing them in the incubator. I use one gill of creolin dissolved in 8½ quarts of water. The incubator is first heated to the proper temperature, then the eggs are quickly dipped and the tray placed in the machine with the eggs dripping wet. One must do this quickly, as the eggs are liable to become chilled if allowed to remain out too long.

Indiana. O. E. HACHMAN.

THE IMPORTANCE OF TESTING EGGS.

The importance of testing eggs during the process of incubation is not always fully realized. More particularly is this the case with small poultry keepers who rely solely upon hens for the incubation of their eggs. Most of those who utilize incubators do test the eggs in the machines systematically, but the advantage attached to testing those under hens is equally great or greater. In an incubator it is desirable to test all eggs to find whether there are any unfertile or added eggs among them, so that these may be



Largest Poultry Farm in U. S., Angola, N. Y., covered with J-M ASBESTOS ROOFING

HOW ANY FARMER CAN SAVE HUNDREDS OF DOLLARS

As you know, from experience, it doesn't take long for a leaky roof to spoil a good many bushels of corn, mildew a lot of hay, or damage expensive machinery by rust.

Stock is harder to keep—more feed required—in damp quarters under a leaky roof than when always snug and dry.

Sparks and embers from a nearby fire are very liable to set fire to buildings covered with an inflammable roofing.

And nearly all roofings have to be painted every two or three years. Thus, a roofing made of perishable, inflammable materials is apt to cause you to lose hundreds, perhaps thousands, of dollars—is sure to cause you much unnecessary trouble and expense you could save by covering your buildings with J-M Asbestos Roofing—the practically everlasting stone roofing. This roofing is permanently leak-proof. It never needs a single cent's worth of paint. And even if surrounding buildings burn to the ground, it can't affect this roofing, for a flame intense enough to melt iron will not burn it.

J-M Asbestos Roofing

Won't Burn—Won't Rot nor Rust—Needs no Painting

There are hundreds of buildings today on which J-M Asbestos Roofing has withstood the storms of fifteen to twenty-five years—withstood the beating rains and scorching sun of summer, and the snow, winds, freezing and thawing of winter.

The reason J-M Asbestos Roofing is practically indestructible is because it is literally made of stone. Its base consists of several layers of pure Asbestos Felt. And Asbestos, you know, is a fire-proof, rust-proof, rot-proof rock or stone.

We cement these layers of stone felt together with Trinidad Lake Asphalt—the mineral cement which in street pavements stands the grinding of wheels and the pounding of hoofs for thirty to forty years.

J-M Asbestos Roofing is sold by most dealers. If not at your dealer's, our nearest Branch will supply you direct.

Give us your address and we'll send you a book which clearly explains the big difference between J-M Asbestos Roofing and other roofings. We'll also include a sample of the curious Asbestos Rock from which this roofing is made.

Write now for sample of crude Asbestos and our Book No. K-40

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Cattle Barn, State Insane Asylum, Morgans, O., covered with J-M ROOFING in 1898

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Think of it! Only \$33.65—full purchase price—for this splendid latest style Twin Automobile Seat Top Buggy, absolutely guaranteed for one year. Did you ever hear of such a tremendous bargain as this? We actually sell you a regular \$50.00 Twin Automobile Seat Top Buggy for only \$33.65. AND, REMEMBER, this is simply ONE instance. This is just a SAMPLE of our many amazing bargains on any and every kind of vehicle. Our 1912 Price Reduction Vehicle Book contains

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DIRECT FROM OUR FACTORY TO YOU.

We manufacture more vehicles by far than any other concern in the world. We make each and every part. We eliminate all agents', dealers' and jobbers' profits. You pay but one small factory profit. That's the secret of the hundred great bargains we offer.

GET OUR 1912 PRICE REDUCTION VEHICLE BOOK No. 75M70

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Save \$1,000,000 Per Month

Goodyear No-Rim-Cut tires now far outsell any other make of tire.

The success of this tire has been the sensation of Tiredom. And the present demand is three times larger than one year ago.

We have proved that these tires cut tire bills in two. And tens of thousands of users have proved it.

Based on present demand, that saving this year means a million a month to motorists.

You owe to yourself, if you are a tire user, to get your full share of that saving.

900,000 Tested Out—127 Makers Adopt Them

Men used to say, when these tires were new, "I doubt the saving; I will wait and see."

But the doubting days are over. Nine hundred thousand of these tires have now been tested out. Last year our sales jumped to 409,521 tires.

This year, 127 leading motor car makers have contracted for Goodyear tires. And they know tires.

No-Rim-Cut tires have come to outsell every other tire in existence. And the demand has trebled in a single year.

That is the answer when men have tried these tires. It will be your answer when you make the test.

Means 1/2 Saved

No-Rim-Cut tires now cost no more than other standard tires. They used to cost one-fifth extra.

They save you, in the first place, all the worry, all the ruin of rim-cutting.

Statistics show that 23 per cent of all ruined clincher tires are rim-cut.

Then No-Rim-Cut tires are 10 per cent oversize. That means 10

per cent more air—10 per cent added carrying capacity. It saves the blow-outs due to overloading.

Ten per cent oversize, under average conditions, adds 25 per cent to the tire mileage. The average oversize, based on many comparisons, is much over 10%.

These two features together—No-Rim-Cut and oversize—under average conditions will cut tire bills in two.

No Other Way

No-Rim-Cut tires are controlled



Goodyear No-Rim-Cut Tire



Ordinary Clincher Tire

GOODYEAR

No-Rim-Cut Tires

With or Without Double-Thick Non-Skid Treads
With a Bulldog Grip

by our patents. Vulcanized into the tire base are three flat bands of 126 braided wires. These wires make the tire base unstretchable.

No-Rim-Cut tires have no hooks on the base. They need not be hooked to the rims. Nothing can force them off the rims until you remove the flange. Then they come off like all quick-detachables.

Your removable rim flanges, when you use these tires, curve outward instead of inward. That's why they can't cut the tire.

They fit any standard rims.

Other makers, to meet our competition, have used other devices to make hookless tires. But those devices have proved transient and unsafe. The only satisfactory tire of this new type is the Goodyear No-Rim-Cut tire.

When you once prove this, by actual test, you will never buy other tires.

Our 1912 Tire Book—based on 13 years spent in tire making—is filled with facts you should know. Ask us to mail it to you.

THE GOODYEAR TIRE & RUBBER COMPANY, Akron, Ohio

Branches and Agencies in 103 Principal Cities

We Make All Kinds of Rubber Tires, Tire Accessories and Repair Outfits

(502)

Yes, I Guarantee to Ship You a Belle City World's Championship Incubator and Belle City Brooder the Day Order is Received If You Order From This Advertisement.

(Signed) JIM ROHAN



Every year thousands of people write me in a rush at the last minute, and say: "When can I get my machine—will you ship at once—how long before you can fill my order," etc., so to avoid all this, I am reserving a certain amount of machines and guarantee to ship the day order is received either from one of my warehouse branches or from my factory at Racine on orders that come to me direct from my advertisements, so if you wish to, you can sit right down now and from this ad send me an order for your machine. Remember, I allow one, two or three month's home test, pay all freight East of the Rocky Mountains and guarantee my incubator to outlast any machine made under like conditions. Only

\$7.55 Delivered to You—140-Egg Double World's Championship Belle City Incubator. Read the description and see what you get for your money. My 140-Egg Belle City World's Championship Incubator has simple, perfect self-regulator correct hot water heating system, copper tank and boiler, safety lamp; double walls and double door, with dead air space all over, with rooey nursery and strong egg tray. Of course the thermometer is right; I use the "Tycos." I also supply egg tester, burner, funnel, everything you

need including valuable instruction book on operation, hatching and care of chicks.

\$4.85 Buys My 140-Chick Belle City Brooder—Best Brooder Ever Invented. Read description. The Belle City Brooder is as perfect as an incubator—140-chick size—and has double-walled, hot water, top-heated, metal safety lamp and burner, wire runway yard with platform. Absolutely the most perfect chick raiser made today. Or

\$11.50 Buys Complete Outfit When Shipped Together, Saving You 90 Cents. I pay all freight East of the Rockies. Why buy any machine of less reputation than the World's Championship machine? Why not get in the championship class? It has out-hatched all the others in over 5,000 contests. Thousands and thousands of people have written me of the wonderful success they have had with small outlay. My price is little—my machines are 100% perfect. Your success will be assured. You are perfectly safe in sending your order from this advertisement. We have a letter from the Cashier of the Commercial and Savings Bank of Racine—

To Whom It May Concern:—Jim Rohan, President of the Belle City Incubator Company is one of our depositors—perfectly reliable in every way and people are perfectly safe in ordering his incubators and brooders from his advertisements, sending money in advance, as we have known him for years and know he will fulfill all agreements. (Signed) C. R. CARPENTER, Cashier.

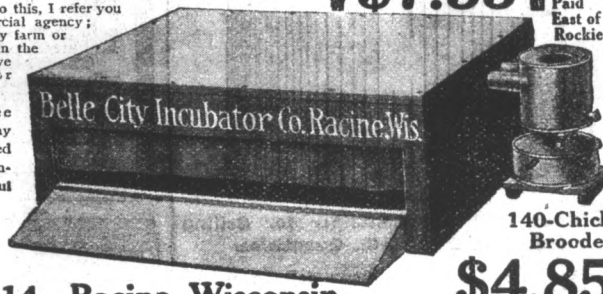
In addition to this, I refer you to any commercial agency; any bank or any farm or poultry paper in the country who have known me for years.

I guarantee shipments the day order is received from Buffalo, Kansas City, St. Paul or Racine.



140-Egg Incubator \$7.55

Freight Paid East of Rockies



140-Chick Brooder \$4.85

FREE "Hatching Facts"

JIM ROHAN, President, BELLE CITY INCUBATOR COMPANY, Box 14, Racine, Wisconsin

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By Actual Test, World's Best Hatcher. Thousands of Fairfield Incubators now in use. Beginners, as well as the world's greatest chicken experts have tried and under all conditions they all agree that my Fairfield is better, made of better material, is better looking, easier and cheaper to operate and is justly called World's Best Hatcher. Try My Incubator 42 Days At My Risk. That's the quickest, surest way to prove that the Fairfield is a wonderful incubator. If my Fairfield fails to hatch, I will refund you the money. If it hatches, you have made a good investment. It won't cost you a cent. That's my proposition in a few words. It's an honest offer on an honest incubator.



Shipped Freight Pre-paid

Guaranteed To Hatch 90% or Better

Money Back If It Fails To Hatch. Last year I introduced my Fairfield on a 90% hatch guarantee. It surprised everyone. No one believed an incubator could be built to make good on such a guarantee. The fact remains that several thousand hatch reports received from last year's Fairfield users. I again make my 90% hatch guarantee. If you take no chances in trying the Fairfield, Write for My Free Catalog. Let me send you full particulars about this great incubator. Also my 90% Hatch Guarantee and \$2.50 trial offer. My proposition is a good one. Write today.



The Fairfield is built to hatch, and it certainly does it.

The Fairfield is a sure profit hatcher, not an experiment. S. C. Thompson, Pres. Neb. Incubator Co., 65 Main St., Fairfield, Neb.

Bees on the Farm "Gleanings in Bee Culture" will help you get more pleasure and more profit from Bee keeping. 6 months trial subscription 25c. Book on Bees and Catalog of Supplies sent free. THE A. L. ROY COMPANY, Box 240, Medina, Ohio

Choice Standard-bred Rouen, Pekin and Indian Runner Ducks; Buff, White, Golden, Silver, Columbian and Part-ridge Wyandottes; Barred and Buff Rocks; Reds; \$2.50 single bird; \$6 trios; Toulouse Geese, \$4 each. Catalog free. Geo. F. Hartman, Box 230, Freeport, Ill.

Maple Sugar Makers

Our shallow boiling system is fast—interchangeable pans, easy to handle, fuel saving. Best for Maple, Sorghum, Cider and Fruit Jellies.

CHAMPION EVAPORATORS

the only kind made of best imported tin—cost less than others. Send for catalogue. CHAMPION EVAPORATOR CO., Hudson, Ohio.



How Many Trees Do You Tap?

Mammoth Bronze Turkeys—Toms all sold. Have a few choice hens at prices that are right. E. H. & J. A. COLLAR, Coopersville, Mich.

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all her attention to keeping fertile eggs, and fertile eggs only, warm and well covered, while otherwise an unfertile or addled egg might be kept under her at the expense of a fertile one. There is a further consideration in the case of hens: Suppose two, three, or four hens are set on the same day—always an excellent plan to adopt. After a week, when the eggs are tested, it is all too often found, particularly early in the season, that one-third or one-fourth of the eggs are unfertile or addled—that is to say, there may be only so many fertile eggs as perhaps two of three hens, or three of the four, can comfortably manage to cover. Thus one of the hens is relieved and can be given a fresh sitting of eggs to incubate.

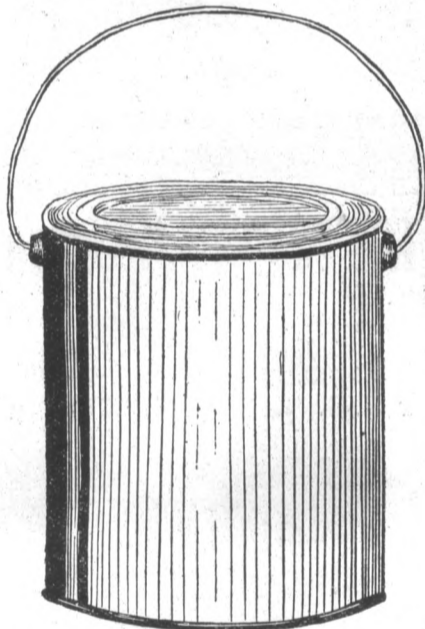
Poultry keepers frequently refrain from testing eggs under sitting hens for the reason that they do not wish to interfere with them unnecessarily. There is, however, no need to disturb the hen in the least; the eggs may be taken while the hen is off the nest for her daily feed and exercise, and tested and returned before she is permitted to go back, or the attendant may go to the hen after dark, carefully taking all eggs from under her and testing and returning them without the hen altering her position.

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For many years the tendency has been toward a small glass jar, bottle or tumbler as a container for honey put up for the city trade. In some cases it has run to that extreme that tumblers containing as little as six ounces have been put on the market and sold at ten cents each.

I will admit that I have been guilty of that thing myself, but I soon saw the folly of it. As soon as I got rid of the first batch of that size I quit them for good. However, I am still selling some honey in half-pound and pound jars, not because I want to but because we have the public educated to that kind of buy-



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ing and we can no longer sell to many customers unless we sell them a bottle which contains only enough honey for their breakfast, or dinner, as the case may be. Now this is all wrong, and the quicker the public learns to buy in larger packages the better for them and for the producer also.

Let me give an instance: The average price for honey in five-pound pails, in the city of Detroit, is 15c per lb. Honey in glass (the same grade), brings 25c per lb. Quite a difference is it not, when you take into consideration that these containers are never of any use to the city consumer, being thrown away when empty.

And how about the producer? Does he get any more for his honey in the glass than he would have received in the tin pails? Well, if everything went off just right, he might, but after he has had a few cases of those glass jars of honey all mashed, then has chased the railroad company around for a while trying to get pay for them and failed to get any satisfaction, he will begin to think there isn't so much in it after all. If it were not for their being peculiarly suited to making displays at fairs I should never use glass jars for honey again, and I have used them long enough to know just how much profit there is in them. Of course, for exhibition purposes the glass is best.

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HORTICULTURE

SECURING GOOD GARDEN SEEDS.

DURING the past decade a great deal of study has been given to the subject of seed selection and we have learned something about seeds and the conditions under which they produce the best plants. All of this knowledge points to the wisdom of securing the seed supply early in order that its merits may be learned before it is time to start the crops of the season.

Before selecting his seeds the wide-awake gardener usually looks over the field to see what professional men have done in the way of introducing new and improved kinds of seed. To do this he avails himself of the literature sent out by leading seedsmen. He next orders his supply so it will reach him about the first of March in this latitude.

Tests are then made to determine the presence of foreign material in the seeds and also to learn their quality. The foreign material may consist of stones, other seeds, sticks, etc. These are discovered by the use of a reading glass, or a hand lens. It is well to have samples of weed seeds at hand to identify the nature of foreign seeds. Reputable seed houses exercise great care and use efficient machinery in cleaning their seeds and foreign matter is not likely to be present in the seed which they send out so that this question is one of decreasing importance to gardeners; however, this assurance is not such as to make it unnecessary for the gardener to watch for impurities.

The quality test is more important. It includes the sprouting test and the test for germination. By the latter we mean the ability of the plant not only to sprout but to subsist until it can support itself upon the soil in which it is sown. There are a number of ways in which these germination tests can be made. However, one must have a steady and sufficiently high degree of temperature and a proper amount of moisture. Ordinarily the work can be done in the kitchen, or in some room where the temperature is kept from 60 to 70 degrees without interruption.

To learn whether the seeds will sprout place blotting paper on an ordinary plate, sprinkle a certain number of seeds selected from different parts of the package upon this blotting paper. Place one or two sheets over this after which apply water to keep the blotting paper and seeds nicely moistened. A second plate or a pane of glass can be laid over all to keep the moisture from evaporating. Some seeds require a longer time to sprout than do others. Do not permit the seeds to dry out. By watching this can be prevented. And be careful that too much water is not added. After from four to eight or ten days, depending upon the kind of seeds being tested, count the sprouted ones and determine the percentage of seeds that have life.

The Germinating Test is Most Important.

What is more important to the gardener than the sprouting test is the test to determine whether the seeds will produce plants, for many times seeds will sprout and not have vitality to develop a strong, healthy plant and establish it in the soil. The best way to learn this is to use a common greenhouse flat, or if that is not available a shallow dish in which some good garden soil is placed and over which an inch or less of clean sand is sprinkled and carefully packed down, to make it firm and even all over the flat or dish. It is best to bake the sand that is placed over the top in order to kill all foreign seeds that may be contained in it and prevent the formation of mold, or fungus pests. The seeds are planted in this sand by carefully placing them an equal distance apart in rows and at the same depth, the depth depending upon the kind of seeds being tested. The flat or dish is then placed where the temperature is congenial and allowed to remain until the plants have developed and become attached to the soil. Gardeners know that tests will vary where the flats have been watered unintelligently. By using the garden soil beneath the sand it is not necessary to water the flat very often for the sand acts as a mulch and keeps the soil from drying out. The original watering will ordinarily suffice for those seeds that germinate quickly. The fault usually comes from giving too much water rather than not enough.

The following percentages will serve as a guide to the gardener in determining whether seeds are of high enough ger-

minating quality to sow. It should be remembered, however, that seeds vary in their germinating capacity with the conditions under which they were matured and harvested. Every farmer knows that corn of one year's growth will not give the same test as that from another year's growth. Nevertheless, the person with limited experience will be helped in this work by the use of the percentages given in the following paragraph.

Asparagus seed should test from 80 to 84 per cent; common beans from 90 to 95 per cent; lima beans 90 per cent; beets from 135 to 150 per cent for the ordinary garden varieties, while mangels and sugar beets should test from 180 to 200 per cent, (what we commonly call beet seed is a fruit, each of which contains one or more seeds, thus accounting for the seemingly erroneously high percentages); cabbage 90 per cent; carrots from 70 to 75 per cent; cauliflower from 85 to 90 per cent; celery from 75 to 80 per cent; corn 85 to 90 per cent; cucumbers 85 per cent; eggplant 50 to 60 per cent; lettuce 90 to 95 per cent; muskmelon 85 to 90 per cent; onion 85 per cent; parsley 75 to 80 per cent; parsnip 70 to 75 per cent; peas 90 to 95 per cent; pumpkin 85 per cent; peppers 60 to 65 per cent; radish 85 to 90 per cent; rhubarb 80 per cent; salsify 80 to 85 per cent; spinach 75 to 80 per cent; squash 80 per cent; tomato 80 to 85 per cent; turnips 90 to 95 per cent; watermelon 80 to 82 per cent.

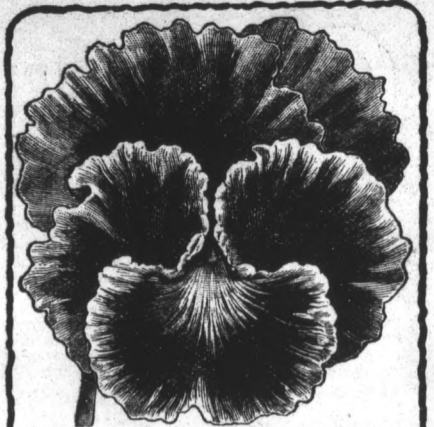
If the seeds are poor the gardener should seek a different supply, for the cost of the seed is a very meagre part of his expense in producing a crop and one can well afford to buy two or three supplies of seed rather than waste his labor upon the land and have his crop fail because the seeds are not good. This is the reason why the gardener should look after this matter early and secure another order should the first supply fail. Then, too, seedsmen are aware that the early purchasers are careful men who investigate what they are buying and so are more likely to sell their highest grade of seeds to them, knowing that late purchasers will not have opportunity to test their seed before putting them in the ground.

One must depend upon the seedsmen to furnish seeds of the variety named. This, of course, is a very important thing to know, especially where one is growing garden stuff to supply a particular market. He may suffer considerable damage by having his crop turn out to be of a different kind than he desired, and causing him to disappoint his patrons. Seedsmen, however, who have a reputation at stake are careful in this regard and can usually be relied upon to furnish goods as advertised. It is usually good policy to continue to buy of a firm that has proven themselves to be reliable.

The planting of good seeds is just as important to the gardener, whether he be growing for commercial purposes or for the satisfaction of himself and family, as is the selection of dairy cows to the man who is producing milk. The poor cow is sure to be fed at a loss, even when fed the highest grade of grain and roughage and given the most careful attention as to stabling and bodily comfort. Preparing the soil ever so good cannot give a maximum crop when the seeds sown are of low vitality. It is true that soil preparation and soil feeding make a better crop than would result from poorly prepared soil but the quality of the seed limits the benefits to be derived from this care. "Good seeds bring forth a glad harvest" is an old saying and while it may be trite, modern investigation has proven it to be true. The attention that has in recent years been given to seed corn could be given to garden seeds with proportionally equal satisfaction.

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OUR Sterling grades of Clover

Seed are northern grown. Such seed has been produced from plants which have endured the extreme cold of winter and the alternate freezing and thawing of Spring and Fall. As only the strongest and most vigorous plants survive, the seed which matures is, therefore, very hardy, full of vitality and of great value. By planting our seed, clovers may be established in northern sections where, until recently, it was not thought possible for them to survive. Clover grown from STERLING seed in sections farther south, is more productive, of greater vitality and of better quality than from seed produced elsewhere. Our Sterling grade is of greatest purity and highest germination. Sold only in sealed bags bearing our name and trade mark.

SOLD BY OVER 12,000 MERCHANTS. Most dealers sell our vegetable and flower seeds in packets and carry a stock of our heavier seed in bulk, such as clover, timothy, etc. If no dealer in your community will sell you our seeds, send us your order direct. **Read All About Clover in Our 25th Annual**

Catalog. It tells the value of all varieties of clover, its yield and other facts. It contains 144 pages of valuable information. In it are listed hardy varieties of vegetable, flower, field and grass seeds, as well as shrubs, roots, plants, poultry supplies, etc. Write for it today. **NORTHROP, KING & CO., Seedsmen** 603 Bridge Square, Minneapolis, Minn.

WESTERN NEW YORK HORTICULTURAL SOCIETY.

The fifty-seventh annual meeting of this old society, recently held in Rochester, was one of the best in its history. It was a three days' meeting this year instead of two, as in years past. There was a large attendance at all of the sessions. One feature of the meeting was a full discussion of all the addresses, and this brought out much valuable information. An innovation was the banquet on Thursday night, which took the place of the regular session.

"Some Phases of Apple Growing," was the subject of a paper read by C. H. Williamson, of Illinois. He said that in the west commercial orcharding was an extensive art, as compared with orcharding in the east. The unit in the west is generally 100 acres. When I tell you that I operate 1,800 acres of orchards, you can see that the mistake of western orcharding is that it is not an intensive art. The middle west, because of the higher prices of land, will not be planted to orchards, but probably the output of apples will not be decreased for the present acreage of orchards will be given higher culture. Artificial heating is profitable for me, for I can save the crop when the temperature does not go down more than five degrees below freezing. I think we have greater obstacles, as drouths, frosts and disease, to work against in the middle west than in New York.

A representative from the National Show, R. G. Phillips, gave a short address on "Marketing Apples." He said there will never be a good market for apples until the culls and poor apples are sent to the cider mill, instead of being sold. It is not profitable for you to sell "tree-run" apples at any price. They will react on you so you cannot sell high-class apples, when you have them, for what they are worth. In the United States last year the decrease in the apple export was 100,000 barrels, while from Canada there was an increase of 800,000 barrels. Canada's increase was owing to her law in compelling honest grading and labeling of apples. The foundation of a good market is a right pack, established by an enforced law.

Wilford M. Wilson, Professor of Meteorology in Cornell University, discussed the subject of "Weather and Climatic Factors in Fruit-Growing." He said that the semi-hardy fruits are uncertain crops unless there are 170 days between the seasons of severe frosts, while less than 150 days is too short a season to grow them. Another important factor in fruit growing, is the daily range of temperature. For the best results with fruit, the oscillations of temperature between day and night should not be more than 20 degrees. The conditions named are generally found near the great lakes. The most important factor to be considered are frosts. If we know when planting fruits, the average dates they come into the blooming stage, and also the dates of injurious frosts in the locality for several years, we have reliable data as chances of success with the fruit. Within a limit of five or six degrees temperature can be controlled by artificial means. The cost of heating per night depends on several conditions. The cost of running 100 burners one night is somewhere between two and three dollars. I know of one fruit crop worth \$1000 per acre which was saved at a cost of \$3.00 per acre. To be on the safe side watch the temperature and start the heater when it goes down to 32.

A paper on "Plums" was read by Prof. Hedrick, of Geneva Experiment Station. He thought the east should buy less plums of California, and raise more. The best desert plum of the European class, is the Rhein Claude, which belongs to the Green Gage family. The Monarch and Grand Duke belong to another group, not so good in quality, but of fine appearance and are good shipping plums. Japan plums have been over-planted, its defects are poor quality and early blooming which is often killed by frost. The east yearly sends \$5,000,000 to the Pacific coast for plums. The most popular plum is the Bradshaw but like Lombard, it is poor in quality. Shropshire and French are good plums but the Damsons are the best adapted to New York.

Mr. W. I. Smith, of New York, read a paper on "Cherries—Montmorency and Other Varieties." He said that where apples can be grown, some cherries can be successfully grown, and they are as profitable as any tree fruits. He recommended Montmorency and English Morello for sour cherries. The best all

round one is Montmorency. Mr. Smith said that from four acres his crop was 20 tons of fruit, which he contracted for at five cents per pound. High dry soil is best for cherries. Plant in the spring and head low, and afterwards prune but little. I cultivate the cherry orchard from early spring up to picking time, also spray Bordeaux mixture and arsenate of lead for leaf blight and curculio.

New York. W. H. JENKINS.

RENEWING PEACH TREES.

Usually some untoward condition or accident cuts short the life of our peach trees and makes replanting necessary to keep bearing trees on the premises. Occasionally, however, there are orchards that stand the extremes of cold, drought, moisture and wind, and live to an unusual age. Beyond a certain period these trees often fail to bear. A large number of growers, especially men in New York state, have found that their trees can be renewed by partially de-horning the tops and allowing new sprouts to grow upon which fruit will be borne later. To bring this about some growers remove from one-half to two-thirds of the top in a single season, removing the remainder when the new top has developed. A majority of our old trees have high tops. In renewing use the branches that start low to bring the tops down.

THE CONTROL OF ROOT-KNOT.

A careful study of root-knot has been made for the Department of Agriculture by Ernest A. Bessey. While this disease is wide-spread through the warm temperate and tropical climates, and is especially troublesome to crops in the southern part of the United States, the disease is frequently met with in our colder climate, and it is well that those who are interested in the growth of plants subjected to the attacks of this disease be informed.

Dr. Bessey has found some 480 species and varieties of plants which are susceptible to the trouble, in which are included most of the important field and garden crops, as well as ornamental plants. Other names for the disease are bearded root-knot, root-gall, eelworm disease, big-root, and probably many other local names. The disease is caused by a nematode or parasite.

In examining roots affected, one can, by breaking them, observe, upon holding the broken surface so as to properly reflect the light, a large number of clear, white, rounded bodies, smaller than the ordinary newspaper period, projecting from the surface. These little bodies are the mature females, each of which is capable of laying many hundred eggs.

Among the different recommendations made by Dr. Bessey are the following: Keep the affected plants free from vegetation of all kinds for two years, which is the most effective practice for eradicating that is known, but in most instances such a treatment is impracticable. A second plan is to plant the land to non-susceptible crops for at least two years, preferably more. Weeds should be prevented from growing and heavy applications of fertilizers, especially those containing potash, except, of course, where the soil is well supplied with this element. In some truck gardens it is possible to flood the land, and if this is done for several weeks the disease can be exterminated. The opposite can also be done in some places by plowing and allowing the soil to dry out for several months.

The ideal procedure, however, in fighting this disease is to develop the varieties of plants that are non-susceptible to its attack. Dr. Bessey has observed that in almost every instance where crops have been attacked by the disease that some plants appear to be growing vigorously. Often this is due to some local difference in the soil, and again the particular plant appears to have some power of resisting the disease. If these latter plants could be used in reproducing a strain it is probable that a very large number of the resulting plants would be able to ward off the disease. By continuing this selection, in time a strain could be had that would entirely eliminate trouble from root-knot. It would appear to be done, however, by keeping in mind the quality of the plant used, and if they lacked the essential qualities for which the plant is grown, nothing particular would be gained. The information gathered by Dr. Bessey is being published by the Department as Bulletin No. 217, of the Bureau of Plant Industry.

YOUR BIG "MONEY CROP" IS YOUR APPLE CROP

You can make more profit from the fruit you grow on your farm than from anything else you can raise—and with less time than you must devote to making a crop of wheat, oats, corn or potatoes. Apples, for instance, will earn you \$200 to \$500 and more per acre—not once in a while, but on a regular average; not in some far-away place, but right in your own locality.

You can prove this in your own orchard, this year. With a few pruning tools, a little fertilizer, a plow, and a



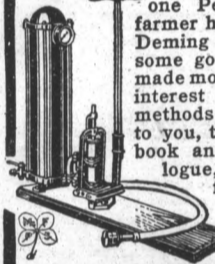
Deming Spray Pump



you can work wonders, bringing your trees into a good, healthy condition, so that they will begin to bear such fruit as you read about. Of course, you should start new orchards, too; but you can make money from the old trees while the new ones are coming to bearing—and for a good while afterward.

How to Make Money From the Trees in Your Old Orchard

"How the Old Orchard Paid," tells how



one Pennsylvania farmer has taken a Deming Spray Pump and some good ideas and has made money. His story will interest you, because the methods he used are open to you, too. Send for this book and our new Catalogue, or ask your dealer for full particulars about Deming outfits. If he does not handle them, write us.

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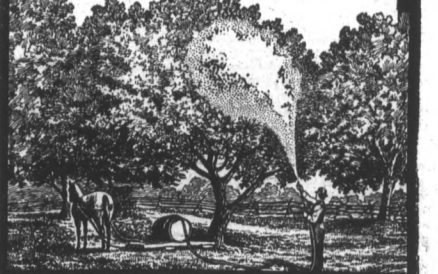
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SPRAY FRUITS AND FIELD CROPS and do whitewashing in most effective, economical, rapid way. Satisfaction guaranteed. **BROWN'S HAND OR POWER Auto-Sprays** No. 1, shown here, is fitted with Auto-Pop Nozzle—does work of 3 ordinary sprayers. Endorsed by Experiment Stations and 300,000 others. 40 styles and sizes of hand and power sprayers—also prices and valuable spraying guide in our Free Book. Write postal now. **THE E. C. BROWN COMPANY** 22 Jay St., Rochester, N. Y.

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Shrewd people buy merchandise from established houses—houses that will be in business when they need service. Why should not a planter buy his Trees, Shrubs, Vines, Roses, Bulbs and Seeds with the same precaution? How disappointing it is when your trees or shrubs have leaved out to find something you did not order—something you do not want. Have you ever had this experience?



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Big money in right kind of oats. Here's your chance. Imported Canadian seed oats, raised on Galloway Brothers-Bowman Co. big seed oats farm in Canada. New, clean land. Genuine Regenerated Swedish Select went 116 bushels to acre; Early New Market 110 Bushels to acre. Farmers who bought this seed from us last year raised as high as 75 to 100 bushels in this country and found out that their old seed was inbred and run out. Seed from us went double and in many cases three times. Change your seed. Try some of this new seed. Sample free, or 10 cents for large packet. Will also send our free book entitled "Big Money in Oats and How to Grow Them." **GALLOWAY BROS.-BOWMAN CO., Oats Specialists** 642Y Galloway Station WATERLOO, IOWA

Phoenix "Red Tag" Trees

Sixty Years the National Standard—are growing—nay—bearing in every State in the Union, also in Canada and Mexico. Produced on 600 acres—rich Illinois land—no branches—all "Bloomington" grown. Trees, Small Fruits, Roses, Shrubs, Plants—the best of everything for Lawn, Garden and Orchard. **DEAL DIRECT**—we pay freight, guarantee safe arrival. Save you one-half. Write for 36-page Book No. 39. Tells you what and how to plant—mailed free. **PHOENIX NURSERY CO., Bloomington, Illinois.**

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Deep plowing will make available the abundant potash in the subsoil. Legumes will supply plenty of nitrogen. You Must Buy Phosphorus in some form and the only economical way is to buy it in the form of finely ground phosphate rock. The best is the cheapest, and can be had from us. Our goods pulverized to fineness 95% passes 100 mesh, 75% 200 mesh. **FEDERAL CHEMICAL CO.,** Ground Rock Dept. Columbia, Tenn.

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Wholesale Price to Fruit Growers

On first-class plants and vines. We have all of the standard varieties of Strawberries, Blackberries, Red and Black Raspberries, Grape Vines, etc. Special prices on large lots. Satisfaction guaranteed. Send for price list. **Bridgman Nursery Co., Box B, Bridgman, Mich.**

FOR SALE—One Eureka two row Potato Planter with Fertilizer. **WM. M. GRIFFITH, Butler, Ohio.**

NOTES ON SPRAYING MATERIALS.

The experiment stations we support for the investigation of problems like those connected with spraying are all active in learning the things most useful to their constituents, as is also true of our federal department of agriculture. Entomologist Howard, of the department at Washington, states that recommendations as to the amount in proportion to water, of a given arsenical, as arsenate of lead, which should be used in sprays for the control of certain, important pests, are more or less arbitrary and not based on sufficient experimental work. On account of the present large annual use of arsenical sprays, it is very important to know the minimum amount of arsenic required to control a given insect satisfactorily, thus avoiding the waste resulting from the use of an unnecessarily large amount. Some experiments have been undertaken by this Bureau to determine as exactly as possible the quantity of arsenate of lead which should be employed satisfactorily to control the codling moth and plum curculio on apples and peaches. Our experiments have covered the use of arsenate of lead at strengths ranging from one-half pound to five or six pounds per 50 gallons of water.

It is interesting to note that the Ohio Experiment Station, operating in a number of private orchards, obtained very satisfactory results against scab or bitter rot, from the use of lime-sulphur solution as a summer spray. No bad effects were noticed from combining it with arsenate of lead, and it causes distinctly less russetting to fruit and less injury to foliage than any other spray tried by the station.

The officials of the station found that malformed fruit caused by plant lice was comparatively scarce in plots sprayed with lime-sulphur as summer practice. A second spraying with the solution mixed with arsenate of lead should be given about ten days after the bloom has fallen, or about the middle of July to forestall the second brood of worms. No practical difference in the percentage of wormy apples at harvest time, was found in the case of the two sprays following close after the bloom, or one of them being deferred till July or early August. If these sprayings are properly made, from 95 to 99 per cent of the apples will be free from worms at harvest time.

CONTROLLING PEACH SCAB.

A careful study of peach scab and its control, was made by the New Jersey Experiment Station during the summer of 1911. In concluding the work of the season the officials were convinced that the key to the control of peach scab is having a finely divided sulphur well distributed upon the leaves and fruit during a certain period when the disease is likely to gain a hold upon the parts of the plant. For the control of peach scab, and incidentally brown rot, the officials recommend that three applications of self-boiled lime-sulphur mixture be used. The first application should be made just before the calyx is shed and the other two at intervals of about three weeks following the first. It would be well to give the conclusions of eastern growers at least a test in combating the peach scab during the coming season, for while experiment stations can do much to initiate a campaign of this kind against fruit enemies, it must be up to the growers to make final tests, as with them every condition must be met with.

GARDEN SUGGESTIONS.

Plan garden campaign now. Your seed order should go in soon. Onion seeds for sets can be sown in flats the last of the month. Throw a box over a plant of rhubarb and throw over this some horse manure. The heat will start growth and give you an early supply. Sow early cabbage seed in flats last of month. Sow thinly and cover lightly. Transplant when plants are strong. You should decide very quickly the question of installing a hotbed. Once used it becomes permanent. You get it in running order before spring's work is here. You enjoy its products when the rush is on. This is an opportune time to make the rounds of the plum and cherry trees to discover black-knot. This disease also affects the wild varieties and should be destroyed on such plants as it will be conveyed to the cultivated plants. Burn the removed branches.

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I will send by return mail our new book-folder describing the country in detail, and telling why 1500 farmers, now there, are prosperous and happy. It tells how you, too, may get a home there and win contentment.

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

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is known the world over as synonymous with The Best Seeds That Grow! Are you willing to pay a fair price for selected seeds of the choicest vegetables and most beautiful flowers? If so, it may prove of mutual interest if you write to-day (a postal card will do) for THE 1912 BURPEE ANNUAL. This is a bright new book of 178 pages that is intensely interesting to every one who gardens either for pleasure or profit. Shall we mail you a copy? If so, what is your address? Our address is, **W. ATLEE BURPEE & CO., Philadelphia**

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From Two-Fifths Acre of GINSENG Grows in shade in every State. \$2,715.06 received for these 14 barrels of Ginseng Root. \$5,525.90 was received from same garden in 1909. U. S. Export reports state that 630,714 lbs. were exported in 1862, averaging 65c per lb., and 192,406 lbs. in 1910, averaging \$7.48 per lb., prices doubling 10½ times in the last 48 years. Start with the seed. Many women growing it with great success. **G. H. BETTS, 2721 Prairie Ave., Evanston, Ill.**

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IN ALFALFA AND CLOVER IF PROPERLY PLANTED. Gov't Exp. Stations recommend the EXCELSIOR. Prominent alfalfa and grass growers use the EXCELSIOR. The Excelsior Grass and Clover Drill plants Alfalfa, Clover, Timothy, Blue Grass, Millet, etc., in the SUREST and MOST SAVING WAY. All of the seed drilled into the ground evenly and not too deep, in furrows four inches apart. INCREASES YIELD OF WHEAT BY CULTIVATION WHILE SOWING CLOVER. Don't fail to send for our special booklet M-96. Invaluable to you. **VELVETLAWN SEEDER CO. SPRINGFIELD, O.**

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MARKETS

DETROIT WHOLESALE MARKETS.

February 7, 1912.

Grains and Seeds.

Wheat.—Cash wheat ruled about steady last week, while futures showed an advance of one-half cent for May and one cent for July, according to Tuesday's quotations. Both bulls and bears had arguments for changing prices their way during the week, heavy primary receipts on this side and Canada being the strong bearish feature. The bulls opposed this argument with the strong market in Argentina, the firm feeling in Liverpool, the shortage of native wheat in France and the small Russian surplus. Prices declined a half cent on Monday from Saturday's quotations, but recovered a half of the loss on Tuesday. The visible supply decreased over one-quarter of a million bushels in the United States, while Canada showed an increase of nearly that amount. One year ago No. 2 red wheat was quoted at 93 1/4 c per bu. Quotations for the week are as follows:

Table with columns: No. 2, No. 1, Red, White, May, July. Rows: Thursday, Friday, Saturday, Monday, Tuesday, Wednesday.

Corn.—Corn prices will average a fraction higher than those of last week. The visible supply shows an increase of one and one-third million bushels. While receipts have been liberal the demand is large; even many rural sections, where formerly sufficient corn was grown to carry on feeding operations, are importing the grain. One year ago the price for No. 3 corn was 47c per bu. Quotations for the week are:

Table with columns: No. 3, No. 3, Corn, Yellow. Rows: Thursday, Friday, Saturday, Monday, Tuesday, Wednesday.

Oats.—A further advance was made in oat values the past week, although Monday and Tuesday showed a slight decline from the high figures of Saturday. Farmers have been somewhat liberal in delivering their surplus stock. The price a year ago for standard oats was 34c a bushel. Quotations are as follows:

Table with columns: Standard, No. 3, White. Rows: Thursday, Friday, Saturday, Monday, Tuesday, Wednesday.

Beans.—Market showed a slight reaction in the price for cash beans. There appears, however, to be a healthy demand which makes it reasonable to suppose that future trading will maintain prices near the present basis, at least. Quotations are as follows:

Table with columns: Cash, May. Rows: Thursday, Friday, Saturday, Monday, Tuesday, Wednesday.

Clover Seed.—This product shows prices to be maintained at the highest figure of a week ago for common seed, while alsike is 25c higher. There is an active demand and the market is firm at the high figures. Quotations are as follows:

Table with columns: Prime Spot, March, Alsike. Rows: Thursday, Friday, Saturday, Monday, Tuesday, Wednesday.

Timothy Seed.—Prime spot timothy seed sold on the market here Tuesday at \$7.10 per bushel, which is 15c below the price of the previous week.

Rye.—A decline of 1c is shown in the quotations of cash No. 2 rye, and it is now quoted at 96c per bushel.

Flour, Feed, Potatoes, Etc. Market steady. Prices are unchanged.

Feed.—All grades are unchanged and steady. Carlot prices on track are: Bran, \$28 per ton; coarse middlings, \$28; fine middlings, \$32; cracked corn, \$30; coarse corn meal, \$30; corn and oat chop, \$27 per ton.

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

Potatoes.—Prices are steady. The market is active. Offerings are limited. Car lots on track are quoted at 95c@1 per bushel.

Provisions.—Family pork, \$17@19; mess pork, \$16.50; medium clear, \$16@17.50; picnic hams, 9 1/4c; bacon, 11@13c; pure lard in tierces, 9 3/4c; kettle rendered lard, 10 3/4c per lb.

Dairy and Poultry Products. Butter.—As sensational as the recent rise in butter values was the drop early this week, when the chief butter markets clipped 4c from the price of last week. This decline is the result of the increased output and a restriction in the movement of the product due to the recently high price, which had the effect of increasing the use of butter substitutes. This drop will undoubtedly improve the movement of the product. Quotations are: Extra creamery, 32c; first creamery, 30c; dairy, 24c; packing stock, 22c per lb.

Eggs.—Egg values went up to 38c per dozen for current receipts this week; on Tuesday, however, they dropped back to 35c, including cases, which is a 2c advance over the figures of a week ago. The market is influenced by weather conditions very largely.

Poultry.—This trade is easy and rules about steady with the market of a week ago, with a few slight changes in quotations: They are: Live—Turkeys, 16@17c, geese, 11@12c; ducks, 14c; young ducks, 15c; spring chickens, 12@12 1/2c; No. 2 chickens, 9c per lb; hens, 11@11 1/2c. Dressed—Chickens, 12 1/2@13c; hens, 11@12c; ducks, 16@17c; geese, 14@15c; turkeys, 18@19c.

Veal.—Market rules steady. Fancy, 10@12c; choice, 9@10c per lb.

Dressed Hogs.—Light, \$7.50; medium, \$6.75; heavy, \$6.50 per cwt.

Fruits and Vegetables. Cabbage.—Steady. Now selling at 3c per pound.

Onions.—Higher at \$1.65@1.75 per bu.

Apples.—Prices are up, but market is not altogether satisfactory to growers. Baldwins and Greenings, \$3@3.50; Spy, \$3.50@4; Ben Davis, \$2@2.50.

OTHER MARKETS.

Grand Rapids.

The potato market ranges from 80@90c at up-state loading stations this week, with movement very light. Dealers say that warmer weather and a free movement will mean a drop in prices. Eggs are at the topnotch price of the season, local jobbers paying the country trade 33c. Dairy butter is steady at 28c. Live poultry is quoted as follows. Fowls and chickens, 9c; ducks, 12c; geese, 10c; turkeys 17c. Dressed hogs are bringing 7 1/2@7 3/4c.

New York.

Butter.—Quotations are down 2@6c. Market irregular and unsettled. Creamery specials are quoted at 32c per lb; extras, 31 1/2c; firsts, 30 1/2@31c; seconds, 29 1/2@30c.

Eggs.—Firm and 4@5c higher. Fresh gathered extras, 44@45c; firsts, 42@43c; seconds, 40@41c; western gathered whites 42@44c per dozen.

Poultry.—Live—Chickens, are down and fowls are higher. Western chickens, 12 1/2@13c; fowls, 13@14c; turkeys, 15@16c. Dressed—Unchanged. Western chickens, 12 1/2@15c; fowls, 12 1/2@16 1/2c; turkeys, 12@21c.

Chicago.

Wheat.—No. 2 red, \$1@1.01 1/2; May, \$1.03 1/2; July, 97 1/2c.

Corn.—No. 3, 64@64 1/2c; May, 68 1/2c; July, 67 1/2c per bu.

Oats.—No. 2 white, 52@52 1/2c; May, 52c; July, 47 1/2c per bu.

Barley.—Maltng grades, \$1.10@1.29 per bu; feeding, 80@95c.

Butter.—Market quiet and rather easy under a drop of 4c on top grades; lower grades practically unchanged. Quotations are: Creameries, 29@32c; dairies, 24@31c.

Eggs.—All grades higher; market is strong, owing to continued cold. Quotations are: Firsts, grading 45 per cent fresh, 39c; ordinary firsts, 34@37c per dozen; at mark, cases included, 31@36c.

Potatoes.—Firm and higher under moderate receipts. Michigan stock is now quoted at \$1.08@1.10 per bu. Wisconsin, \$1.05@1.08; Minnesota, \$1.08@1.10.

Beans.—Quiet and unchanged. Current quotations are: Pea beans—Choice hand-picked, \$2.53 per bu; prime, \$2.40@2.43; Red Kidneys, \$2.90.

Elgin.

Butter.—Market firm at 32c, which is a decline of 4c since a week ago. Eastern markets are congested with butter and the output is increasing. Output for the past week amounted to 620,000 lbs., as compared with 617,000 lbs. for the previous week.

THE LIVE STOCK MARKETS.

Buffalo.

February 5, 1912. (Special Report of Dunning & Stevens, New York Central Stock Yards, East Buffalo, New York).

Receipts of stock here today as follows: Cattle, 111 cars; hogs, 75 double decks; sheep and lambs, 100 double decks; calves 900 head.

With 111 cars of cattle on our market here today, including 12 cars of hold-overs, and with light runs reported west, we regained today about all the loss, or take-off last week. In fact, nearly all the cattle sold from 15@25c per cwt, higher, and in a good many instances 40c higher, and cattle of good weight, averaging 1,250 lbs. or over sold fully 50c per hundred above last week's prices.

We quote: Best 1,400 to 1,600-lb. steers \$7.50@8; good prime 1,300 to 1,400-lb. do., \$6.75@7.25; do. 1,200 to 1,300-lb. do., \$6.50@6.85; best 1,100 to 1,200-lb. shipping steers, \$6.35@6.75; medium butcher steers, 1,000 to 1,100 lbs., \$5.50@6.10; light butcher steers, \$4.50@5.10; best fat cows, \$4.75@5.50; fair to good do., \$4@4.50; common to medium do., \$3.25@3.75; trimmers, \$2.50@3; best fat heifers, \$5.75@6.50; good do., \$5@5.40; fair to good do., \$4.25@4.75; stock heifers, \$3@3.25; best feeding steers, dehorned, \$4.50@4.75; common feeding steers, \$3.50@4; stockers, all grades, \$3.50@4; prime export bulls, \$5.50@6; best butcher bulls, \$5@5.50; bo-logna bulls, \$4.25@4.75; stock bulls, \$3.25@4.25; best milkers and springers, 45@55; common to good do., \$25@30.

With light receipts today, the hog market ruled active, the bulk of the yorkers, mixed, medium and heavies selling 10c higher than the close of last week, going principally today at \$6.75. With light supply of pigs, and urgent orders for these, the market ruled 50@75c higher, ranging today from \$6.50@6.75. Good kind of rough sows sold generally at 6 1/2c per lb; stags, \$4.50@5.50. Hogs are well cleaned up; market closing steady.

The lamb market was active today; most of the choice lambs selling from \$7.15@7.20; few at \$7.25. Look for about steady prices the balance of the week. With light receipts may sell shade higher. The sheep market was active today. Market strong. Look for about steady prices the balance of the week on sheep. We quote: Best lambs, \$7.20@7.25; cull to common do., \$5.25@5.75; wethers, \$4.25@4.60; bucks, \$2.25@3; yearlings, \$5@5.75; handy ewes, \$3.75@4; heavy ewes, \$3.50@3.75; cull sheep, \$2@2.75; veals, choice to extra, \$10.50@10.75; fair to good do., \$8@10; heavy calves, \$4@5.50.

Chicago.

Received today: Cattle, 12,000; Hogs, 23,000; Sheep, 22,000. Same day last year: 14,093; 32,234; 80,446. Received last week: 46,865; 218,093; 111,130. Same week last year: 61,195; 151,511; 80,446.

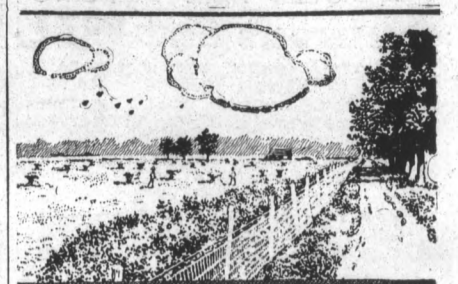
The heavy snow storm west of Chicago and the cold weather combined to cut down the live stock receipts today to extremely small proportions, and the run of cattle was particularly light, railroads in many instances declining to accept country consignments that were tendered them. Buyers had to do some hustling to get any cattle, and the market was generally called 15@25c higher, with a sale of 27 head of steers that were by no means prime at \$8.85, their average weight being around 1,600 lbs. Hogs started off active and 10@15c higher, with sales on a basis of \$5.85@6.45, numerous lots going at the top price, while a sale was reported at \$6.47 1/2. The best light hogs sold around \$6.32 1/2 and pigs brought \$4.65@5.85. A week ago hogs sold at \$5.65@6.35. Hogs received last week averaged 216 lbs., compared with 213 lbs. a week earlier and 211 lbs. a few weeks ago, comparing with 229 lbs. a year ago and 209 lbs. two years ago. Sheep and lambs were active today and largely a dime higher for the better class, lambs selling at \$4.50@6.95; yearlings at \$5@5.85; wethers at \$4.25@4.75; ewes at \$2.50@3.35 and bucks at \$2.50@3.25. A lot of light, thin feeder lambs brought \$5. Last week saw sheep and lambs largely 10@15c lower, best sheep and yearlings ruling steady.

Cattle were held back so largely last week on account of the sharp reductions in prices following the exceptionally liberal supplies of the previous week that good rallies in prices followed, buyers competing for the choicer heaves, which were scarce. Beef steers sold largely at \$5.75@7.90, the poorer light-weight steers bringing \$4.75@5.90 and the best grade of heavy heaves \$8@8.75. The top price was the highest seen in a long time. A good class of steers sold between \$7 and \$8, with a medium grade going between \$6 and \$7 and fair to prime yearlings fetching \$6.75@7.90. Activity and advances extended to cows and heifers, butchering grades selling at \$3.50@7, while canners sold at \$1.85@2.80, cutters at \$2.85@3.45 and bulls at \$3.25@6. The upward movement in prices culminated on Wednesday, and by Thursday the shipping demand was so poor that prices went off sharply before the close. The market for stockers and feeders has shown only moderate animation taking the week as a whole, as the offerings were only fair in volume, while sellers advanced their prices for desirable lots, and the packers took many of the best grade of heavy feeders. Stock steers sold at \$3.50@4.35 and feeders at \$4.75@6.20. Stock heifers had a fair outlet at \$3.15@3.75, and feeder heifers weighing 700 to 800 lbs sold at \$3.85@4.25. Milkens and springers were in large demand, and the scarcity of the best cows caused such to bring advances of \$5 to \$10, while the higher market for killers put merely good cows \$2.50 higher. Inferior milch cows brought \$30@37.50, while fancy Holstein milkers were quotable at \$65@70.

Hogs have sold wonderfully well for a week past, when the extremely large offerings are considered. On Monday the receipts aggregated 68,645 hogs, the biggest supply for a long period, but no great decline took place in values, and the break was made good on Tuesday. The eastern shipping outlet continued a source of strength, and prime weighty shipping grades sold particularly well, bringing a good premium over lighter weights of equally good grading. While the movement of mere pigs to market is much smaller than it has been, too many are still arriving, and the hogs are largely light in weight, which accounts for the fact that recent receipts have been averaging only 213 lbs., compared with 228 lbs a year ago. The ruling prices for hogs look good, especially those paid for the better class, and while hogs are much lower in prices than at corresponding periods one and two years ago, quotations compare very favorably with other years.

Sheep and lambs were marketed much more freely last week than a week earlier, and this caused weakness, prices averaging lower, although some prime flocks sold quite well, with lambs the favorites invariably. Heavy weights were strongly discriminated against by buyers, and this applied not only to lambs, but also to yearlings and sheep. While prime light yearlings went as high as \$5.75, 122-lb. lots sold down to \$5. Sheep and lambs have been selling decidedly better on the whole than a year ago, but far below prices paid two years ago, when there was a great shortage in the numbers in feeding districts of the country. A bunch of 778 head of Colorado fed lambs that averaged 79 lbs. sold at \$6.50, lacking finish, and a sale was reported of 235 feeding wethers averaging 102 lbs. at \$4. Horses sold all right last week so far as the best grades were concerned, but they were extremely few, the materially increased receipts consisting mainly of the common and medium grades, which sold slowly at depressed prices. Drafters were salable anywhere at \$175@325 per head for common to prime, wagon horses usually bringing \$160@200 and inferior to

fair horses \$100@150. There were orders for high-grade draft mares that could not be filled. The government live stock report says there are 20,500,000 horses in the United States, or 230,000 more than a year ago. F.



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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 8, 1912.
Cattle.

Receipts, 813. Market active at steady last week's prices for all grades; quality not so good.

We quote: Steers and heifers, \$6.25@6.50; do., 1,000 to 1,200, \$5.75@6; do. 800 to 1,000, \$4.75@5.50; do. that are fat, 500 to 700, \$4@4.50; choice fat cows, \$4.75@5; good fat cows, \$3.50@4.50; common cows, \$3@3.25; canners, \$1.75@2.75; choice heavy bulls, \$4.75@5; fair to good bolognas, bulls, \$3.75@4.25; stock bulls, \$3.50@4; milkers, large, young, medium age, \$4@60; common milkers, \$25@35.

Bishop, B. & H. sold Mich. B. Co. 1 bull weighing 1,020 at \$4.25, 1 cow weighing 1,170 at \$4, 2 do av 840 at \$2.75, 1 do weighing 1,090 at \$3.50, 18 butchers av 592 at \$3.85; to Nagle P. Co. 5 cows av 952 at \$3, 2 do av 905 at \$4; to Kamman B. Co. 6 butchers av 770 at \$4.85, 13 do av 865 at \$5.50, 7 do av 840 at \$5.50, 11 do av 700 at \$4.15; to Sullivan P. Co. 21 steers av 949 at \$5.60, 1 cow weighing 700 at \$2.50, 1 do weighing 1,240 at \$5; to Rattkowsky 1 steer weighing 680 at \$4, 3 do av 866 at \$5; to Newton B. Co. 14 cows av 877 at \$4, 10 butchers av \$28 at \$3.50, 4 do av 970 at \$4, 2 do av 880 at \$3, 24 do av 782 at \$3.95; to Sullivan P. Co. 3 canners av 783 at \$2.50, 4 steers av 892 at \$5.50, 1 do weighing 940 at \$5.75, 3 canners av 853 at \$2.85, 3 butchers av 1,007 at \$4.85; to Goose 22 do av 500 at \$4; to Thompson Bros. 6 do av 816 at \$4.25; to Hammond, S. & Co. 2 canners av 910 at \$2.75, 7 butchers av 990 at \$5.25, 4 do av 850 at \$3.85.

Roe Com. Co. sold Mich. B. Co. 1 bull weighing 1,320 at \$5.25; to Kamman B. Co. 9 butchers av 863 at \$5; to Rattkowsky 6 do. av 500 at \$4, 8 steers av 800 at \$5.25; to Hirschleman 7 butchers av 681 at \$4.40; to Nagle P. Co. 20 steers av 1,076 at \$6, 11 do av 1,052 at \$6.35.

Spicer & R. sold Breitenbeck 31 butchers av 754 at \$4.25; to Mich. B. Co. 1 cow weighing 860 at \$3, 6 cows and bulls av 1,115 at \$3.90, 29 butchers av 905 at \$5, 1 bull weighing 1,720 at \$4.75, 1 do weighing 1,100 at \$4.50; to Goose 3 cows av 893 at \$3.25, 5 butchers av 790 at \$3.25; to Sullivan P. Co. 4 cows av 1,017 at \$3; to Lachalt 7 butchers av 843 at \$4.70, 5 do av 780 at \$4.80.

Meehan & C. sold Kamman 6 steers av 725 at \$5, 4 butchers av 725 at \$3.50, 3 canners av 803 at \$2.50, 11 heifers av 733 at \$4.25.

Brewer sold same 18 butchers av 864 at \$4.75.

Stephens sold Sullivan P. Co. 1 cow weighing 1,060 at \$4.60, 4 steers av 862 at \$4.75, 6 canners av 761 at \$2.80, 5 steers av 1,322 at \$6.25, 1 do weighing 1,060 at \$5, 1 do weighing 940 at \$6.

Bresnahan sold Mich. B. Co. 17 cows av 1,279 at \$4.60, 3 do av 1,130 at \$4.

Townsend & W. sold Bresnahan 2 canners av 840 at \$2.75.

Sheep and Lambs.

Receipts, 4,485. Market 10@15c lower than last week; steady with Wednesday. Best lambs, \$6.25@6.50; fair lambs, \$5.50@6; light to common lambs, \$3@4.50; fair to good sheep, \$3.25@3.75; culls and common, \$1.50@2.50.

Bishop, B. & H. sold Newton B. Co. 21 lambs av 40 at \$3, 17 sheep av 85 at \$1.25; to Sullivan P. Co. 127 lambs av 65 at \$5.65, 7 do av 100 at \$6.50, 1 buck weighing 150 at \$3, 2 do av 85 at \$3.50, 23 lambs av 55 at \$4.25; to Thompson Bros. 26 lambs av 48 at \$3.75, 10 sheep av 70 at \$2.75, 17 lambs av 55 at \$4, 30 do av 55 at \$4; to Breitenbeck 90 do av 75 at \$6.15; to Fitzpatrick Bros. 19 do av 50 at \$4, 19 do av 80 at \$6.50, 49 sheep av 85 at \$2.50, 68 do av 100 at \$3.25, 14 do av 110 at \$3; to Thompson Bros. 36 lambs av 70 at \$6; to Sullivan P. Co. 40 do av 72 at \$6; to Parker, W. & Co. 26 do av 80 at \$5.75; to Nagle P. Co. 129 do av 75 at \$6.15, 55 do av 80 at \$6.15, 56 do av 80 at \$6.15, 10 sheep av 115 at \$3.25, 9 do av 82 at \$2.50.

Spicer & R. sold Parker, W. & Co. 70 lambs av 67 at \$6, 49 do av 50 at \$4.60, 20 do av 55 at \$4.25; to Nagle P. Co. 5 do av 50 at \$4, 56 do av 75 at \$6.50; to Thompson Bros. 12 sheep av 100 at \$3.25.

Haley & M. sold Newton B. Co. 28 lambs av 83 at \$6, 20 do av 65 at \$5.50, 1 sheep weighing 110 at \$3.

Roe Com. Co. sold Mich. B. Co. 95 lambs av 63 at \$6.50, 2 do av 55 at \$5.

Hogs.

Receipts, 3,257. None sold up to noon; look like steady Wednesday's prices.

Bishop, B. & H. sold Parker, W. & Co. 1,370 av 200 at \$6.20, 1,129 av 185 at \$6.15, 530 av 170 at \$6.10, 325 av 150 at \$6.

Haley & M. sold Hammond, S. & Co. 215 av 200 at \$6.20, 260 av 180 at \$6.15, 65 av 130 at \$6.20.

Spicer & R. sold same 618 av 200 at \$6.20, 155 av 180 at \$6.15, 115 av 140 at \$6.

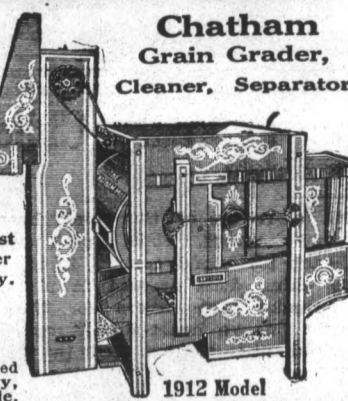
Roe Com. Co. sold Sullivan P. Co. 515 av 210 at \$6.20, 120 av 180 at \$6.15, 125 av 170 at \$6.10.

Range of prices: Light to good butchers, \$6.20; pigs, \$5.50@5.80; light yorkers, \$6.10@6.20; stags one-third off.

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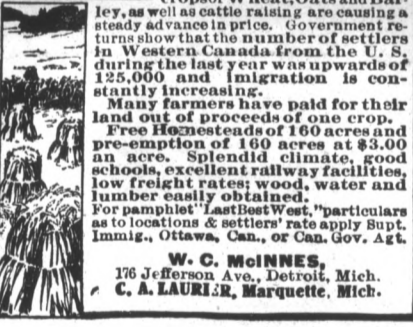
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Woman and Her Needs

At Home and Elsewhere

Birthday Parties for the February Child.

By Mary Mason Wright.

The children who were born in February may think themselves fortunate since it is the birth month of so many of our noted men and women; then it is also the month when the memory of St. Valentine is kept green. This makes it easy to plan an appropriate birthday party for the February child.

A pink and white valentine party is especially appropriate for a girl's birthday carried out in the following manner:

For invitations cut out small hearts from pink cardboard, and write the invitation on these with gold ink; then place over this a lace valentine heart a trifle larger or smaller, and tie the two hearts together with pink ribbon. These will make nice souvenirs of the occasion. Ask the girls to come dressed in white and then present each with a chain of pink hearts. To make these, cut tiny hearts out of pink cardboard and attach to pink ribbon of a darker shade than the hearts. A pretty decoration for the rooms can be made by stitching pink hearts of different shades and sizes onto white bunting and draping this artistically about the rooms. It is a good idea to use several shades of pink in the decorations thereby adding to the effect. String small pink and white hearts on narrow ribbon and festoon about the rooms where they will prove most effective. Larger hearts with pretty girls' heads or cupids pasted in the center will make nice wall decorations. Suspend in the doorways a pink heart made of pink paper roses, using a paste-board heart for a foundation, covering with pink bunting or muslin. Have pink shades on candles and lamps if used, if not, cover the gas or electric globes with the pink paper, producing a charming effect.

For entertainment stretch across one end of a room a white sheet or width of bunting on which pin pink hearts on which have been written prophecies for the future. Give each guest a little bow and arrow and let them find out what the future holds in store for them, by piercing the hearts. The prophecies written on the heart they pierce is theirs. Paste cupids and pretty girls' heads in the center of pink hearts and cut up into irregular bits, and let the guests put them together after the manner of dissected puzzles. After a heart has been cut up place in a white envelope and write on the outside the name of a guest. Place these on a table provided with mucilage and squares of white cardboard on which to mount the hearts when correctly mended. Ask each one to write an original valentine verse below the heart. A valentine hunt will give the guests exercise as well as amusement. In the center of a table have a large pink heart made out of pink crepe paper with white ribbons extending from a hole in the center, one for each guest. Tell them to select a little good-luck emblem, such as, a tiny gilt horseshoe, swastika, four-leaved clover, star or cupid. Hide little bundles about the room decorated with these emblems and let each guest hunt for her emblem, the bundles decorated with it can be claimed as hers. These little good-luck bundles should contain little trinkets, valentines and bon-bons.

The pink and white scheme can be carried out on the birthday table in a delightful manner. The birthday cake should hold the place of honor in the center of the table. It can be baked in heart-shape and decorated with pink candies of different shades and with the number of pink candles indicating the age. A round cake, iced in pale pink, decorated with white candies, and with little bisque dolls encircling the cake to represent cupids, will give a pretty effect. A white cake iced, with pink hearts around the edge, decorated with pink birthday candles and with a wreath of pink roses around the base makes a charming centerpiece. Have at each plate a little heart-shaped basket filled with pink and white heart-shaped bon-bons. The candles or lamps used on the table should have white shades decorated with pink hearts and

with a fringe of tiny pink hearts all around the edge. Place a pink paper rose at each plate and conceal in the hearts tiny china dolls dressed in pink; these will make nice favors for the young guests. Serve heart-shaped sandwiches, heart-shaped cookies iced in pink and white, and the ices can be served in heart-shape also, or else served in pink rose cases. If liked, the cookies can serve as place cards, icing them in white and writing the name of the guests on pink icing. For younger children these are especially nice.

Since several of our military heroes were born in the month of February a military will be a very appropriate way in which to celebrate the birthday of a small February boy. Ask the boys to come dressed to represent their favorite military hero, and decorate the rooms with flags, pictures of war heroes and anything of a military nature. If you can obtain a flag that has gone through the war and that has stories in connection with it that can be told the boys, so much the better. Have a military drill to the time of "Marching Through Georgia," or some patriotic music. When the drill is over have them salute the flag, and then stand and sing "The Star Spangled Banner" with as much enthusiasm as possible.

Give the boys balls with strings attached and tell them to wind up, and see what they find at the end; these strings should lead through several rooms, over and under furniture in a sort of cobweb style, and should end in a fort of brown paper over a wire frame. Have a flag or two floating from the top. The strings should pass through port holes in the fort, and be attached to toy drums, soldiers, muskets, cannons and such like military toys.

Let the boys march to the dining-room to the strains of martial music. Use a large flag for a table cover, or else decorate the tablecloth with small flags. A fort cake iced in brown with chocolate, and decorated with red, white and blue candles, and with tiny flags, will make a delightful centerpiece for the table. Wreath with red, white and blue flowers, or if these are not easily obtained

use a red, white and blue frill made out of crepe paper to surround the cake. At one end of the table have a toy cannon decorated with tiny flags, and at the other end a group of toy soldiers, and a few toy muskets stacked up. Use top drums for bon-bon holders, pasting on the head of the drum a picture of the military hero represented by one of the boys. The boys can find their places by means of these miniatures. Serve plenty of sandwiches, cake and ice cream suited to the boys' appetites.

If the birthday comes near the twenty-second of the month, a Colonial party at which the parents dress up as George and Martha Washington, and the guests in Colonial character, would make an appropriate birthday party. Have the color scheme yellow and blue. Drape the rooms with blue bunting on which has been stitched gilt stars; this can be caught up with shields or with paper eagles here and there. The birthday cake can be iced in yellow and decorated with blue candles. Dress up little dolls to represent George and Martha Washington and use as favors. The bon-bon boxes can be blue, decorated with gilt stars, and it will be nice if you can use blue ware, or gold-banded china. At each corner of the table have a brass candlestick, with yellow candle and blue shades. If one wishes to use the national colors instead of the colonial colors, ice the birthday cake in white, use blue candles and wreath the cake with red carnations; or a white cake can be decorated with red stars and blue candles.

If the birth date is the same, or comes near to that of Lincoln, decorate the rooms profusely with flags and liberty bells. By means of red, white and blue ribbon suspend a hoop covered with red, white and blue bunting or crepe paper from chandelier. From this suspend red, white and blue paper bells. Also around the hoop fasten one end of red, white and blue paper chains ending at little bells used for bon-bon receptacles. These can be bought or can be readily made.

Carnations, primroses and crocuses are the flowers most suitable for table decorations in February. Crocuses will make a pretty decoration if arranged around the birthday cake, as if growing. Have a little pot of these at each plate. A white cake wreathed with red and white carnations and decorated with blue candles is very effective.

Floral Work for the Month—By Eva Ryman Gaillard.

THE plants already in the window collection will need about the same care as last month but those stored away for the winter will need attention during this month. Amaryllis, achimenes, gloxinia and other plants and tubers should be looked over very carefully and some, at least, be started into growth, leaving those showing least inclination to grow for later starting to keep up a succession of bloom.

Cannas, dahlias, gladioli and others of their class should be inspected and if any show a tendency to decay they should be thrown out to prevent them from affecting others. A few cannas potted now will be ready to make a good showing early in the season, but it must be remembered that the roots fill up and start growth slowly and need only enough water to keep the soil moist, not wet, until the foliage is started and ready to make use of more water.

Fuchsias and other woody-stemmed plants should be brought from their winter quarters, re-potted if necessary, sharply pruned to get good form and force blooming branches to an early start, and closely watched for the appearance of mealy-bug or scale. Plants of this class are among our free bloomers and will exhaust themselves in a season unless given both food and drink.

Now that plants are making more rapid growth constant pruning will be needed. Do not let awkward branches, or tall, whip-like center stalks grow. Pinch them cut as soon as noticed or, if they get a good start before noticed, cut for "slips" and root them ready for use in the summer garden. Sometimes a gift of cut flowers brings a new sort to our notice. These, usually, are cut with long stems that make good "cuttings" when the blossom is wilted. Be sure to cut the blossom from the stem before trying to root it, and do not wait until the last particle of beauty is gone and the vitality in the stem entirely exhausted. Not every flower can be started in this way but the finest roses and carnations in a large collection were secured from long-stemmed blossoms taken from a bouquet.

Boxes filled with fine, friable soil are the best propagating beds but if these have not been provided, a deep plate filled with sand kept soaking wet is a splendid substitute. Failing to have either of these, try rooting in a clear glass vase or bottle partly filled with water. Some plants root more quickly in water because of the drawing power of the light, shining through the glass. Whichever method is used, get soil at earliest opportunity and have it ready to pot the rooted cuttings in and let them get a good strong growth established before transplanting to the open ground.

Hard seeds that take a long time to germinate and those of plants that require a long season of growth before reaching the blooming stage should be sown by the last of the month. Cannas and moon-flowers belong to the hard-shell class that require weeks for germination while chrysanthemums, primroses, cinerarias and other late-fall or winter-blooming sorts represent the second

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class. Seeds that germinate quickly and bloom in early summer should be reserved for later sowings, as too early starting means repeated transplanting to keep the seedlings from becoming "leggy" before they can be planted out.

Frosted plants are not uncommon despite the best of care, and knowing just what to do will, many times, save them. Take them from the warmth as soon as possible and remember that the application of warm water is fatal. As soon as the fact that they are frosted is discovered take them into a cold room and shower freely with cold water. Keep them where the temperature is but a very little above freezing and repeat the showering. Do not return to the warm room for a day or two. If the tips of stems, leaves, or any part of the plant shows that it was too badly frozen for the frost to be drawn out by the cold water cut the part away at once, to prevent the injury from spreading to other parts. If the water turns to ice on the leaves don't stop applying it for the ice shows that the water is taking the frost from them. The best way is to dip the tops into cold water for a moment and repeat several times.

When studying the fascinating illustrations and descriptions of the seed catalogs in February it is easy to forget that bugs, weeds and plant diseases exist. But unless we harden our hearts and refuse to be beguiled into buying everything we would like there will come a time when we will have to admit that bugs and weeds are too many for us to cope with.

Include in the early order such novelties as seem suited to your geographical location, the conditions under which they must grow, and the amount of care you can give them, but don't order something native to our half-tropical states, with their long season of growth, and expect it to thrive or mature in Michigan or any of the surrounding states.

In planning floral work for the season give plenty of consideration to the possibilities of the back yard, for most farmwives spend most of their time during the summer where the back-yard will afford them more pleasure than they can have time to take from the front, no matter how grand that may be.

The old fence will support vines of many sorts and among them may be the vegetable vines that will furnish good things for the table while transforming the old fence into a thing of beauty. The corner that has always produced rank burdocks, or other weeds, will make an ideal spot for a mass of golden-glow. Or sunflowers, castor beans and any other strong, rank-growing annuals plants may be used if a change from year to year seems desirable.

Look through the catalogs and decide what you would like to order of ornamental trees shrubs, perennial plants, seeds, bulbs or whatever may be offered. Then go over this list and consider carefully where you would put the things that tempted you and how you could care for them. Get a good mental picture of the effect they would produce, not forgetting to give consideration to their colorings and times of bloom. A mass of one color, or many flowers of harmonizing colors blooming at the same time are vastly more satisfactory than a medley of sharply contrasting colors, or a few flowers at a time. As an instance, a neighbor purchased a dollar's worth of French canna bulbs, of the large-flowered type, put them into a box of soil in February to sprout, and when danger of frosts was past planted them out in a bed between the kitchen door and the barn. When preparing the bed the soil was taken out and well-rotted stable manure put deep down. Over this the soil was placed again. In this way the manure would not burn the roots yet furnished bottom heat that semi-tropical plants enjoy. All summer the soapiest water was carried, painful after painful, to the bed on wash days. The cannas were of the low-growing type yet before the season ended they measured over six feet to tips of flowers and, moreover, the display of blooms was constant from the time the leaves numbered five or six until the plants were frosted.

It is early to order, some varieties but if the complete list is sent in the order will be booked and receive the first attention which secures the finest stock. Another reason for sending the complete order is in the fact that with the larger order the dealer sends the most "extras." If several friends club their orders the extras may be divided.

Caring for a few different varieties of seeds with their required transplantings

is much more bothersome than caring for an equal number of one sort, and neighbors may well co-operate to the extent of dividing this part of the work. If Mrs. A. will grow some one variety and care for them until time to bed the seedlings out, Mrs. B. and Mrs. C. can handle other sorts, each growing enough for the members of the co-operative circle.

LEFT OVERS.

The most successful cook is not the one who can make the most fancy new dishes but the one who knows how best to disguise remains of old ones so that the family will not suspect they are eating viands which have already appeared in other forms. Cold meat and potatoes may be served in a variety of forms, although the usual way is to simply "warm up" the former, and set the latter on sliced, or perhaps heated through and served again in the original form.

Next time you have a bit of cold roast, or even steak, left try a shepherd's pie. Put the meat through the grinder, add a cup of boiling water, or cold gravy if you have it, and a few slices of onion and seasoning to suit. Set on the stove to simmer. Then put your cold potatoes through the ricer, add a quarter cup of cream, or milk, and a bit of butter, pepper and salt, and beat to a light mass. If you have no ricer, warm the potatoes slightly in the milk and mash. If your meat has been simmering in water, thicken to make a gravy, add a quarter teaspoon of kitchen bouquet to color, spread the potatoes over the meat for a crust and bake until a rich brown.

Another favorite way of disposing of cold meat and potatoes is in a meat pie. Simmer the meat, potatoes and a bit of carrot and onion on the stove while you make a biscuit dough. You may make enough to line the dish and cover the pie, or simply enough to cover the top. Be sure to have plenty of gravy, as the crust absorbs much of it in baking.

Then there is the inevitable hash, a really enjoyable dish if made right. Be sure to remove all the gristle and fat from the meat and have at least twice as much meat as potato. A bit of onion and a cup of gravy left from your roast add to its flavor. If you have no gravy moisten slightly with water, as moist hash is preferable to dry.

Cold potatoes are delicious diced, mixed with white sauce and covered with a grating of cheese or bread crumbs and placed in a hot oven for 15 minutes. The white sauce is made by melting two level tablespoonfuls of butter in a sauce pan, mixing with two tablespoons of flour and adding a cup of hot milk. Stir smooth and boil a minute. This amount may be trebled or doubled, of course. It is surprising to those who have never tried how much more like freshly cooked potatoes taste if reheated in the oven instead of on top of the stove.

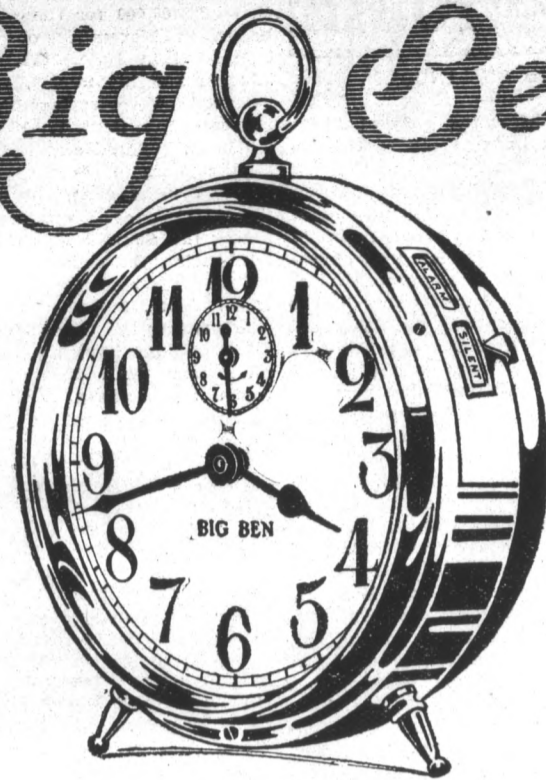
Never throw out odds and ends of vegetables unless you are absolutely sure you can not use them. When you have plenty of milk, a few cold peas, a bit of corn or a few stalks of celery will do for a cream soup. The rich milk, of course, constitutes the nourishing part, while the bit of vegetable gives the name. Boil the vegetable, put through a puree strainer and add to the milk, which may be thickened or not as you choose. Or a dish of tomatoes, a few peas, the bits of cold boiled carrot you were going to throw out may be put together with stock to form a vegetable soup.

Then, again, some of these odds and ends may form a salad. If you always keep a jar of salad dressing on hand you have the makings of many an appetizing dish with no additional outlay. You can christen cold diced beets and carrots mixed and covered with mayonnaise, "Combination salad." Many families like cold peas and string beans mixed and covered with dressing. The two or three stalks of celery remaining after a meal may be cut in small pieces, mixed with diced apple and a few walnut or hickory nut meats and made into a salad fine enough for anyone.

If your family is small a cup of baked beans will make a good soup. Put through the ricer, or mash fine, add a pint of boiling water, pepper and salt to taste, boil up and serve at once. You can use up your slices of stale bread with this. Toast the bread, cut in inch squares and drop into the soup just before carrying to the table.

In cold weather if the cream does not rise well, put in one or two tablespoons of buttermilk to each gallon crock or pan of milk, right after straining.—Mrs. J. P.

Big Ben



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HOME AND YOUTH

THE TOMB OF LINCOLN.

Just one week after the body of Abraham Lincoln had been placed in the receiving vault in Oak Ridge cemetery at Springfield, the Lincoln Monument Association was organized for the purpose of building a monument to his memory. Even before the organization was effected, contributions for the purpose were being sent in and the first entry in the books of the treasurer was for \$100, sent by Isaac Reed, of New York, three days before the books were opened. The "monument plot" is about nine acres in extent, and ground was broken September 10, 1869, in the presence of 3,000 people. The body of Lincoln was placed in the crypt of the monument Sept. 9, 1871, and placed in the sarcophagus, in the center of the catacomb, Oct. 9, 1874.

No ceremonies marked the laying of the corner-stone, but those of the dedication of the monument, Oct. 15, 1874, were very imposing. Governor Oglesby, president of the monument association, made the principal oration; Hon. J. K. Dubois gave the historical address and President Grant, Vice-President Colfax, Gen. W. T. Sherman, Mr. Forster (member of Parliament, from England), and other noted people made shorter addresses.

The first cost of the monument was \$270,000 which is accounted for by 5,154 entries on the subscription list, and of these, 1,695 (amounting to more than \$18,000) came from Sunday schools. Of

foundations, and in 1899 the General Assembly of the state voted an appropriation of \$100,000 for the work, which was begun in November of that year and completed in June, 1901. The bodies of Lincoln and his family, which had been removed, were replaced in the rebuilt monument on Sept. 26, 1901, and there he will rest, honored and unforgotten during all the years to come.

When looking at the monument note the statute of Lincoln standing boldly facing the South and just above the tablet bearing the coat-of-arms of the United States (which represents the constitution). Note, too, the groups of statuary representing the three departments of the army and the navy at the corners of the monument, with the chain of shields (each representing a state) linked to-

gether and surrounding it, a little lower down. When noting these features remember Lincoln's words: "I take my stand on the constitution as my authority for using the four arms of the war power of this government to hold the states together in a perpetual bond of Union."

The sculptor has made the design of the monument reproduce, symbolically, the most important act of Lincoln's life and it will, during the ages to come, teach anew the lesson of unselfish loyalty he taught when, in the face of an awful alternative, he said: "Here, without contemplating consequences before high heaven and in the face of the world, I swear eternal fidelity to the just cause, as I deem it, of the land of my life, my liberty and my love."

THE BACHELOR UNCLE

BY EVERITT McNEIL.

Chapter XIV.—In Black Man's Hollow.

When we reached home I left the children in charge of Mary Jane, and went to my room. It was now four o'clock and in two hours I must be in Black Man's Hollow to meet Harry Rodney. I wished to be by myself until it was time to go.

I am not naturally a bloodthirsty man, but I must confess that I longed for the coming combat with all the intensity of my nature. I had been terribly wrought up during the day; and I now felt that I must do something or the boiler would burst. Besides Rodney had struck at me and I had not returned the blow; but to-

and Teddy stood very straight and looked very manly.

"Unfortunately, Teddy, we don't live in the days of Ivanhoe," I answered, "and enemies don't settle their disputes now in the way you suggest; but I am very thankful to you for your offer, and when you can be of help I certainly shall avail myself of your services. Now run away and play with Ellen, for Uncle has an important matter on hand and wishes to be alone."

Teddy looked very much disappointed, and he went out of the room slowly and reluctantly.

After he had gone I opened a drawer in my desk and took out a loaded revolver. For some few seconds I stood holding the weapon in my hand, debating whether or not I should take it with me. I did not doubt Rodney's courage; but I did doubt his honor, and I feared, if the battle went against him, and I intended it should, that he might use treachery and revenge himself on me with a knife or pistol; but I soon dismissed these thoughts as unworthy of my manhood, and returned the revolver to the drawer.

It was now time to start for the rendezvous; and I went out of the house quietly by the back way, to avoid being seen by the children. Black Man's Hollow is an oval depression lying between three hills and surrounded by woods. About fifty years ago the body of a huge negro, naked and with arms bound, was found hanging from a chain fastened to the limb of a giant oak tree that grows in the center of the depression; and from that day the place had been known as Black Man's Hollow, and is shunned by every man, woman and child in the neighborhood.

The distance from my house to this unsavory spot is about one and one-half miles; and my wrath against Harry Rodney and my determination to punish him, grew with every step I took. Now, I clearly understand that many will feel that I should not have given room to such thoughts nor place to so brutal a determination. But I am a human being, not a saint; and I hated Rodney as a healthy man hates his bitterest enemy, and because of this hatred, and most of all because it was the only way I had of punishing him for the wrong he had done me, and his cruel treachery to Elsie, I longed to fight him. There are some deeds that can be punished satisfactorily only with strong, hard blows; and I thanked God that I was the man who was to give the blows to Rodney.

The sun was far down in the west when I approached the wood surrounding the hollow, and the shadows fell athwart the depression, darkening the place and leaving the great oak tree, whereto still clung a rusty fragment of the iron chain from which the body of the negro had swung so many years ago, in the gloom of early twilight. I glanced quickly around, expecting to find Rodney awaiting me, but not a human being was in sight. I looked at my watch. It still lacked two minutes to six o'clock. I sat down on a log and compelled myself to quietly await the coming of my opponent.

The woods were very still. The first hush of evening was in the air, and calmness and quietness were everywhere. A squirrel stared curiously at me from a near-by tree; a rabbit jumped swiftly by; and a crow lit on the topmost branch of the great oak and cawed noisily.

Could it be possible that Rodney was not coming? Again I looked at my watch. Ten minutes had passed. It had seemed like ten hours to me. I took out my



The Imposing Lincoln Monument at Springfield, Ill.

the \$27,682 sent by the soldiers and sailors of the United States, over \$8,000 came from colored troops. The four groups of statuary, marking the corners of the monument, representing the navy, the artillery, infantry and cavalry branches of the army, cost \$13,700 each. The infantry group was presented by the citizens of Chicago, while 137 men of New York City, gave \$100 each to pay for the navy group.

The monument remained under the control of the National Monument Association until July 9, 1895. On that date, pursuant to a provision made by the General Assembly, Hon. Richard J. Oglesby (the only surviving member of the original association) transferred to Governor Altgeld all papers and deeds pertaining to the monument and its grounds, to be under the control of a board of directors consisting of the governor of the state of Illinois, the state superintendent of public instruction, and the state treasurer.

The settling of the ground beneath the monument made it necessary to take it down, and rebuild it, after deepening the

night in Black Man's Hollow there would be no interruption; and the blood surged hotly through my veins and my teeth came together with a snap when I thought of that meeting.

Presently there was a rap on my door, and Teddy entered. His face looked very sober, as if he had been pondering deeply on some knotty problem, and he marched directly up in front of me, and, looking me straight in the eyes, said: "Uncle John I know you are in trouble, and I want to help you. That big man is your deadly enemy, and I know you want to lick him, because your eyes look just as Tom Dinwood's did when I fought him; and I licked him, too, Uncle John; and if you will write out a challenge to him and tell him where to meet you, and give me one of your gloves, I'll go to him and throw your glove in his face, and defy him to mortal combat with you, and give him your challenge. I know you can lick him, Uncle John; and when one has got a fight on hand it is better to fight right away and have it over with. Don't you think so, Uncle John?"

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jack-knife. Somehow whittling always has a quieting effect on my nerves. I stooped suddenly to pick up a piece of wood from the ground. As I bent forward a streak of fire shot toward me. I felt a cutting, spreading sensation across my scalp, and the report of a rifle rang in my ears.

"Harry Rodney has attempted to murder me!" was my first thought; and I pray God that I may never again feel the deadly and terrible wrath that leaped into instant possession of me. There was death in my heart as I sprang to my feet and glanced swiftly around. In front of the trunk of a large oak tree not three rods away, I saw a blue smoke slowly curling upward, and I rushed toward the spot. The next instant the covering, trembling form of Red Murdock was in my hands. For fully two minutes I shook and kicked and pounded him, venting my tigerish rage with such vehemence that I gave not the slightest heed to his cries of fear and pain and explanation; and then I realized that the man was drunk, and a part of my wrath changed to disgust.

"What does this mean, you drunken hog?" and my grip tightened around his throat.

"Don't kill me! Don't kill me! 'Fore God Almighty I mistook that gray hat of yours for a partridge! 'Fore God Almighty I did, Delvin!" The face of the wretch was white, even to the lips, and his legs were as limp as two rags. "Don't kill me, Delvin! I—"

"Shut up!" and I gripped his throat so tightly that he could not utter a word. "Now listen, Red Murdock, I am going to give you just three minutes to tell me who bought and paid for that shot; and if you don't tell the truth, I'll choke the life out of you right here and now," and with my watch in my left hand and my right hand on his throat I grimly awaited his answer.

For a moment the shifty, bloodshot eyes of Red Murdock glared up into mine; and I could see that he was making a tremendous effort to get his faculties under control, for fear and liquor had almost made him a mouthing imbecile.

"I—I mistook your hat for a partridge. 'Fore God I—" he began, and then my fingers shut around his throat.

"Who hired you to shoot me? Quick!" and I relaxed my grip.

"I—I—I'm no murderer!" and he attempted to straighten himself up indignantly. "I—I—I'm no paid assassin! I—I—I'm drunk, an' I mistook your hat— Don't You're chok—"

I held onto his throat until his eyes began to bulge and his face to turn livid. "Who hired you to shoot me? Quick! or," and my fingers tightened threateningly.

Murdock's face grew ghastly, and the fear of death came into his eyes, and he answered, as soon as he could catch his breath sufficiently, "I'll tell the truth! 'Fore God I'll tell th' truth! Don't kill me, Delvin! I'll tell th' truth! Take your hand off my throat! I'll tell th' truth!"

I took my hand from his neck; and as I did so I fancied I saw the glint of cunning return to his eyes.

"It's God's truth, Delvin, I was drunk an' mistook that gray hat of yours for a—"

I leaped to my feet and yanked him to his feet. "You drunken hog, get out of here!" and, in my wrath and disgust, I gave him a shove that sent him sprawling on the ground some ten feet away. It was ludicrous to see how quickly he scrambled to his feet, and the way he got over the ground in his hurry to get out of my reach, showed that drunk or sober he still had wonderful control of his legs.

His rifle lay at the foot of the tree. I picked it up and examined it. It was an old-fashioned, single-barreled, muzzle-loader, the same rifle that I had often seen in his hands; and I shuddered when I thought of Red Murdock's reputation for marksmanship, and of the narrow margin of my escape. The bullet had cut a furrow some four inches in length through my hair and so close to my scalp that it broke the skin in several places. Evidently my stooping suddenly forward had saved my life. Red Murdock, even when drunk, was not wont to miss so plain a mark. I swung the rifle above my head and struck its stock against the tree, shattering it into fragments, and threw the barrel far from me.

My blood boiled when I thought of the possibility that shot meant—murder! And yet I had no certain proof that murder was intended. Red Murdock might have told the truth. Half drunk he might have taken my hat for a partridge; but the thing seemed improbable, almost im-

possible. Besides, was Red Murdock as drunk as he pretended to be? He certainly had a sober pair of legs under him when he ran away from me. But, if murder was intended was he alone guilty? I knew he hated me; but I did not believe his hatred nor his courage great enough to attempt murder, unless pushed to it by someone back of him. Harry Rodney was the only one who knew I was to be in Black Man's Hollow at this hour; and why had he not come to the rendezvous?

(To be continued).

THE VALENTINE THAT GREW.

BY L. M. THORNTON.

Little Boy intended to water and care for his hyacinths. In fact Little Boy's intentions were always good, but this did not help the poor bulbs that dried up in a dark closet uncared for and forgotten.

When he received them as a gift from his favorite aunt he planned for a wealth of beautiful blossoms, and for the first week after planting them in rich soil he watered them every day and watched for the first little green shoots that were to be leaves or bulbs. Then the snow came and coasting engrossed every waking moment. After the snow the pond froze over and it was skating that occupied Little Boy's attention.

So the weeks slipped by and the poor bulbs dried up and turned a deep dark brown, not at all suggestive of spring and blossoms. All but one. A pretty, fat, brown fellow, he was; and whether his roots had grown a little stronger, or whether there was an extra store of water in the bottom of the pot where he rested, may never be known, but at any rate he put up a few sickly yellow leaves and in the very centre of them nestled a real bud.

Early in February all the boys and girls began to talk about valentines, and Little Boy's heart grew very heavy. He had intended buying the very nicest valentine in town for a certain golden-haired fairy who was always coquetting between a half dozen boys, leading all to think they might be favorites and assuring none of her preference. He had thought to settle the question of his supremacy on the field of love by the sending of this valentine, until the hour when he realized that his little bank had been emptied for the purchase of skate straps and sundry other boy treasures and there seemed no likelihood of any further donation from aunts and cousins for some weeks, the Christmas season having so lately passed.

It was just as Little Boy felt most wretched that he chanced to open the closet door, where the poor forsaken bulbs greeted his eyes. At first he thought he would cry, but that seemed almost too childish a thing for him to do, so he wrinkled his brow in a frown and bent down over them. The fat little bulb that had dared to risk putting up a bud attracted his attention and the frown changed to a smile.

It was while he was soaking the soil with warm water and adjusting the pot in a sunny corner of the sitting room window that the big idea came to him—why not grow a valentine?

Never were bulbs given better care, and never did one do more to repay its owner. On February fourteenth a great bunch of palest pink bloom in a mass of shining green awaited his pleasure. When it had been carefully wrapped in dainty tissue paper, the flower became Miss Golden Locks' first valentine.

That afternoon she rode down hill with Little Boy twice as often as with any of his small rivals, and once confided to him the gratifying opinion that, "a grown valentine is ever so much nicer than a boughtened one."

ST. VALENTINE'S DAY.

BY RUTH RAYMOND.

A pencil of gold through the lace curtain stealing
Fell bright on the cheek of a maiden who slept,
A gift from the sun-god, his love still concealing.
As up through the heavens he silently crept.
A bird from the Southland, her window espying,
Sang softly and sweetly a tender refrain,
And ere she awoke from her presence was flying,
Though loving, not hoping her favors to gain.
Then Cupid came near, with his magical quiver,
And tightened his bow till it bent like a vine;
A lover brought gifts and she smiled on the giver
Who offered his heart with a sweet valentine.



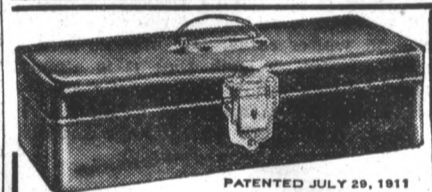
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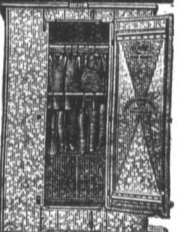
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PRACTICAL SCIENCE.

SOURCES OF NITROGEN IN FERTILIZERS.

BY FLOYD W. ROBISON.

(Continued from last week).

Of the organic sources of nitrogen besides the natural excrement of animals, much that is now available and is being used in commercial fertilizers is the refuse and waste material from the slaughter houses and packing establishments. Of these slaughter house products perhaps the most common fertilizing material is

Tankage.

Tankage is manufactured from a combination of the refuse animal products at the slaughter houses. It consists of scrap from the slaughter houses. It consists of scraps of meat, tendons, sometimes portions of hide, particles of bone, and other odds and ends of waste material which is gathered together in a large rendering vat where it is usually steam-cooked and the fatty material, the oil, extracted white hot, usually by pressure. After extraction of the grease the residue is dried thoroughly and ground fine. As placed upon the market it is a fine, dry material possessing a characteristic odor. This product, tankage, contains a considerable quantity of both nitrogen and phosphoric acid. It is used at times not only as a fertilizing material but as an ingredient of various stock feeds. In fact, it is sometimes fed clear to hogs and has won varying degrees of favor as a hog feed. Tankage is quite variable in composition as would naturally be expected considering the variety of sources from which it is obtained. It runs sometimes in ammonia as high as 10 per cent and sometimes lower than six per cent. In phosphoric acid, because largely of the content of bone which enters into the tankage, it may contain 40 per cent bone phosphate. Both the nitrogen and the phosphoric acid in tankage are considered very valuable. The nitrogen is readily available because of its animal origin because of which it is exceedingly prone to decomposition, thereby liberating the nitrogen and making it quite readily available to plant growth. It is the nitrogen in this form that is a valuable fertilizing ingredient for crops upon which it must be used in the fall. It is not so readily available as is nitrate of soda, that is, it is not readily soluble in water, and will not wash out of the soil by the fall and winter rains. Its organic structure, however, is such that it is almost as convenient, almost as readily available as is the nitrogen in nitrates and ammonia salts although it is not directly soluble.

Fish Scrap.

Another common source of nitrogen for fertilizers is in fish scrap. Fish scrap is a refuse very similar in composition to tankage. It is obtained, however, from the fish packing establishments and finds its way quite abundantly into certain grades of fertilizers. In fact, there are some fertilizers the basis of which is a fish tankage or fish scrap entirely.

Fish scrap is as readily available probably as is tankage and in general what has been said regarding the availability of nitrogen in the tankage would apply equally as well to the nitrogen in fish scrap.

Dried Blood.

Another animal by-product of considerable importance is dried blood. This, one may imagine, accumulates in vast quantities in the large packing houses and aside from the limited use as a stock feed it finds its way almost entirely into commercial fertilizers. The nitrogen of the blood will reach as high as from 10 to 13 or 14 per cent and is exceedingly valuable and quite readily available.

Other Animal Sources of Nitrogen.

The other animal sources of nitrogen are leather scraps, the hoofs and horns of animals and the hair and scraps of wool that are not utilized in other ways. These products, although of animal origin are very much different in their texture and in their availability than are tankage, fish scrap and dried blood products. Leather is almost completely insoluble unless it be treated in some way whereby the nitrogen is converted into a soluble form. Hoofs and horns and the hair and wool must be similarly treated in order to make them of value in fertilizing materials.

Vegetable Sources of Nitrogen.—Cottonseed Meal.

In some sections of the country a con-

siderable amount of cottonseed meal has been used for fertilizing purposes and excellent results have been obtained through its use. Cottonseed meal contains six to seven per cent of nitrogen and while it is not readily available or as easily decomposed as is fish scrap, tankage, etc., at the same time it is quite readily decomposed in the soil and is an excellent source of nitrogen.

It is difficult on a stock farm to concede that cottonseed meal should be used as a direct source of nitrogen in fertilizers because the product is such a valuable stock feed that the temptation is very great, and justly so, to utilize it as a stock feed and then apply the undigested residue to the soil as barnyard manure in the usual way.

Linseed Meal.

Linseed oil meal is another vegetable source of nitrogen which is used to some extent although not to the extent to which cottonseed meal is used. The vegetable sources of nitrogen are not now as commonly used as fertilizers as are the animal sources, neither are they as readily and commonly available as are the animal products.

Sources of Phosphoric Acid.

As we have outlined under the previous heading, a very valuable source of phosphoric acid is in the tankage and fish scrap products which are also excellent carriers of nitrogen. The phosphoric acid in both of these products may be very properly called the real bone phosphate of lime. The phosphoric acid comes almost entirely from the bone residues which are ground and steamed in the preparation of tankage. Tankage contains from 10 to 40 per cent of bone phosphate of lime. This means, then, that the tankage has an equivalent of from nine to 15 per cent of phosphoric acid.

Bone Phosphate of Lime.

Bone phosphate of lime is of varying degrees of value, according to the fineness of division, that is, the fineness to which the bone is ground, and according to its association with organic matter. The principal reason that phosphoric acid is more valuable from bone than from phosphate rock is because the phosphoric acid in bone is much more quickly available than is the phosphoric acid in ground rock. It is not because the phosphoric acid is more available per se but because it is associated with organic matter in the bone, which organic matter is susceptible to decomposition with considerable rapidity, thereby causing the phosphoric acid to be more soluble. In rock phosphate there is no organic matter and the phosphoric acid is very slowly rendered available indeed.

Green Raw Bone Best.

The best bone for fertilizing purposes is the finely ground raw, or green, bone, excepting possibly the bone which has been finely ground and in addition has been steamed. Bone that has been allowed to dry and has been thoroughly exposed to the atmospheric conditions for a number of years whereby its organic matter has been completely destroyed is of no more value probably, than is phosphate rock. In other words, the value of the insoluble phosphoric acid consists in its association with organic matter which, as we have stated above, insures the gradual dissolving of the bone.

Phosphate Rock.

There are some immense deposits of phosphate rock in the country and were some method at hand for the rendering quickly available of the phosphoric acid in the phosphate rock, agriculture would be very greatly benefited by such a discovery. As it is, phosphate rock, even though finely ground, is not of any great value commercially. To render it available manufacturers have been treating it chemically, dissolving the rock in strong sulphuric acid, thereby making a product commonly called

(Continued next week).

SPECIFIC EFFECTS OF DIFFERENT RATIIONS.

(Continued from last week).

The writer also pointed out what the specific effect in the daily ration of the dairy cow the factor of succulency might be and there is at the present time a great demand for investigations along certain of these specific lines.

The Missouri station and the Ohio Experiment Station almost simultaneously published a bulletin involving the study of the specific effects of certain rations

on the development of swine. Corn in its relation to hog feed was very carefully studied as was also bone meal and bran extract. To one interested in these lines a study of bulletin 213, Ohio Experiment Station, is especially recommended. We give herewith a few of the conclusions which are especially applicable along the lines which we have herein discussed.

"The limitations imposed by the food supply affect not only the amount, but also, within limits, the composition of the growth produced.

"The mineral elements of foodstuffs appear to enter largely into the determination of their specific effects on the development of animals.

"Rations of corn balanced by proteid supplements from sources other than corn, appear to be more palatable and more efficient to cause growth than rations of corn and corn products only.

"The deficiencies of corn as a food for growing animals appear to be a lack of protein in proportion to non-proteid organic nutrients; a marked lack of calcium, and a less pronounced shortage of phosphorus; an excess of magnesium in proportion to calcium, and a deficiency of basic mineral elements as compared with acid mineral elements.

"With hogs fed on corn alone, the bones, muscles, liver, kidneys, lungs, heart and spleen all compose an abnormally small proportion of the increase in weight, and fat composes an abnormally large part of the increase.

"The livers of corn-fed hogs are small and low in ash and in phosphorus.

"Compared with rations containing more protein, corn produces small, fat kidneys. The low-proteid corn ration makes less extensive requirements, and so produces less development of the kidneys than other rations containing more protein. This has a bearing on the feeding of growing animals. The eliminative functions of the body will not reach full development if the animal be reared on a minimum protein allowance.

"The bones likewise are small, and lacking both in density, as indicated by the ash content, and in breaking strength.

"Corn alone as a food for swine lacks palatability. Hogs will eat very much more of mixed rations, and make much greater, more economical and almost invariably more profitable gains in weight, than from corn alone.

"Corn by itself is more nearly perfect food for maintenance than for growth. The younger the animal, or the greater the amount or proportion of protein in the increase in a given time, the less nearly is corn a perfect food for animals.

"Tankage and linseed oil meal are about equally profitable supplements to corn at the prevailing prices of recent years.

"'Bran disease,' 'shorts disease,' or 'miller's horse rickets' appears to be caused, in part, by the excessive proportion of magnesium to calcium in wheat bran and shorts.

"If we are to use corn as the principal food for animals which are being fed either for growth or production of other proteid increase, such as milk and eggs, we can hope for the greatest success only by feeding with the corn, supplements that are richer in protein, calcium and phosphorus; higher in proportion of basic minerals to acid minerals, and lower in proportion of magnesium to calcium."

LABORATORY REPORT.

Is the residue from an acetylene gas generator good to use for a fertilizer?
C. S. B.

Acetylene gas is a product of the action of water on calcium carbide represented in the following chemical equation: $\text{CaC}_2 + \text{H}_2\text{O} = \text{CaO} + \text{C}_2\text{H}_2$. In plain language, after calcium carbide is acted upon by water there is generated acetylene gas and lime (CaO) is left behind. There is no reason why this residue should not be used as a fertilizer in the same way that lime is ordinarily used and because of its fineness of division, it should be of exceptional value in this respect.

Misbranding of Cream.

Under notice of judgment No. 1,211, the Secretary of Agriculture reports the conviction of a certain Indiana concern for misbranding cream. The cream in question was labeled to contain 40 per cent butter-fat. Analysis showed it to contain but 33.2 per cent fat and the product was accordingly apprehended in inter-state traffic.

The judgment is one of interest to the dairy interests as it indicates the very commendable determination on the part of the Board of Food and Drug Inspection to enter into these dairy problems which have vexed the legitimate dairy business for years.

BUCKEYE CULTIVATORS

"The Buckeye—
A Wise Buy."

The new Buckeye Cultivator Catalogue should be in the hands of every farmer. It is the most comprehensive catalogue of the kind you have ever seen. Send for it. Read it, and then go to your local dealer and insist on seeing Buckeye Cultivators.

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Buckeye Cultivators have years of hard wear built into them.

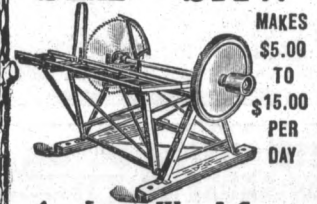
Buckeye Cultivators do the work for which they were intended, and they do it right.

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Springfield, Ohio, U.S.A.

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Double grinding rings with saw tooth grooves grind twice as much as any other feed mill of same size with one-third less fuel.

Force feed; never chokes. For Gasoline or Steam Engine. Grinds corn on cobs or in shucks, shell corn, sheaf oats, Kaffir corn, alfalfa, oats, rye, wheat, barley, cotton seed. Coarse or fine. Easy to operate. Fully guaranteed. Catalog FREE. Write today.

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Double Action. Triple Geared

This No. 5 is one of our leading Feed Mills. Particularly adapted for grinding ear corn and small grain for stock feed. A medium priced mill that

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GRANGE

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

THE FEBRUARY PROGRAMS.

Suggestions for Second Meeting.

Roll call, responded to by each giving a quotation from Longfellow. What are healthful foods for breakfast? Book review. Taking boys into partnership on the farm—1. From a father's standpoint. 2. From a boy's standpoint. The most important question before the public today, discussion. "The farmer feeds them all," illustrated song, page 175, Grange Melodies.

GRANGE GLEANINGS IN INSTITUTE FIELDS.

Attendance upon one or many of the scores of farmers' institutes now being held suffices to reveal to a Grange worker the room there is for a vigorous "follow-up system" on the part of Grange executives. The institute barely breaks the ground and its workers scatter the seed. Granges and Clubs should follow after with more frequent meetings and cultivate the young crops. There are always many unanswered questions at the close of an institute. There are always some men and women who were unable to get to the institute although they may have wished to do so. There are always diffident or slow questioners who get sidetracked in the exigencies of many topics and little time for each. There are scores of related questions and topics that are called to mind by the few leading subjects that were down on the program for discussion.

What a field remains after the institute closes in which the local Grange may rake up rich gleanings! Sometimes one or two entire meetings of the Grange may be made almost as interesting as the institute itself and quite as profitable by taking up the unfinished matters, or going over again the ground covered by the speakers.

For example, the bean man left in his wake a long line of important queries: How is ground best prepared for beans? How much fertilizer should one use and how sow it? Where obtain seed? What time plant? How cultivate and how often? How determine when to harvest? How pull and care for, and when sell them?

The fruit man, too, left the floor with questions still raining about him, questions which ought to be discussed in scores of localities between now and open spring: Is it worth while to try to save our old orchards? If varieties are not most desirable, shall one "work over" or plant anew? How fight insects and fungi? How trim? Should a crop be raised in the young orchard, etc.

The soil man insisted that his subject is fundamental and far too much neglected. "We are only upon its border land," he said, and urged study of its elements, its handling and maintenance of fertility.

The cow man asked further consideration of: Who knows what the limit of production of a dairy queen will be? What is "the latest" in silo-stored succulents? What conditions must the average dairyman still comply with to make his products strictly sanitary?

The rural school man throws pointed bombs out among us: Why cannot some industrial training be given now at our schools? Would not a combination of districts make it incumbent upon school officers to give their duties more business-like attention than many do at present? Would not a telephone installed in the rural school be a great assistance to patrons and teacher in times of emergency?

The good roads man still insists that precept upon precept must be given until we get better common wagon roads.

The women, in their congress, left over for further discussion a flood of queries: If a farm affords running water at the barn, why not in the house? Is a heating plant as worth while as a self-binder? Is a manure spreader more to be desired than acetylene lights for the home? Would a plot of ground be as valuable as an athletic field for the community as for a bean field for its owner? What equipment for play is found upon the average school ground? Are rural sanitary conditions gradually improving? Are the social instincts of the boys and girls in

the home receiving as much careful study as are the requirements for a good stand of alfalfa?

And so on and on. There is no end, for these are live subjects and they must continually develop new phases. The live Grange seizes on the thoughts awakened by the institutes and spurs them on to increased activity along these same lines.

JENNIE BUELL.

AMONG THE LIVE GRANGES.

A Literary Contest will be begun by Wilson Grange, of Charlevoix county, at its second meeting in February. This Grange is in good condition, reporting nearly \$50 in its treasury.

Baragaa Patrons, at their recent Pomona meeting held at Covington, adopted resolutions favoring specific training of rural teachers, and favoring the printing of the bulletins of the Upper Peninsula experiment station so that the same may be distributed to the farmers, for whose benefit this institution was created.

Bay Shore Grange, one of the younger subordinates of Charlevoix county, claims a membership of 70 and is in a reasonably flourishing condition. This Grange conferred degrees upon four candidates at one of its January meetings.

Portland Grange, of Ionia county, recently installed officers for the year as follows: Master, Joseph Morse; overseer, Freeman Shotwell; lecturer, Bina Gibbs; steward, J. C. Hamlin; assistant steward, Will R. Toan; chaplain, Minnie Hamlin; treasurer, E. L. LaSelle; secretary, Sarah E. Balderson; gate keeper, Wm. H. Balderson; Pomona, Derua Maynard; Flora, Mrs. O. V. Frost; Ceres, Everon Way; lady assistant steward, Edith Toan.

COMING EVENTS.

Pomona Meetings.

Ingham Co., with Leslie Grange, Thursday, Feb. 22. Patriotic program. Western (Ottawa Co.), at Conklin, Thursday and Friday, March 1 and 2.

FARMERS' CLUBS

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

YEARLY PROGRAMS.

Thornapple Farmers' Club.—The latest of the yearly programs for 1912 to come to the editor's desk is that of the Thornapple Club of Barry county. This is an eight-page booklet with colored covers. On the first cover page appears the name of the Club and the motto for 1912, which is "Better methods, better crops and better live stock for Michigan." The inside pages are devoted to the programs for the several meetings. The programs are not complete in all details, but give the dates and places of meetings for the fiscal year of the Club, which begins in March. The name of the host and hostess is given in connection with the announcement of the meeting and the subject for discussion, together with the name of the leader and the fact that a general discussion will occur which will be open to all. Many of the meetings have two subjects scheduled for discussion, and in some cases three are given, the subjects being announced with a special reference to their timeliness and general importance for the dates of the several meetings. They are nearly all of a practical nature, which shows that the program committee has attempted to so arrange the program as to aid in the realization of the ideal set forth in the Club motto above mentioned.

The special feature meetings include a discussion of the subject of women's suffrage by both ladies and gentlemen at the June meeting, an annual picnic in July and a special fruit day in January, with an appropriate program. As an illustration of the practical nature of these programs, we have but to refer to the subject for March, which is, "Should the farmers of Thornapple favor the county road system to be voted upon at the April election?" All through educational features of the program are made prominent, as well as the practical questions, the discussion of which will have an economic bearing upon the farm operations of the members. The last page of the booklet is devoted to a list of the officers for 1912, the order of the business followed at the various meetings, the hour at which the meetings are called to

order—which is 10 a. m. in winter and 1:00 p. m. in summer—together with the announcement that meetings are held on the first Thursday of each month. Picnic dinners are served in accordance with the announcement on this page, and the amount of the membership dues is plainly printed. Altogether this is an admirable scheme for outlining the general program in order that members may fortify themselves with facts having a bearing upon the subjects to be discussed.

WHAT THE LOCAL CLUBS ARE DOING.

The Essex Club, of Clinton County, was organized in 1888. It holds nine meetings during the year. The special features are a temperance meeting in March and a Club fair in October. The first Club fair was held this year and was a big success, the delegate asserting that it was as good as the county fair, as far as it went. The Club has 50 members and an average attendance of 25 to 30. Printed yearly programs are used, of which a notable feature is the memorial to the departed members, whose names are printed on one page of the booklet.

The Napoleon Club, of Jackson County, was organized in 1887. It has 90 members and holds eleven meetings during the year and an annual picnic in August. A Club fair is held in October, being a public event held at the town hall. Printed programs giving the complete program for each meeting are used.

The N. E. Venice Club, of Shiawassee County, holds eleven meetings during the year. Refreshments are served at every meeting. The six winter meetings are all-day meetings and the balance of the year afternoon meetings are held. The Club owns its own lap-boards, silverware, dishes and napkins. It has a membership of 80, representing 24 families and an average attendance of 50. The question box is an important feature of the monthly meeting. The president is elected for one term, one year only, and at the close of his year is made the delegate to the annual meeting of the State Association and the chairman of the program committee for the next year. Yearly programs are not used, the program for the succeeding meeting being read at the close of each session. The Club has been organized 13 years.

Howell Farmers' Club, of Livingston County, was organized in 1897 and has an average attendance of from 25 to 30. Eleven meetings are held during the year, a vacation being taken in July. No dinners are served except in March, when an annual banquet is held. Afternoon meetings are held each month, at which the question box is the most interesting feature.

CLUB DISCUSSIONS.

A Notable Anniversary Meeting.—Many names of men and women who helped to make the early local history of Ingham county were recalled at the January meeting of the Ingham County Farmers' Club, held at M. A. C., when the Club celebrated the fortieth anniversary of its organization. About 50 members from Mason, Eden and vicinity were present at the dinner which was served soon after 12:30 o'clock in Wells hall. Several members of the faculty of the College were guests of the Club. Among those who participated in the festivities were Col. L. H. Ives, for 22 years secretary of the organization and now serving his thirteenth year as its president, and George W. Bristol, of Mason. The two men are the only surviving charter members of the Club. Col. Ives officiated as master of ceremonies at the dinner, calling upon Mr. Bristol to relate some reminiscences.

"When 40 years ago the 27th of this month I placed in one of the Mason papers a notice of the meeting of the farmers for the organization of this Club, I builded better than I knew," said Col. Ives. "In addition to the fact that this is the oldest Club in the state is the other fact that it has made a record in past years. Some of the greatest men of the state, leaders in religion, politics and education, have spoken before it."

"The topics discussed before the Club were not always upon subjects dealing with agriculture," said Mr. Bristol. "Politics and theology were also discussed. There were several members of the Greenback party who were most bitter partisans and Amos F. Wood, for 25 years the president, had much difficulty in keeping order, often having to pound and pound with his gavel to keep order. He needed half a dozen more gavels to throw at the members but he didn't have them."

A little more extended history of the Club was given by Mrs. W. L. Cheney, daughter of Former President Amos F. Wood, now deceased. The program included talks by several other members, also by President Snyder and members of the College faculty and Judge C. B. Collingwood. Late in the afternoon the Club returned to Mason by way of a special car, provided by the M. U. R.

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After Thirty Years Experience I Have Produced An Appliance for Men, Women or Children That Cures Rupture.

I Send It On Trial.

If you have tried most everything else, come to me. Where others fail is where I have my greatest success. Send attached coupon today and I will send you



The above is C. E. Brooks of Marshall, Mich. who has been curing Rupture for over 30 years. If Ruptured write him to-day.

free my illustrated book on Rupture and its cure, showing my Appliance and giving you prices and names of many people who have tried it and were cured. It is instant relief when all others fail. Remember I use no salves, no harness, no lies.

I send on trial to prove what I say is true. You are the judge and once having seen my illustrated book and read it you will be as enthusiastic as my hundreds of patients whose letters you can also read. Fill out free coupon below and mail today. It's well worth your time whether you try my Appliance or not.

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C. E. Brooks, 152C Brooks Bldg., Marshall, Mich. Please send me by mail in plain wrapper your illustrated book and full information about your Appliance for the cure of rupture.

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\$14.68 PER DAY



Dear Sirs: I am pleased to say that through a friend of mine I secured the opportunity of becoming a traveling salesman for the Saginaw Medicine Co. I find that it is a money-making proposition, as well as pleasant work, for it certainly gives a man a satisfied feeling when he knows that the line of goods he is handling is securing a lot of good, warm friends for him all over his territory.

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

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

Very truly yours, J. W. WRIGHT.

THE MICHIGAN LINE

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

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

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One application soothes and heals a rough, pimply skin, and, when repeated, quickly effects a cure. Eczema, Erysipelas, Tetter, Ulcers and all skin diseases yield to its curative properties. 50c a box. At all Druggists. Send for free sample and book, "Health and Beauty."

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Greatest Plow Invention in Forty Years!

A REAL UNIVERSAL PLOW

These Pictures Tell a Wonderful Crop Story

If everybody realized how vitally important it is to **plow right**, there would be fewer mortgaged farms, and many farmers who are now borrowing money from banks would be loaning money to those banks.

It's a mighty important thing to use a plow that turns over each furrow **flat and smooth**. For if it kinks and curls, the **air spaces** left between the top soil and subsoil will do a tremendous amount of damage. (And no amount of harrowing will get rid of such air spaces.)

When the **top soil and subsoil** are thus separated by air spaces, moisture cannot come up from below. But when the top soil is well pulverized and lays flat against the subsoil, then the moisture from below comes up by **capillary attraction**. (Just like kerosene goes up into your lamp wick.)

The first picture below shows land plowed with an **ordinary** plow and harrowed; the second picture shows the same land plowed with a Rock Island Universal Plow.

The remaining pictures show how perfectly the "Universal" works on different kinds of land.



AIR SPACE

A section of field plowed and harrowed in the ordinary way. Note the **air spaces** under each furrow. They look *small*, but they cost American farmers a great many dollars.



NO AIR SPACE

A section of the same field plowed and harrowed with a Rock Island "Universal." There are **no air spaces**, for each slice lies **flat and smooth** on the subsoil. Even in dry weather, land thus plowed will produce good crops.



Rock Island Universal Gang Plow plowing heavy sod. The first two furrows shown were turned by a regular breaker. Note the better work done by the "Universal."



Rock Island Universal Sulky Plow working in trashy ground. Nothing left to catch on the harrow.

Numerous plows have been built which, on **some kinds of land, in some kinds of soil**, do good work.

But to design a plow that would do **perfect** work in **any** kind of soil, on **any** kind of land—well, it was one of the knottiest problems that anybody ever tackled.

For many years inventors sought in vain to create a real **all-purpose** plow; most of them had finally given it up as a hopeless undertaking. But three years ago a man who was perhaps more persistent than others, **SOLVED THE PROBLEM**—accomplished the seeming impossibility of making a practical **all-purpose** plow.

And this **all-purpose** plow, the Rock Island (C. T. X.) UNIVERSAL, has proven the greatest plow invention of modern times.

It is for sale at nearly every independent implement store in the United States.

Some people, of course, were doubtful at first, but a goodly number of progressive men were anxious to try the new plow. And they were delighted to find that it **worked fine**.

These men then told so many of their friends about the "UNIVERSAL" plow that the next year we could not make enough plows to fill our orders.

Last year, as many of you doubtless remember, we increased our factory output **four times**, and even then were hardly able to take care of our many friends and customers.

Today the demand for Rock Island Universals is absolutely unprecedented in the plow business. It would seem as if every progressive farmer in the country has now awakened to the advantages of this wonderful plow. And we have again more than doubled our capacity to take care of all orders.

All-Purpose Plow a "Winner"

Hitch your team to a "Universal" and go out and see if there is a field on your farm that it won't plow up perfectly. Test it on **tame sod, on stubble land, in a trashy, last-season's cornfield, in gumbo, sandy loam, mixed land** or in any other way or place you choose. Note how, in every case, it turns each slice over, **flat and smooth, without kinking**. See how it buries all trash; that there is no spilling over into the furrow or slopping forward onto the unplowed land.

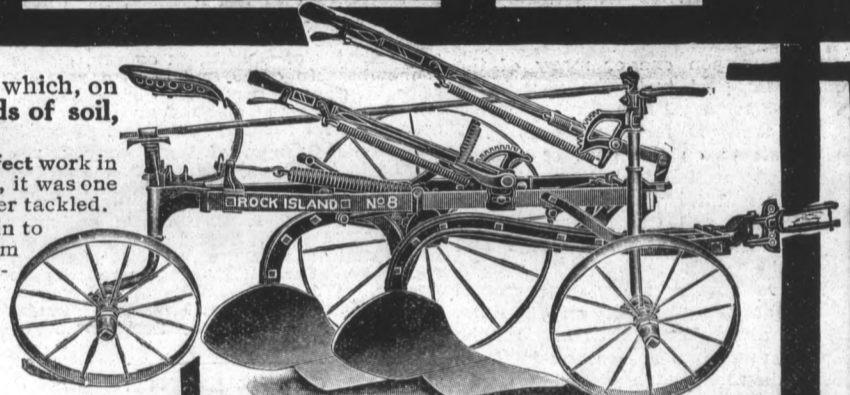
Are you willing to put **money** into an ordinary plow when there's a plow like this one to be had?

Good Crops in Spite of Dry Weather

Many owners of "Universal" plows last season found that dry weather did no harm to their crops.

One reason was that some of them plowed **deep** with their "Universals."

But the **big** reason was that their fields were plowed so that the **top soil lay flat against the subsoil**. When the ground on top became dry as a bone, and many other farmers were seeing their crops **burned up**, these farmers' crops lived and grew by drawing up moisture from the **subsoil below**. Such a thing would have been impossible if the top soil had **kinked, or crimped** when plowed, and left air spaces between top and subsoil.



This is the celebrated Rock Island (C. T. X.) Universal Gang Plow. Note that peculiar "corkscrew," auger-like twist of the mouldboard. That "twist" does wonders—**pulverizes** the soil more than any other plow bottom. And each slice, whether **two inches**, or up to **eight inches** thick, spreads out evenly and flat. It turns clear over and buries all trash. There's no spilling over into the furrow or slopping forward onto the unplowed land. This plow turns under tame sod without kinking—stubble without leaving trash—**cornstalks just as perfectly**. Does it whether the soil is sandy, clay, waxy bottom, gumbo or gravel; leaves a perfect bottom-clean furrow. Its fame has been heralded to every part of the United States and Canada. All because it has proven a work-saver, a money-saver, and an increased crop-producer.

Protect your crops this season from drought by right plowing.

Less Harrowing to Be Done

With the top soil laid **flat and smooth**, and better **pulverized**, it is much easier to prepare your seed bed than before. You thus save many hours' work with the harrow. Why not cut out all needless harrowing?

You Can Save Manure

Many farmers tell us that the "Universal" plow, because it prepares such a mellow seed bed, makes their manure **more valuable**. Their crop gets the benefit of **more** of the fertilizer, because but little of it leaches away.

Since the manure from a single cow or horse in one year is worth around \$27 (government figures),

it would seem mighty important to turn every pound of it to good use.

Now Ready—In Complete Form—The Story of the Universal Plow—A Postal Brings It

Although thousands of farmers have read the complete story of the world's only **all-purpose** plow, **some of you have not**. We therefore continue to offer to send it free to anyone who writes for it. Simply say on a postal, "Send us the story of the new plow." Then add your name and address and send the post card to us.

For those who haven't postals handy, we have provided the coupon below, which will also bring the story of the Rock Island (C. T. X.) Universal Plow.

Your postal or letter will be answered promptly.

Clip It and Mail It NOW!

(49)

Dealers!

Write at once for the Exclusive Agency for the best and fastest-selling implement in the world—the Rock Island (C. T. X.) UNIVERSAL PLOW. Address your letters to Main Offices Rock Island Plow Co., Rock Island, Illinois, Sales Dept. A.

Coupon for Free Books

ROCK ISLAND PLOW CO., 281 Second Ave., Rock Island, Illinois

Please send me the complete books on the "Universal" Plow.

Name.....

Address.....

What implement dealer do you usually buy from?

His name.....

His address.....



Rock Island Universal Gang Plow in stubble land. Note how thoroughly pulverized.