

DETROIT, MICH,

SATURDAY, FEB. 13, 1915

VOL., CXLIV, No 7.

MICHIGAN FARMER



President Wants War on Stumps Now

"There is a shortage of food in the world now and that shortage will be more serious a few months from now than it is now."

"It is necessary that we should plant a great deal more; it is necessary that our land should yield more per acre than it does now; it is necessary that there should not be a plow or a spade idle in the country if the world is to be fed."

PRESIDENT WILSON

Before Chamber of Commerce of the United States February 3rd.

Every day's progress of the war in Europe and Asia emphasizes the dominating position of America as the world's food producer.

There is going to be a tremendous decline in food production in Europe in 1915, because of the millions of men and thousands of square miles of territory engaged in military operations.

It is not only our duty to push our farms to their highest producing possibilities, but it will be greatly to our profit.

We must not only get the maximum production out of every acre of cultivated land, but we must as far as possible put under cultivation thousands and thousands of acres of cut-over timber and swamp land.

The ground occupied by one good sized stump or boulder can produce enough food to feed one person one week.

Don't wait until next spring or summer To Get Rid of the Stumps. By using low freezing explosives you can clear that land before the snow leaves the ground. You can blast ditches before the ground is dry enough to cultivate.



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FARM NOTES.

Fertilizing a Worn Sandy Soil.

Have taken a small farm on which soil is sandy and badly rundown, and have only a little more than sufficient manure for good garden plot. What sort of commercial fertilizer would be most likely to insure corn enough to fill small silo? In what manner would it be best applied and at what rate per acre? I plan to raise oats and peas as a forage crop and will be quite dependent upon it. Can you recommend a fertilizer likely to prove sufficiently beneficial to justify the expense?

Ottawa Co.

C. E. S.

Under the conditions mentioned in this inquiry, the best that can be done is to make a liberal application of a complete fertilizer for corn. As it is impossible to tell definitely just what formula will give the best results without trying it out on this particular soil, any good standard fertilizer containing a fair per cent of nitrogen and potash and a liberal percentage of phosphoric acid. This should be used at the rate of not less than 500 pounds per acre, sown broadcast or drilled and worked into the soil when preparing for corn planting. A still larger application would bring better results, provided the weather conditions are favorable.

The great lack of this soil is undoubtedly vegetable matter or humus, and even though plenty of plant food is provided, the corn is likely to suffer from want of moisture in the dry periods, hence the importance of conserving every particle of moisture possible by judicious methods of cultivation. It would be an excellent plan to sow rye and vetch in this corn at the last cultivation as a cover crop to be plowed down the following spring as a means of adding vegetable matter to the soil, which is an essential step in its improvement. The same grade of fertilizer would perhaps be as satisfactory for peas and oats, but if the soil has an acid reaction, the peas would undoubtedly be benefited by an application of lime, since this would favor a better development of the bacteria which find a home on the roots of this leguminous plant, and would thus stimulate a much larger growth of forage. As above noted, liberal applications of fertilizer to these crops will produce good results even on depleted sandy soil if there is a proper distribution of moisture. To insure success with peas and oats, it is very important to get them in in the spring as early as possible, and the peas should be sown deeply. The lack of available moisture may be the limiting factor in the production on sandy soils which are depleted of humus, even though plenty of plant food may be supplied, but under favorable conditions even a liberal application of fertilizer will give profitable results. In this connection, however, cover crops should be grown wherever possible in order to replenish the depleted supply of humus in the soil and get same in a physical condition which will make it less susceptible to short periods of drouth.

Spring Sown Crops for Green Manure.

I have a piece of ground of about 10 acres that I wish to put to wheat next fall, and I desire to sow some crop in the spring to plow down as a soil improver. I have read in some of the seed catalogs about giant spurry, but have never seen anyone that has raised any of it. Is there any danger of it becoming a weed pest if it is once started on the ground?

Lake Co.

R. C.

As a general proposition, the best time to sow a crop to be plowed down for green manure is when it can be sown as a catch crop, say for instance as in corn where rye and vetch can be sown to good advantage to be plowed down the following spring. In this way a crop can be grown for green manure without any large amount of labor cost in the plowing of the ground or extra work of any account except the sowing of the seed, and the crop grows at seasons of the year when the land would not be employed for other purposes. As an economical proposition then, crops sown for green

manure should be grown as catch crops to the greatest possible extent. In some instances, however, it may be profitable to sow green manure crops in the spring to be plowed down for wheat, in which case, however, it would be far better to use a leguminous crop than a plant like spurry, which will add nothing to the soil which it does not take from it. It would be a better plan to use soy beans or cowpeas, or even peas and oats, any crop, in fact, which includes a leguminous plant, either alone or in combination with some other plant. Spurry has been grown in an experimental way, but in cases which have come under the writer's observation has not proven a very profitable plant either as a forage crop or soil improver in Michigan.

Seeding Sweet Clover.

If sweet clover seed is sown early on snow would seed inoculation be sure or would soil from alfalfa field broadcasted later on be better? Field is now in winter grain.

Allegan Co.

H. W. H.

Sweet clover seed would probably catch better sown early in the spring on the snow than at any other season of the year where sown without being worked into the surface soil. Where the seed is sown on the snow there would be greater opportunity for it to be softened by the spring moisture so that a larger proportion of it would germinate. There are a good many hard seeds, so-called, in sweet clover which, except under the most favorable conditions, will not be penetrated by moisture to a degree which will insure germination. So far as inoculation is concerned, it depends altogether on the presence of the bacteria peculiar to the plant in the soil or a suitable condition of the soil to favor its development if placed there. If alfalfa succeeds without lime on adjacent soils, the bacteria is probably present or could be supplied by sowing some soil from an alfalfa field as suggested.

The Substitute Hay Crop.

I have a field of 60 acres of black loam and gravel soil. As I am a little short of hay this coming season, I would like to sow it to alfalfa this spring or summer. Could I sow it early enough to get one crop of hay. If I can not, please tell me of some good crop to answer the purpose.

Hillsdale Co.

L. P.

It would be safer to sow oats and peas as a substitute hay crop than to depend upon harvesting a profitable crop of spring-sown alfalfa on land which has never grown this legume. Very much of our Michigan soil does not contain a liberal supply of the bacteria peculiar to this plant, and essential to its growth, due, we believe, to a more or less acid condition which does not favor the development of this bacteria. Under these conditions it will be impractical to get a profitable hay crop from spring-sown alfalfa unless it is sown on very rich land or very liberally fertilized, in which case it is entirely possible to grow a good crop the first year. On land which has been properly prepared for alfalfa and has grown it before successfully, there should be no difficulty in getting a fair hay crop the season of seeding.

Insulating Material for Ice Storage.

Can you give me a substitute for sawdust in packing ice? I have heard of straw being used. Is that all right?

Huron Co.

J. H. S.

Sawdust makes the best available insulating material for the ice house, because it packs better and excludes the air more completely than any other material. Next to sawdust, shavings from a planing mill will best serve the purpose. Straw may be used with indifferent success and marsh hay is often used and is considered a better insulating material because it can be packed more tightly than the straw. It will pay to secure sawdust or shavings for this purpose even at considerable increased expense because of the greater security to the ice in storage and a less amount of labor required in its care to insure good keeping qualities.

GOOD VS. POOR SEED.

It is poor economy to use an inferior grade of seed, but too often one is tempted to buy the grade that costs a little less because it looks at first as if money is being saved. Upon examination of the seeds it will be found that there was a reason for the reduction in price. The seed of the inferior grade is sure to contain foreign matter, such as weed seed and chaff, and the seeds that are present will not germinate as readily or healthily as the good seed. In planting such seed not only is all the time required to plant the weed seeds wasted but harm is being done and there is danger of allowing some new and troublesome variety of weeds to get a foothold on the farm. The inferior seed will not produce the maximum yield, no matter how much care is given to the culture of the crop.

The first grade is, as a rule, the cheapest at any cost. There is less foreign matter in it and the seed are of the sort that will make a good growth. There will be less time wasted during the planting because no time will be spent on seed that will not produce a profitable yield and there will be no ground given over for the growing of weeds planted with the seed.

At one of the state experiment stations last year a test was conducted which showed the actual value of clover seed. Comparisons were made to determine the difference between the market price and the actual value. In three grades of seed that were exam-

ined it was found that in the first grade there was 97.05 per cent pure seed, in the second, 98.00 per cent, and in the third 76.03 per cent. Of inert matter there was in the first grade, 0.86 per cent, in the second grade, 0.67 per cent, and in the third, 10.88 per cent. Of foreign seed there was in the first grade 2.09 per cent, in the second, 1.83 per cent, and in the third, 13.09 per cent.

Although in this particular test there was not such a wide variation in the three grades as might be expected when the percentage of pure seed, inert matter and foreign seeds is considered, when it came to find the true worth of the seed the difference was greater. The germination test showed that 84.00 per cent of the seed in the first grade were germinable, in the second grade, 71.00 per cent, and in the third only 23.00 per cent were capable of producing clover plants. This result shows in a forcible manner the value, the necessity, of testing seed for their germinable value. In this test there was not much difference in the three grades when we consider the points that it was possible to detect with the eye. It shows that it is not sufficient, as many suppose, to simply look the seed over carefully but they should be tried out to determine their producing value.

In this test it was also found that in grade one there were seven kinds of weed seeds, in grade two, 16 kinds and in grade three, 34 kinds. In the

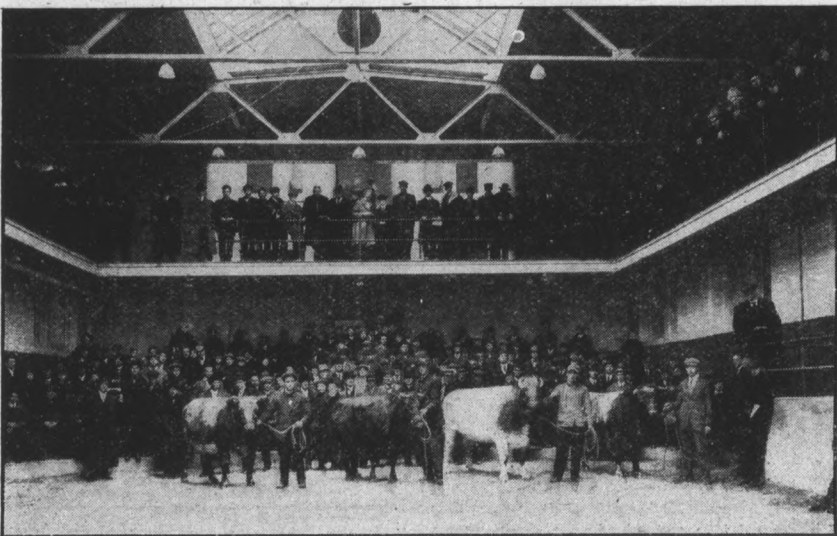
first grade there was five per cent weed seeds, in the second grade, six per cent, and in the third grade, 10 per cent. The great importance of this was shown by the number of weed seeds in each grade.

The prices paid for the three grades was \$10, \$8.50 and \$7 per bushel, but when the actual value was computed it was found that the first grade cost \$12.27 per bushel, the second grade \$13.22 per bushel, and the third grade \$40.03 per bushel. The seed that would really grow cost less in the clover seed that had the highest market value, while the seed that seemed the cheapest at first thought not only cost several times as much but by sowing this grade the farm would be covered with weeds.

Indiana. C. H. WHEATLEY.

HARVESTING THE CORN CROP IN SOUTHERN MICHIGAN.

Because corn is not considered a cash crop, many Michigan farmers are careless in their methods of harvesting it. Yet careful experiments have shown that the food elements in the corn plant disappear very rapidly when the fodder is left in shocks. Furthermore, weathering makes the husk and leaves harsh and unpalatable. It is estimated that a saving of 25 to 35 per cent of the food value of the corn crop is made when it is ensiled instead of being husked. This being the case, it seems to me that it is only good business for every farmer in the state, who annually plants ten



Scene in Judging Pavilion at Recent Live Stock Meeting at M. A. C.

acres of corn, to build a silo in which he may store at least half of his crop as soon as it reaches maturity. Already the adoption of the silo by thousands of Michigan farmers has meant a saving of millions of dollars to the owners. Of course, a certain amount of grain is necessary on the farm, but we can often buy shelled corn raised in the corn belt more cheaply than we can raise it here in Michigan. Corn stover, also, is a good feed to have on hand if it is well stacked or if it is stored in the barn. Personally, I do not think much of shredded stover except to take the place of straw as bedding. It very frequently suffers from mold and decay, thereby losing its food value and becoming unfit for any kind of stock.

While traveling through several counties in southern Michigan during the early winter, I have seen quite a portion of the corn crop still standing on scores of farms. It seems to me there is no excuse for such a condition. The weather last fall was ideal for harvesting corn. A man in any other line of business who took no better care of his interests would soon be facing bankruptcy.

If we men who let our corn crop harvest itself would only brace up once and set the pace for our neighbors in getting our crop properly stored in good season, it would mean larger profits and more leisure time for us.

Ingham Co. C. C. MILLER.

POTASH

is food for thought
as well as for crops
this year.

When shipments were interrupted by the war, it was estimated that there was enough Potash on hand in the United States to provide two and three per cent Potash in mixed fertilizers for this spring's trade. Some manufacturers had more than enough for these percentages.

Since then minor sources of Potash have been fully utilized, and additional shipments from the usual source have been and are still being received.

The supply is below normal, but this need not prevent farmers securing some Potash in their fertilizers, nor should it lead farmers to decide not to use fertilizers.

There is no reason to return to the out-of-date goods without Potash, although some authorities may try to "wish" them on us.

We have not used enough Potash in the past. The largest annual import of Potash was only one-seventieth of the Potash taken from the soil by our 1914 corn crop and only one-fifteenth of the Potash lost every year in drainage water.

Spring crops use from two to ten times as much Potash as Phosphoric Acid. Get as much Potash in the fertilizer as possible. A few firms are offering to furnish from four to ten per cent.

There is no substitute for Potash. It may be harder to get just now, but **POTASH PAYS.**

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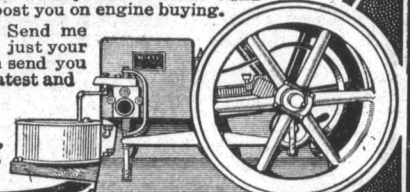
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ALSIKE VS. RED CLOVER.

Mixed sandy, clay and gravel upland soil has been badly run down so that a catch of red clover is uncertain. Do you think alsike is a hardier plant or more sure of catching on such land than red clover? When should it be sown and how much per acre? I wish to sow this spring on fall-sown rye and some on corn stubble to be plowed this spring.

Cass Co.

SUBSCRIBER.

While alsike clover is considered by many farmers to be less likely to be affected by adverse conditions than is red clover, yet the difference, if any, is so slight as to be almost a negligible factor so far as the securing of a seeding is concerned.

One of the first steps which should be taken to put this old worn land in condition to get a good seeding of clover is in all probability an application of lime. Clover does not catch well on an acid soil, due frequently to the fact that the bacteria peculiar to leguminous plants do not find a fit home in such a soil. This condition, coupled with a poor physical condition of the soil is the cause of very many failures of clover seeding in Michigan. Sow a mixture of red clover and alsike on this land as early in the spring as the soil can be worked, harrowing or drilling the seed in on the rye stubble and preparing a firm seed bed on the spring-plowed ground.

As an experiment try an application of lime on at least part of this land, using say 500 to 1000 pounds of commercial hydrated lime per acre, thoroughly worked into the surface soil.

MICHIGAN FARM CROPS EXHIBIT.

At the meeting of the Michigan Experiment Association held just following the recent live stock meeting at M. A. C., a very creditable farm crops exhibit was made by the members. This exhibit included the State Corn Show, of former years, and a good exhibit of other grains as well. The awards to exhibitors were as follows:

The first awards on exhibits were as follows: For district number one (the four southern tiers of counties), best ten ears of yellow dent, D. E. Turner, Mosherville; best ten ears of white dent, Willis Wahl, Constantine; best ten ears of white cap or other dent, C. Hunsberger, Grand Rapids.

For district number two (the remainder of the state), the prizes were awarded as follows: Best ten ears of yellow dent, Rossman Bros., Lakeview; best ten ears of white cap, J. S. Newman, Kingston; first prize for flint corn, Geo. Friederich, Brooklyn; first prize for popcorn, L. S. Russell, Brighton.

D. E. Turner, of Mosherville, carried off the sweepstakes for ten ears of corn, variety Duncan's yellow dent. This exhibit was also awarded the championship cup. Michigan Farmer cup went to Glenn Turner, of Mosherville, for the best single ear. The Rives and East Tompkins Farmers' Club was awarded the prize on the best Farmers' Club exhibit.

The "expert" class of exhibitors are those who have won awards on previous exhibits. In this class, J. W. Pickett, of Caledonia, won first on corn; L. L. Laurence, Decatur, first on red wheat; R. H. Gillette, Laingsburg, first on white wheat; M. T. Shoesmith of Leslie, first on any variety of pedigreed oats; L. L. Laurence, Decatur, first on any variety of oats; R. H. Gillette, Laingsburg, first on barley; A. G. Dupee, first on buckwheat; E. W. McNitt, first on rye. The Goemann trophy, which is estimated to be worth \$150 will be awarded to Mr. McNitt on his rye exhibit.

For the legume exhibits, I. N. Cowd-ray, of Ithaca, took first on white beans; John Lepien, Pottsville, first on kidney beans; M. T. Shoesmith, Leslie, first on soy beans; R. G. Malby, Grand Rapids, first on cowpeas, and M. T. Shoesmith, Leslie, first on red clover.

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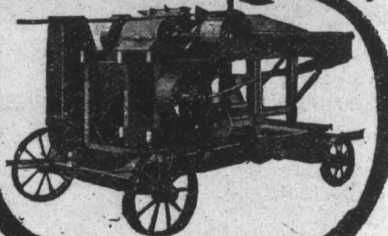
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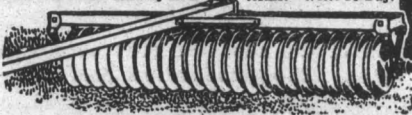
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European Co-Operative Agriculture.

As Seen by American Commission.

By WM. B. HATCH, Michigan Member of the Commission.

(Continued from last week).

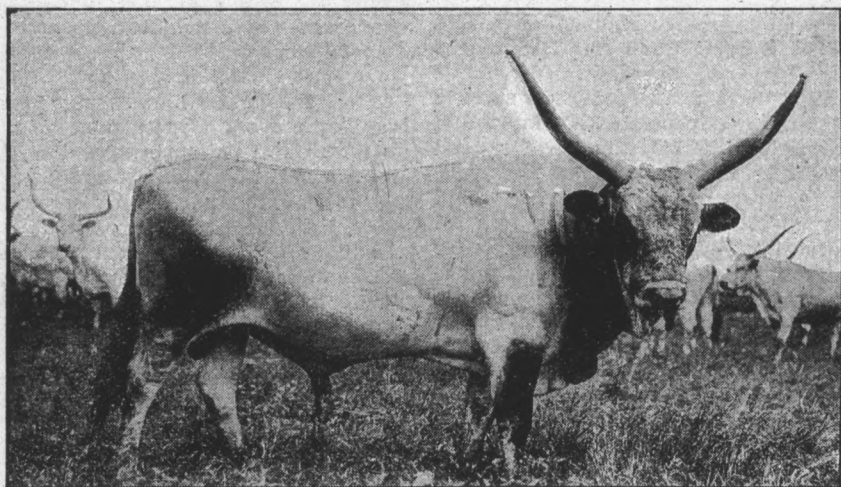
Any limited liability company or co-operative society whose members are possessed of real estate may issue mortgage bonds according to terms prescribed by law. For the securing of the bonds a special reserve fund must represent at least five per cent of the value of the mortgage bonds issued and must in any case aggregate \$80,000. If the institute in question desires that its mortgage bonds be tax exempt, and should enjoy the privilege of being accepted as investments for trust funds, the special reserve fund must aggregate not less than \$600,000. Such reserve fund serves exclusively as a security for the owners of the mortgage bonds, as a body. These bonds may be issued only on the basis of such loans as do not exceed 50 per cent of the appraised value of the real estate so mortgaged. The great demand for small holdings caused the Legislature to modify the security percentage to permit of loaning in this class up to two-thirds of the value of the real estate. This was found to be sound, because the small holders' property increased in value by reason of improvements made.

Debentures are issued in this class of loans and also for the reclamation of wet areas by drainage and the reg-

these securities, secured by \$292,000,000 worth of real estate.

The National Small Holdings Land Mortgage Institute was organized along similar lines for the benefit of the small holder to get him out of the hands of the shameless usurer. It has fulfilled expectations quite as satisfactorily as has the Hungarian Land Mortgage Institute.

The Hungarian Central Co-operative Credit Society is the central organization which, through the local co-operative credit associations supply the personal credit facilities to the farmers and likewise get him out of the clutches of the usurer. It really originated out of the discussions at the International Agricultural Congress held in Budapest in 1885. Earlier efforts had been numerous and not by any means satisfactory. This statement of the Minister of Agriculture is interesting because it seems to voice the experience in other countries: "Many abuses arose from the co-operative credit form of association, which was well on its way to achieve universal popularity, for it was a convenient form for the use of small banks and even private individuals, who often employed it for the establishment of advance societies without any capital, simply for the purpose of decoying the people into their nets



Hungarian Sire at the Government Stock Farm.

ulation of rivers. Loans on mortgage bonds as well as on debentures are usually granted for a period of fifty years and are repayable in semi-annual amortization installments. These installments, or annuities, generally include, besides the interest and the redemption percentage, a certain permanent "thousandth" to cover working expenses. The entire loan may be repaid at any time by paying a small premium. The institute in practice, instead of turning over the bonds or debentures to the borrower to sell, markets them itself, paying the borrower the proceeds, which usually realize to him within two per cent of the market. A large amount of foreign capital has been invested in these bonds and debentures.

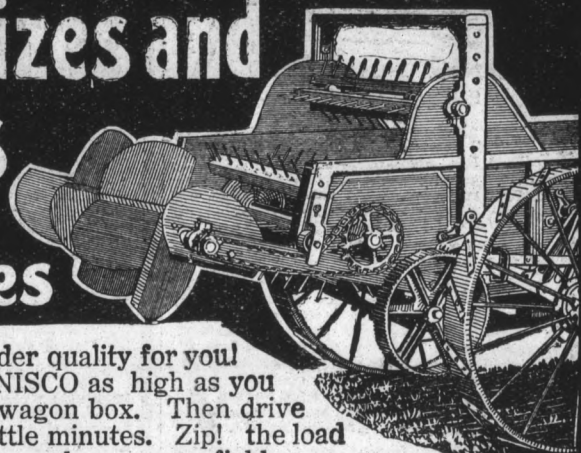
The Hungarian Land Mortgage Institute was granted at the time of its organization in 1863, from the treasury the sum of \$200,000. It was founded on strictly altruistic principles, with the character of a co-operative society. The stock capital was subscribed by 209 founders who cannot receive a dividend of over five per cent on their founder's shares. After the payment of this dividend all the profits are added to the reserve fund for the further protection of the mortgage bonds. The founders only paid in ten per cent at the time of organization and guaranteed the rest. This balance was gradually remitted from the rapidly swelling reserve fund so that by 1875 the balance of the subscription price of shares has all been remitted and the guaranty cancelled. This Institute alone had out in 1912 about ninety million dollars worth of

and of exploiting them. In the discussions and efforts which followed, to organize on a safe and sane basis, the country banks left no stone unturned in their endeavor to prevent a serious co-operative movement, which they believed threatened their very existence. This belief proved later on to be manifestly erroneous. The organization throughout the country has proven a brilliant success."

The sphere of activity of the smaller societies organized into the central society, is limited to a particular township, or at most, to certain clearly defined districts of restricted extent. Each member must subscribe for one share but he has only one vote no matter how many shares he may own. The nominal value of the shares may not exceed \$20. No more than five per cent dividends may be paid on the shares. The remuneration paid to directors may not exceed ten per cent of the net profits; the remainder of the profits must be added to the reserve fund. Co-operative societies may do business with their own members only, but they may accept savings deposits from non-members. Members are liable for the debts of the co-operative society up to a sum representing five times the value of the shares subscribed for by them; but this liability can only be enforced in case of the bankruptcy of the society. Losses, where not covered by the reserve fund, may be levied on the members. But there has never been a case yet where this provision has had to be invoked.

(Continued next week).

Yes Sir! the Nisco Pulverizes and Spreads A Load in 3 Minutes



THERE'S spreader quality for you!

Just pile the NISCO as high as you would pile a wagon box. Then drive around for three little minutes. Zip! the load is pulverized and spread over your field.

It's our double cylinder and our revolving distributor that do this. They take three whacks at the manure.

Spreads Seven Feet Wide

An even, uniform spread whose volume can be altered at will. Our drag conveyor prevents spreader racing when going up hill or over furrows and thus insures against valuable manure being wasted.

The 7-foot spread means that you can spread an acre in fewer trips with a NISCO than with those having a narrower spread. It saves you time and labor, and saves wear and tear on horses and machine. The

NISCO

Reg. U.S. Pat. Off.

The "New Idea"

is a Forty Feature Spreader. It has 40 separate and distinct features that are not found on any other spreader in the world.

Our double cylinder and revolving paddle distributor are protected by patents and cannot be used on any other spreader. Our special drag conveyor, used in place of the old style Apron, is another big NISCO feature.

A Light Draft, Low Down, Full Capacity Spreader That's Sure to Give Satisfaction.

Two horses can easily pull the NISCO under ordinary circumstances, or three for the large spreader on loose ground. Tongue hangs low to prevent neck weight and to permit hitch to go under the spreader bed when making a short turn.

The NISCO Spreader is built low down for easy loading. The top of the sides is only 41 inches from the ground, yet a steel conveyor track underneath the spreader

bed holds up the conveyor and provides a 17-inch clearance between it and the ground.

The bed of the NISCO spreader is 18½ inches and it's all manure room. There's no space taken up with heavy frame sills, rollers or "Aprons." That's why the capacity of the NISCO spreader is up to and even above its actual rating. You can safely load 12 inches above top of sides.

Chain Drive—No Gears to Strip, Freeze or Break

The simplest and most effective driving mechanism known. If a chain breaks the broken link can be replaced in a few minutes at a cost of a few cents. But a broken gear means a long delay and a heavy cost before you get it fixed.

The NISCO is simply made from start to finish. It has only about half as many parts as other spreaders.

This means that it's easier to understand, easier to handle and

will give twice the service without breakage. When you get the NISCO you are not buying pretty pictures out of a catalog, but are getting a machine that will do its work unfailingly right in your own field. We guarantee it for a full year against breakage from any cause, even carelessness.

We guarantee it to be of best material and workmanship and to do everything claimed for it.

ASK YOUR DEALER

He'll explain the Forty Features and show why this NISCO is the favorite with hundreds of farmers. If your dealer does not handle it write for our free catalog and let us tell you the name of the nearest dealer.

New Idea Spreader Co.

Spreader Specialists
132 First Street
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Pulverizes
and Spreads a Load
in Three Minutes!

**ELECTRIC
Steel
Wheel
Handy
Wagons
Are Big
Money
SAVERS!**

No more high lifting or pitching. Saves you work and lightens draft nearly 50%. Don't rut fields or roads. We also furnish Electric Steel Wheels to fit ANY wagon. Wheels can't dry out or rot. Send for free book of facts and proofs.
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CORN BELT OATS (Cartons No. 5)
Of earliest maturity, with strongest straw and thinnest hull. The large berries carry pure white grain of richest quality. Write for

FREE Samples and Illustrated Catalog
Learn all about our 100% pure oats and money-back guarantee. Write a postcard today.
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Build Your Silo Once Only

Eliminate all chances of blow-downs, decay and destruction by fire. Do away with painting, adjustments and repairs. Build for permanency, or in other words, build economically. Plan now to erect a

NATCO IMPERISHABLE SILO

"The Silo That Lasts for Generations"

Made of vitrified hollow clay tile which will endure forever, and reinforced by steel bands held in the mortar between each tier of tile. It is windproof, decayproof, verminproof and fireproof. The Natco is the best silage preserver known, for the vitrified hollow clay tile are impervious to air and moisture, and prevent freezing. Write to nearest branch for list of owners in your State and for catalog A

National Fire Proofing Company

Organized 1889 Pittsburgh, Pa.

Syracuse, N.Y. Bloomington, Ill. Madison, Wis.
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This Steel Forge Will Save Its Cost in 30 Days on Your Farm

Make blacksmith bills smaller by doing repair work at home. Our Forges are used by farmers in every State and foreign Countries. Blower is 11 1/2 inches diameter. Hearth is 30 1/2 inches high. Total height of Forge 43 inches.

Positively Guaranteed to be as large, durable, do as much work as any \$10 forge made and to be as represented or money refunded.

Special Winter Offers

Until March 31, 1915 we offer our two styles of Farm Forges at \$3.75 and \$4.00 each. 1 pair of tongs and 1 Anvil and Vise combined \$1.75 extra. Prompt shipments. This offer may not appear again. Write today. Send stamp for Catalog No. 15 and testimonials.

C. A. S. FORGE WORKS, Saranac, Mich.



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the unflinching Unadilla Silo provides the nourishing, succulent green fodder necessary for greatest production when dairy products bring best prices. Most reliable, durable and convenient silo made. Liberal discount on orders placed now. Write today for descriptive catalogue, free wall calendar, prices and terms. Agents wanted.

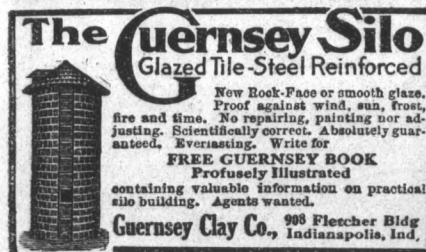
UNADILLA SILO CO., Box Z, Unadilla, N. Y.



THE ROSS SILO

Only silo made with these combined features. Doors on Hinges. Continuous Door Frame. Refrigerator type of Door and Door Frame. Oval Door Frame to fit exact circumference. Not a bolt in entire door frame or doors. Extra Heavy Hoops and Lugs. Roof Rafters and Anchors furnished FREE. Backed up by 63 years of experience. Write for catalog which explains all. AGENTS WANTED.

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The Guernsey Silo

Glazed Tile-Steel Reinforced

New Rock-Face or smooth glass. Proof against wind, sun, frost, fire and time. No repairing, painting nor adjusting. Scientifically correct. Absolutely guaranteed. Everlasting. Write for FREE GUERNSEY BOOK. Profusely illustrated containing valuable information on practical silo building. Agents wanted.

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Chain of Kilns; Atlantic to Rio Grande. Reduces freight cost; fire and frost-proof; weighs anchors itself; ample hoopage galvanized; priced at your towns; 5 year guaranty; free sample. Kalamazoo Tank & Silo Co., Kalamazoo, Mich.



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Double Tread Tires Guaranteed For 3500 Miles

Every reputable manufacturer of automobile tires maintains a certain standard. In factory inspection, the slightest irregularity of manufacture, a bruise or even a scratch will prevent a sound honest tire from being sold as new.

Double Tread Tires are formed by combining one of these shoes with the bead of another tire which gives a doubly constructed tread, twelve layers of fabric, one inch service rubber, a strong, serviceable tire, that will stand up under the hardest service.

We stand back of every tire with a guarantee of 3,500 miles, and can save you 75% on your tire bills.

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Size	Plain	Non-Skid	Pure Gum	Red Tubes
30x3...	\$5.00	\$5.50	\$2.04	\$2.68
30x3 1/2	6.00	7.00	2.55	3.20
32x3 1/2	7.00	8.00	2.70	3.41
33x4...	9.00	10.00	3.46	4.14
34x4...	9.00	10.00	3.58	4.36

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that's the cost per year on basis of service. They last 20 to 25 years. Average cost \$13. Save labor, time, horses, roads, money. Put a set on your wagon at our risk. Write for catalog and prices.

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Healthy Cows All The Year Round!

A natural food that strengthens and builds up is far better than any kind of tonic or medicine for animals, as well as for men. Scientists have proved that this new food increases the value of any kind of feed, when mixed with it.

Buckeye Feeding Molasses

helps make more milk, and keeps your cows in good condition. It is also a good fattener for beef cattle.

For Horses—Buckeye Feeding Molasses is relished by horses. It keeps their stomachs in perfect condition, aids digestion and besides saving feed, prevents kidney diseases, colds, etc.

For Sheep—Will keep your flock healthy and well; adds weight and makes finer wool and more of it.

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I have.....head of cattle.....

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Send me your trial proposition to prove that Buckeye Feeding Molasses will benefit all of them.

Name.....R. F. D.....

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Some Equine Habits.

By PROF. JESSE BEERY.

GENERALLY speaking, there are two causes for most bad habits. The first is improper colt training, and by that I mean that the horse, when a colt, has not been taught to be absolutely fearless of all sights and sounds; that he must obey the commands "Get Up" and "Whoa" under all circumstances; in fact, not made perfectly reliable.

The second cause of bad habits is accidents. Sometimes a horse, that is considered well broken, may be in an accident in which he is injured and succeeds in getting beyond the control of the driver. He would not have to be out of the driver's control very long before he would learn his power, and then he proceeds to run away or does something else equally as bad.

An accident often makes such an impression on the mind of the horse that a similar circumstance would remind him of that sensation of power and he would do everything he could to get loose again.

Accidents Often Due to Improper Colt Training. I believe that nine out of ten accidents with horses are the direct result of improper colt training. Of the thousands of horses that were brought to me to be broken of a bad habit the majority were due to accidents that would never have happened had the horse been trained right when a colt.

Habits Neither Good Nor Bad to the Horse.

Right here I am going to state a fact that most people do not know and that is that a habit is neither good nor bad to the horse. The worst outlaw possible to find may kick, bite, strike, balk and do everything under the sun we consider bad, but he simply has a misunderstanding. He does not know what we want of him; he does not know that we consider his habits bad.

"Teaching" a Horse Bad Habits. A horse may bite and strike at us because he is afraid we will hurt him. If we try to break him and he whips us out by striking and we do not punish him at the right time and in the right manner for doing so, we have taught him to strike, or if he did have the habit before we have only fixed it more firmly.

So, whenever a horse has a bad habit, it means that there has been poor management some place along the line, either in colt training or in allowing him to acquire the habit later.

One Way of "Teaching" a Horse to Shy. I will give one or two illustrations in order to make this point perfectly clear. Take the habit of shying, for instance. It is generally started, the first time, by the horse being frightened by some strange sight, or, quite often, by a moving object such as a newspaper flying across the road.

If the horse has not previously been educated to pay no attention to strange sights and objects his instinctive fear will cause him to try to get away from anything that is not familiar to him. Now, right at this stage is where so many people actually teach their horses to shy.

Punishment at the Wrong Time. When the horse shies out to the side of the road, the first time, the driver thinks he will teach him a lesson and punish him for shying. So, usually, just after the horse has started to run away from the object, the driver gives him one or two sharp cuts with the whip and then settles him down with the lines.

Now, the horse's mind was on the object and not on the act of shying at all. The pain caused by the whip was associated with the fearful object, whatever it might have been and, therefore, the only impression the

horse could possibly have gotten was that the object caused the pain. It is only natural that the next time he sees this object or a similar one, he will crowd the ditch as much or more than he did before.

So far as the habit of this particular horse was concerned, it would have been better had there been no driver at all, because the oftener the horse would go past the object, alone, the more familiar with it he would become.

Kicking. Kicking is also a habit that is often caused by the owner teaching it by poor management in colt training. Many people think all horses kick because of a bad disposition, but I do not agree with them. In nearly every case the horse kicks the first time in self defense. Of course, after the act is repeated a few times he learns his power and it becomes a habit.

If the horse kicks when the hold-back strap breaks, and allows the cross-piece of the shafts to strike the hind quarters, it is only an indication that he was not properly educated when a colt. For the same reason some horses kick when the line gets under the tail.

Now, if such a horse, when a colt, had been taught that no member of his body must move, when anything out of the ordinary came in contact with it, he would not kick, no matter what happened.

Balking. Of all the habits horses may have, this is the most aggravating. Nothing tries one's patience more than to hitch up in a hurry, anxious to be off, only to find, upon climbing into the buggy, that the horse is not ready to go and probably will not be for an hour or more. A balker usually stands and looks back as if he expected something to happen from the rear and he is very seldom disappointed, for the driver usually make the air hot with a volley of words and the hissing of the whip.

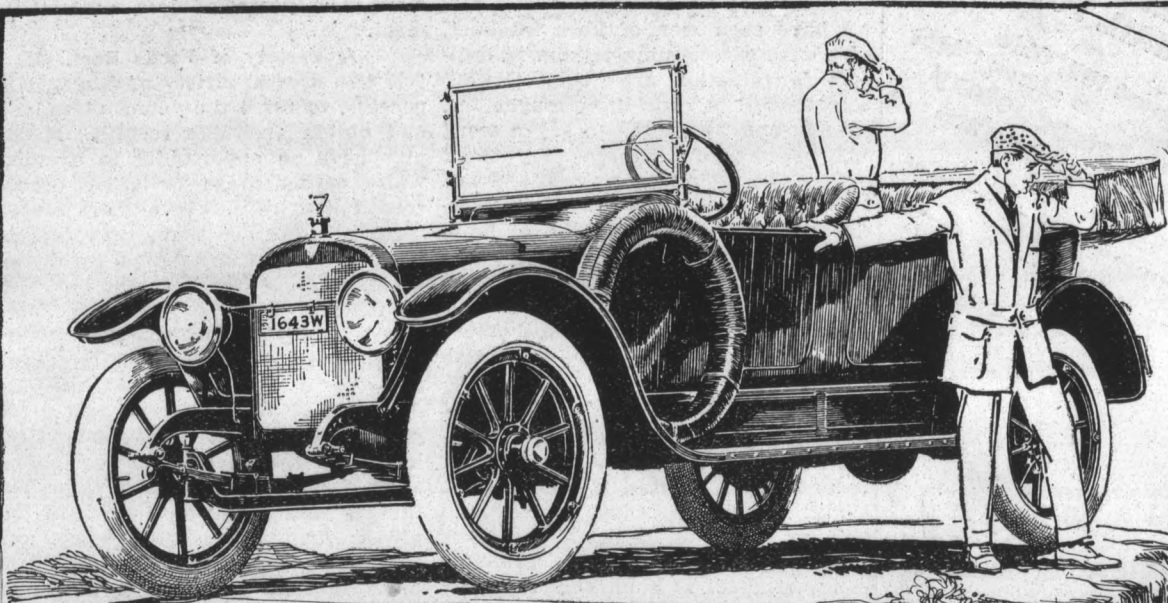
The Foolishness of Whipping a Balker.

The driver's words have absolutely no meaning to the horse, nor does the whip, and, naturally, he becomes more and more confused and his senses more and more blunted. The driver would be doing more good if, instead of yelling and slashing with the whip, he would start singing a song and slash the fence. The horse's confusion would change to astonishment and he would probably move off.

Why a Horse Balks. Balking is due to a confused, inactive and almost insensible condition of the horse's mind. For instance, I take a horse with a very strong will and as I turn him toward the stable door his will is fixed on going into the stable.

Before reaching the door I pull the line for him to go in another direction. Now, there are two opposing forces working in his mind—that powerful, will to go to the stable and a strong pull on the bit to go away from it. Since a horse can think of but one thing at a time he becomes confused and sullen and stops. If the first stroke or two of the whip does not attract his attention to something else, others will only lock his mind and make him all the more insensible to his surroundings.

The Nervous Balker. Another type of balker is found in the nervous and ambitious horse. He is hitched up by the side of a slow, sluggish horse. The command "get up," is given and the ambitious colt leaps forward promptly only to jerk on his tender shoulders and mouth because the old horse did not obey at once. When this is repeated a few times, he becomes confused, because he was jerked for going forward and



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It Took Four Years to Get There

Bear these things in mind when you come to choose among the 1915 models:

The HUDSON Six-40 was the pioneer in this popular Light Six type. It was started four years ago. And the foremost engineering corps in this industry has been working four years on it.

Every crudity has been eliminated. Every detail has been refined to the limit. You see here the result of development.

And this car has been driven by 10,000 owners, perhaps 25 million miles. It has made its records on nearly every road. It has proved itself under every condition. All your questions about it—what it can do and what it can stand—have been answered countless times.

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You can see for yourself its ultra-refinement, its beauty, its finish, its ideal equipment. The scales will tell its lightness. A ten-mile ride will show its perfect balance, its flexibility, its freedom from vibration.

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Those are questions to be answered by experience. With the HUDSON Six-40 there are 10,000 men who know. There are 5000 last-year models running, and 5000 this-year models.

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to tell you that this car, in the points most important, excels any car they know.

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A vast number of new problems came up in creating this light, economical Six. This great saving in weight called for better materials, better engineering. It called for a new-type, high-speed motor to lessen engine shocks. Almost every detail of old-time cars had to be revised.

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Bad Habits Cured

By Beery System

Refusing to lead.
 Running away when hal-
 ter or bridle is removed.
 Getting fast in the stall.
 Pawing in the stable.
 Pawing while hitched.
 Crowding in the stall.
 Fighting halter or bridle.
 Tender bitten.
 Pulling on one rein.
 Lugging on the bit.
 Lunging and plunging.
 Refusing to stand.
 Refusing to back.
 Shying. Balking.
 Afraid of automobiles.
 Afraid of robes.
 Afraid of clothes on line.
 Afraid of cars.
 Afraid of sound of a gun.
 Afraid of band playing.
 Afraid of steam engine.
 Afraid of the touch of
 shafts or harness.
 Running away.
 Kicking.
 Biting. Striking.
 Hard to shoe.
 Bad to groom.
 Breaking straps.
 Refusing to hold back
 while going down hill.
 Searing at hogs or dogs
 along the road.
 Tail switchers.
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 Jumping fences.
 Bad to hitch to buggy or
 wagon.

To all men own-
 ing horses, who
 answer this advertisement immediately, I
 will positively send my introductory course
 in Horse Training and Colt Breaking AB-
 SOLUTELY FREE.

World's Greatest System of Horsemanship

Twenty-five thousand FARMERS and horse-owners have
 taken my regular course and found that it does the work.
 Even if you have only one horse, it will pay you to master
 my wonderful system. The Beery Course is the result of a
 lifetime's work as a tamer and trainer of horses. As one of
 my students has said, "The horse has never been foaled
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The Beery Course gives
 you the priceless secrets of
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 the value of every horse you
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You can do it by my simple,
 practical, humane system. There
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**Make \$1,200 to \$3,000
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Many of my graduates are
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My Graduates Are Doing Wonders

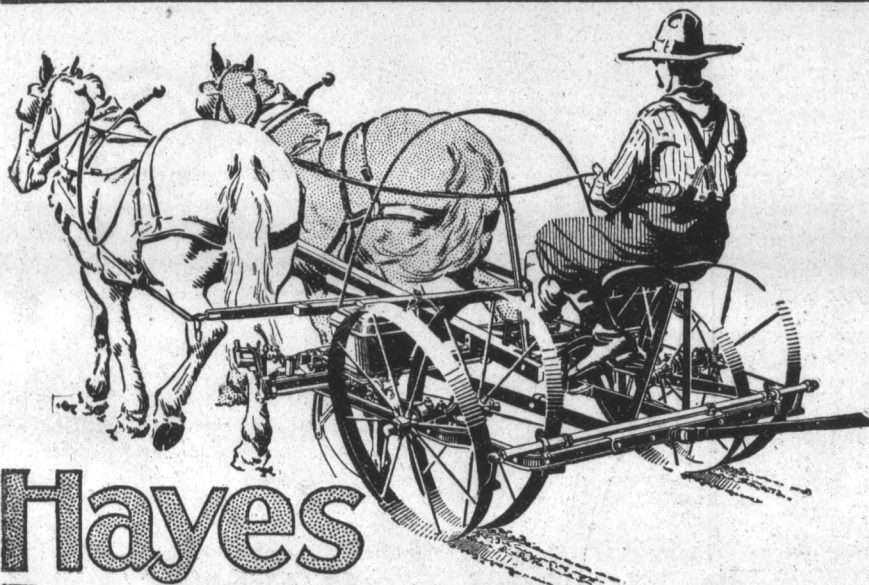
A. L. Dickinson, of Friendship,
 N. Y., says: "I am working a pair of
 horses that cleaned out several men.
 I got them for \$110, gave them a few
 lessons, and have been offered \$400
 for the pair." Fred Bowden, R. R.
 No. 2, Keokuk, Iowa writes: "It's
 worth many times its cost." I
 have many similar letters from
 graduates all over the world.

traveling. I made a fortune trav-
 eling and giving exhibitions. You
 have the same opportunity.

Send the Coupon

and get the Introductory Course in
 Horse Training FREE. This
 special offer may never be re-
 peated. Act now. Tell me about
 your horse.

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Hayes Four Wheels—Bigger Yields

GOOD seed, rich soil and favor-
 able weather count for little if
 your corn crop is carelessly
 planted. Planting is just as important
 as seed, soil and weather. It is the
 one thing over which you have com-
 plete control—the one thing you can
 regulate to insure a bigger yield.

The Hayes Four Wheel is guaran-
 teed. It must be all we claim and all you
 expect. 180,000 users verify that **Hayes**
Four Wheels regulate depth of planting
 to the fraction of an inch. Corn all comes
 up at the same time, allows earlier cul-
 tivation, an earlier harvest, a better qual-
 ity and bigger quantity.

Hayes Four Wheels guarantee surer
 germination and quicker growth. Wheels
 pack the dirt around the corn to hold the
 moisture and leave a ridge of loose soil on
 top. Ridge over corn prevents washouts
 in hilly fields and gives greater surface
 for sun's heat.

Covers where all ordinary open wheels
 fail—even in wet and sticky ground.
 Guaranteed not to clog. Short coupled,
 light draft and turns in shortest space.
 Checks with absolute accuracy, regardless
 of team's speed. Cross rows straighter
 than the way you drive.

The **Hayes Drop** never misses a hill
 Simple, reliable and most efficient. Few
 er parts, less breakage and delays. Has
 no clutch to miss and give trouble.
 Never cracks or grinds the seed. Will drop
 accurately any size or shape kernel. No
 bare spots in **Hayes** planted fields. No
 replanting necessary. Increased yields
 soon pay for it.

Thousands in use for years with prac-
 tically no repair expense and every one
 giving time-saving, money-making service.
 No complicated parts to get out of fix.
 Strong construction, practically exempt
 from breakage. No expensive and aggra-
 vating delays in the busy planting sea-
 son. Easy and simple to operate and
 can be trusted to unskilled help.

Can be furnished with perfect working
 Fertilizer or Cow Pea Attachments, Stub
 Runners or Disks.

2000 dealers. Ask your dealer or let
 us prove how this planter prevents corn
 field waste and increases corn yields.
 Don't make a mistake. Buy the planter
 that guarantees results.

Free book AC of Planter Facts tells
 all about the **Hayes**. Write for it today
 —a postal, or if you wish a letter, asking
 any questions on planting problems.

HAYES PUMP & PLANTER CO., Galva, Ill.

whipped for going backward, and, in
 his confusion, he could only stand and
 prance.

I have seen men of keen intellect,
 who were entertaining talkers in ordi-
 nary conversation, arise before an au-
 dience with a carefully thought out
 speech, and be unable to say a word
 and become so confused they could
 hardly tell their own names, and not
 know enough to sit down. It is some-
 thing of the same condition of mind
 the balking horse gets into. It would
 be brutal to abuse the man, because
 his mind became inactive in his new
 surroundings, and it is still more
 brutal to abuse the balking horse with
 his lesser mental powers.

Bad Habits the Result of a Misunder- standing.

I have only touched on three of the
 most common habits and their causes.
 What is true of shying, kicking and
 balking is true of all bad habits. One
 can readily see that the principal
 cause of them is a misunderstanding
 between man and horse. When they
 do understand each other there is no
 danger of bad habits being formed.
 Man, with his power to reason, will
 have no difficulty in getting along with
 his most faithful friend—the horse—
 if he will use that power in handling
 him.

SOME HOG POINTERS.

There are a good many who try to
 make money raising, feeding and sell-
 ing hogs, and fail because they do not
 fully understand some of the funda-
 mental principles of cheap pork pro-
 duction. There is too often a lack of
 appreciation of the value of pure-bred
 hogs, and a lack of appreciation of
 the superior value of the best speci-
 mens of the breed, over the inferior
 specimens of the breed. Some speci-
 mens of a given breed have within
 them inherent characteristics which
 make them economical meat produc-
 ers, while other members of the same
 breed have those desirable character-
 istics in a lesser degree. The differ-
 ences in inherent characteristics may
 be the cause of loss in the ven-
 ture, or they may bring satisfactory
 profits.

The inherent characteristic of thrift-
 iness is not as much appreciated as it
 should be. Looking upon a hog as a
 hog, and that is all there is of it, has
 led many into speculations which have
 proved to be unprofitable, and they
 have quit in disgust, while others
 working under similar conditions, with
 a thriftier class of stock, have been
 successful in making a good profit.
 The fact should be kept in mind that
 a growthy pig which makes rapid
 gains while young makes his weight
 at much less expense for feed than
 the slow growing pig.

One Kind of Feed Expensive.

No one kind of a feed is a perfect
 ration. A man who does not feed a
 variety of feeds makes a mistake. Our
 forefathers made a mistake when they
 used corn as an exclusive diet for grow-
 ing pigs, and if they did not feed it in
 moderate quantities, the pigs fattened
 but did not make satisfactory growth.
 Therefore each succeeding generation
 was smaller than the preceding one,
 and in due time the breeds, fed en-
 tirely on corn, were reduced in size
 until they were not profitable hogs to
 keep.

When raising hogs by the one-feed
 plan, it was necessary to feed slowly
 for a long period of time to let the
 pigs grow along slowly, and growing
 weights were costly; the chances for
 profits were very meager. After the
 period of growth, then came the fat-
 tening for market, which was also ex-
 pensive, as the pigs had fixed within
 them the habit of slow growing and
 slow at the accumulation of fat. The
 quality of meat was not such as the
 market demands, and it was not prof-
 itable meant for either the farmer or
 the dealer to handle. There was a
 too large percentage of fat in propor-

tion to the lean meat. A large pro-
 portion of the consumers demand a
 large percentage of lean with their
 meat.

A Variety of Feeds Best.

If one uses a variety of feeds, it is
 possible to force the young pigs along
 and obtain desirable results. If the
 pigs have an opportunity to exercise
 while eating grass or other coarse
 feeds, like rape, clover, or garden
 weeds thrown to them, they can be
 fed a liberal quantity of a variety of
 grains, such as part corn and part mill
 feeds, with excellent results. There
 will be a rapid growth. The weights
 attained while young will be produced
 at a low cost. The muscles are pro-
 duced while the pigs are growing, and
 if well fed, the fat will be interming-
 led with the lean, a characteristic
 much desired at the present time. The
 fat intermingled with the lean im-
 proves the flavor of the whole. In
 that case the fat adds value to the
 meat instead of being a detriment
 to it.

Marketing Pointers.

At the present time the prices for
 whole hogs, whether dead or alive,
 seem low when compared with those
 that prevailed in the spring and sum-
 mer. The packers are laying their
 supplies of pork meats for the sea-
 son's trade. It is to their advantage
 to "bear the market," as the expres-
 sion goes, in order to get their sup-
 plies at a low figure. The contention
 is that there is a large supply of hogs
 in the country. Later, when the spec-
 ulators are ready to sell, there will be
 a change in the story which they will
 tell, and, of course, the prices will be
 advanced.

A pig raiser and feeder who can get
 his pigs ready to sell when the spec-
 ulators sell, will be pretty sure to get
 a good price for them. Prices are
 generally good for butchers' pork from
 March to October. The fall pigs can
 be sold in May and June. The March
 and April pigs in September and Oc-
 tober.

The speculators "bear" the market
 to buy their supplies during the fall
 and winter, and "bull" it to sell in
 the spring, summer and early fall.
 They accumulate their wealth by the
 hundreds of thousands and sometimes
 by the millions of dollars. Why not
 watch the game and sell when the
 market is good, and catch some of the
 benefits in order to increase some of
 the comforts and luxuries desired by
 those who live on the farms?

Wayne Co. N. A. CLAPP.

LIVE STOCK NEWS.

It is learned from reliable sources
 that Montana has marketed nearly all
 its hay-fed sheep and lambs that will
 be ready to market this season. What
 is left is contracted for the coast
 trade. This is very unusual so early
 in the year.

The Chicago & Northwestern Rail-
 road Company has completed arrange-
 ments to open a feed yard in Clinton,
 Iowa, which will give the Nebraska
 and Colorado sheep and lamb ship-
 pers an opportunity to unload and
 feed at that place and come to Chicago
 to be sold in the unquarantined di-
 vision the following morning. The
 Burlington road has made similar ar-
 rangements at Galesburg, Ill., and it
 is stated that other lines have been
 at work on the same proposition.
 Stock loaded out at such stations at
 night is expected to arrive in Chicago
 the next morning in good time for the
 day's market, the roads promising
 good service.

British and French purchases of ar-
 tillery horses continue on an enor-
 mous scale, the British taking the
 best horses as a rule. They are pay-
 ing from \$175@180, showing a marked
 preference for mares. The French
 take the next best horses, paying as
 low as \$150. Such horses as the two
 countries buy are bringing from \$25@
 \$35 per head more than a year ago,
 but heavy draft horses are very hard
 to dispose of in the Chicago market.
 The export movement has induced the
 farmers to enter the market six weeks
 ahead of their usual time for purchas-
 ing farm horses, as they see that
 prices of such stock are headed un-
 mistakably upward all the time.

The Farm Cost of Dairy Products.

By COLON C. LILLIE.

YOU can't figure out the farm cost of farm products as accurately as you can the factory cost of factory products. It can't be done. There are so many varying conditions and so many factors that can not be computed that, while the cost of producing milk or butter-fat can be fairly closely estimated there is always a factor of uncertainty or estimate about it that can not be eliminated.

Factors Affecting Cost.

The cost of producing milk or butter-fat from the standpoint of cost of feed can be fairly accurately obtained. But the food of production is only one factor. The labor of production must be estimated. Besides, we give the cow credit only for the butter-fat or milk she produces and estimate that the skim-milk and the calf and the manure she produces will pay for the cost of labor, interest on investment, depreciation, etc. Now, in my judgment in some instances these products will more than pay the cost of labor, in fact, much more, and in other instances it might be questionable. Some people do not get much value out of their skim-milk because they do not feed it in connection with other proper foods. This by-product is an unbalanced ration and if not balanced with the right kind of food much of its value is lost. Again, if fed to well-bred animals it is easy to understand that one can get a greater value out of it than when fed to unthrifty, scrub animals. The feeding value of skim-milk I verily believe, varies from almost nothing in some instances, to as much as 50 or 75 cents per 100 pounds in another, when properly fed and to good animals.

By-Products vs. Costs.

It is the same with the calf. If it is well-bred and well-born and properly fed and cared for, it is worth much more than if it is only a scrub, poorly fed and indifferently cared for. Here, again, the food cost of butter-fat or milk does not always show the correct cost.

With the manure everyone knows that the same conclusions must be drawn. The value of the manure depends in part on the ration fed, well fed, and liberally fed animals produce manure superior as plant food to those that are underfed or improperly fed. You can't get something out of nothing. Then how is this manure handled? There is a chance for a large parts of its value (its plant food) to be absolutely wasted by careless handling. And again, if it is carefully preserved, on what crops is it applied and how much is used at one application? There is a chance for great waste or loss, for it, to the plant may be as much of an unbalanced food as skim-milk is to the calf. If it is unbalanced then it should be balanced by adding the plant food nutrient that is lacking.

Therefore, these three by-products of dairying may be so handled that they do not pay for the cost of labor or they may be so handled to much more than pay the cost, consequently the food cost of butter-fat or milk may or may not represent the entire cost.

The Danish system of cow testing, which originated in that country and which has been introduced into some parts of our country, assumes that these by-products will pay cost of labor, interest on investment, depreciation, etc., and that the food cost of butter-fat or of milk represents the cost. This system is certainly accurate enough to enable the dairy farmer to select his best and most profitable cows. Not only this, but it affords him a basis for the improvement of his future herd, by assuming that a calf out of an economical producing cow will make a more economical producer than one out of a cow that can show

no profit when her food bill is charged up against her.

Farm Costs vs. Market Prices.

This cost of butter-fat or of milk as determined by the modern cow testing records is in another sense not the real farm cost. It is the cost where the food is charged to the cow at market price. And this market price may or may not be farm cost of the food. It is more apt not to be. It always should be greater than the farm cost, else the farm profits are not what they should be, but in some cases at least, the farm cost of hay or corn or oats is greater than the market price, and in these cases the determined cost of fat or milk by the test is less than the actual cost, and if these foodstuffs were grown for less than the market price, then the determined price as shown by the records would be greater than the farm cost. For instance, this present season our oats and peas cost more than the market price. They were nearly a failure. We had a heavy growth of straw and at one time they looked promising but the weather was not favorable when the heads filled (we sowed them too late), and the oats were very light in weight. Besides this, the army-worm ate off many heads. Now, we are charging these oats and peas to the cows at market price. It would not be fair to the cows to charge them at the farm cost price, and when we charge them at the market price the cost of fat or milk is not the actual cost to me this year. And so it is with corn silage and hay. One year the cost of crops placed in the silo or in the hay mow is more per ton than another year and this affects the cost of the dairy products produced on the farm.

Farm Cost a Varying Factor.

The cost per unit of different dairy foods produced on the farm varies on different farms. One farmer is a better farmer than his neighbor. He perhaps has a great advantage in having a better farm. The land has been kept up in crop producing power, or was originally more fertile. One farmer has greater executive ability than another. We find this everywhere in all kinds of business. Or one man has a greater working capital which enables him to do things on time and in the best way. The average farmer needs greater working capital quite as much as he needs more scientific knowledge about farming. It takes working capital to take advantage of farming opportunities just as well as it does to take advantage of other business opportunities. There are a great many factors to take into consideration in cost of farm products and it is easy to understand that the cost of these products varies with the season, the land and the farmer. All of those are quite varying quantities, and an accurate estimate of cost of farm products can be arrived at only by considering a wide and varied number of instances for an extended number of years.

If their cost is confined to one farm there can be no degree of accuracy from one year or two years. I can tell what it cost to produce butter-fat last year, or the year before in my herd where the market price of the food products is charged to the cows and the cows are credited with the butter-fat produced at the market price. This cost will not be the same in any one year, because the cows do not always produce alike, and other conditions are not alike. An average for ten years would be more correct, of course, but even that is for only one herd on one farm.

Much Criticism of Farmers Unwarranted.

Business men in other callings often criticize the farmer because he can not tell the cost of farm products.

Some say that if other business was run as slack, so far as knowing the cost of production is concerned, it would go to the dogs, and it probably would. But the case is entirely different. The cost of production in farm products varies with almost every season. The editor who scolds and finds fault with the farmer because he does not keep accurate account and does not know the actual cost of production, and the business man as well, would find if he got actually up against the actual proposition that he would not know any more about the problem when he got through than the farmer does.

The facts are that the farmer some years on some crops makes immense profits, 100 per cent, perhaps 200 per cent on another crop that year he may make only 10 per cent or five per cent and on another lose five per cent or 25 per cent. The wise farmer has learned by experience that he is not warranted in increasing his acreage next year on the crop that made him 100 per cent this year. The crop that he lost on last year may be the one he makes on next year. That is the reason why the co-operative judgment of farmers favors general farming rather than special farming. It is safer. And it is safer not to run entirely to dairying. While dairying is as stable a proposition as one can take up in the whole field of agriculture, one guards against unforeseen losses if he has some other proposition in connection with it, like hogs, and poultry, or potatoes, sugar beets, wheat, etc.

Another important factor that anyone can readily appreciate is that the care of the herd will materially affect the yield of milk and hence the cost of fat or milk. A real cow man in charge of a herd will increase the production materially, even without increasing the cost of feed. A cow is a different kind of a machine than the manufacturer has to deal with, a different element of human nature must be possessed by the operator to get best results. A cow is a machine possessed with intelligence and a mind of her own, which must be catered to in a general way if results are obtained. The business man, and many agricultural educators seem to ignore such facts about farming, and think you can figure cost results as accurately in farming as you can in other lines of business where this important element of living machines does not enter at all. I repeat, it can not be done.

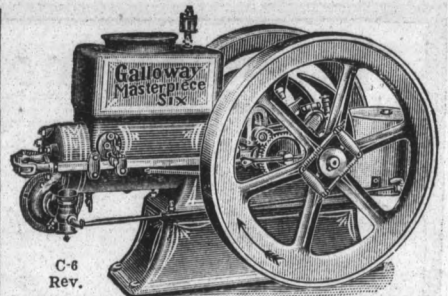
But after the uncertainties of the question are all considered, it is true that the farmer who can estimate the most accurately the cost of production is the man best capable of making a success. In fact, he is the man who is making the success today.

One Year's Costs.

According to our cow testing records year before last, and our testing year begins in March, it cost 25½ cents to produce a pound of butter-fat and \$1.22 to produce 100 pounds of milk. While last year the cost of fat was 22.6c and of milk \$1.09. But as I have tried to explain, if we properly fed the skim-milk, properly marketed the calves, and properly saved and applied the manure, and besides, if we produced good cheap crops of corn and hay, this price is much in excess of the actual farm cost. This, I know well enough, but am unable to give exact facts.

One Month's Results.

The cow tester, or testing expert, whatever name we may give him, has come and gone for the month of January. What I mean is, he has supervised the testing of the cows, has charged the food they consumed to each individual and given her credit for the butter-fat she produced. He has not only left me the record of each cow, showing how much profit



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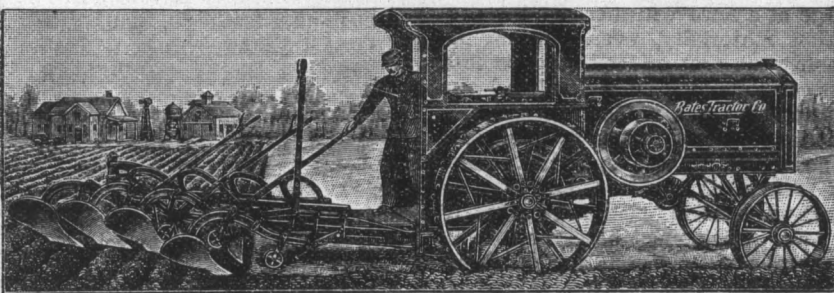
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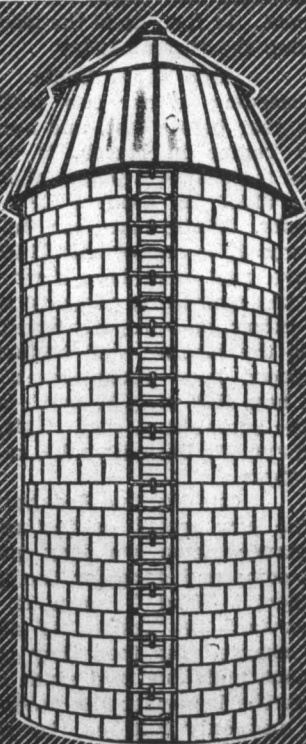
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she made or the loss she entailed, but he has summarized for the whole herd, showing what the herd, as a whole, produced, what they consumed and its value, and the profit. Of course, there is never a loss on the whole herd for any month, but there is on individual cows some months, for at near the close of the period of lactation they can not pay for the food they eat, and then when they are dry the food consumed is a total loss charged against them.

The herd produced for January, 24,306 lbs. of milk. This milk tested, on the average, 4.81 per cent fat. There is something mysterious about tests. Last month the average test was 5.13 per cent. We have known for years that individual cows varied in their test remarkably from one milking to another, but a few years ago we thought herd tests should remain quite uniform. Of course, they do remain more nearly constant than individual tests, but even herd tests vary from month to month and from day to day, at least so our testing expert determines.

The record for the month is, 1,164.1 lbs. of butter-fat. The cows are given credit for this fat at 35 cents per pound. They are charged with \$99.58 worth of grain and \$245.86 worth of roughage. For the month they brought a profit of \$158.21. That is, this is the value of the butter-fat over and above the cost of feed. In other words, I got \$1.65 for every dollar's worth of feed consumed.

The herd produced butter-fat for 21.3 cents per pound and milk for \$1.02 per 100 pounds. Many cows, of course, produced fat and milk for less than these figures. This is the average for the whole herd, and some cows were dry and produced no butter-fat at all, while others were nearly dry and produced but little. Others, again, were comparatively fresh and produced nearly their maximum amount.

We are feeding corn meal, cottonseed meal and wheat bran at the present time and these foods now are quite expensive. This makes the cost of fat higher, also the cost of milk. We are, however, getting a good price for sweetcorn stalks, silage and pea vine silage, (\$3.50 per ton), and these products would have very little value if not turned into butter-fat.

This is the fifteenth of 52 special articles to be published in consecutive issues. Another interesting article relating to the same subject will be found on the next page.—Eds.

A GOOD RECORD.

The following is a record of a grade Holstein cow which I bought December 16, 1911. I do not know her age, but she is about 10 years old. She weighs about 1,300 pounds. I did not start to weigh her milk until she came fresh.

Bess gave birth to a heifer calf (Star) May 12, 1912.

Record for one day, June 14, 58 lbs; record for seven days, June 9 to 15, 377 lbs; record for one month, June, 1,530 lbs; record from May 12, 1913, to March 31, 1914, 10,062 lbs., which brought \$136.10.

Bess gave birth to a heifer calf (May), May 6, 1913.

Record for one day, May 22, 76 lbs; record for seven days, May 18 to 24, 505 lbs; record for one month, June, 1,501 lbs; record from May 6, 1913, to July 31, 1914, 13,240 lbs., which brought \$188.05.

Bess gave birth to a heifer calf (Queen), September 24, 1914.

Record for one day, Sept. 29, 54 lbs; record for seven days, Sept. 25 to Oct. 1, 343 lbs; record for one month, October, 1,299 lbs; record from Sept. 24 to Jan. 1, 1915, 3,643 lbs., which brought \$60.50.

This makes a total of 26,945 lbs., and \$384.65. Star came fresh August 7, 1914, and to date has given 3,659 lbs. at \$56.94. I have figured the

price received at the local condensery each month. Considering the three nice heifers which I have, I think this is a fair record.

Ingham Co. L. T. OPPENLANDER.

RATION LACKS PROTEIN.

I would like to know if it would be better to feed milch cows grain once or twice a day. I am feeding 6 qts. of ground oats in the morning and a bushel of ensilage and cornstalks at noon, and oat straw at night, and about one-third of a bushel of turnips. Cheboygan Co. J. B.

The roughage in this ration, (that is, ensilage, cornstalks and straw), is deficient in protein; every food is a carbonaceous food, therefore oats as the concentrate will not balance the ration. Oats alone are hardly rich enough in protein for a well-balanced ration. These cows ought to have two pounds each per day of cottonseed meal or oil meal. The question of feeding once or twice or three times a day is more a habit than anything else. After animals get used to any system of time of feeding, it makes but little difference. Personally, I should prefer to feed twice a day rather than once; it is better for the cows.

For the young cattle a grain ration of corn meal and cottonseed meal or oil meal, start with a small amount and gradually increase to all they will eat without waste. They should have all the silage and dry roughage they will eat.

WILL A BALANCED RATION PAY?

For some time I have been reading the questions and answers in regards to balanced rations; now I think it would be interesting to hear what price these feeders are getting for their cream or butter. Does Mr. Lillie believe a farmer can feed a rich corn silage with a good grain ration on top, and sell cream at an average price of 27c and make farming pay? F. L. H.

The price you get for your product has nothing to do with the feeding of a balanced ration. A balanced ration is supposed to be the cheapest, the most economical ration. If this is true, and it is, then if any ration will pay, a balanced ration will. The price of butter-fat or other dairy products might be so low that one could not make a profit, but with fairly good dairy cows, fed a well-balanced ration, it is quite possible to make a fair profit with butter-fat at 27 cents per pound.

For instance, my herd last year produced butter-fat for 21 cents a pound. This was not for one or two cows, but the average for the whole herd for the entire year. It was not for cows when they were giving milk only, but the cost of keeping them when dry was added also. They were given credit for the butter-fat produced during the entire year, and were charged with the food consumed during the entire year. The best cows produced for less than this.

To feed corn silage alone or with cornstalks or timothy hay would be a very expensive ration, because the flesh-forming food (protein) and the heat and energy food (carbohydrates) are not in the right proportions. The carbohydrates are in excess, hence a cow must eat more than she ought of carbohydrates to get a sufficient amount of protein, and this excess of carbohydrates is lost and makes the ration expensive. If a feed of clover hay and a little cottonseed meal are fed with the silage, then less silage is required to satisfy the cow. If the cow eats the same amount of silage when fed the grain ration, then she can give more milk.

You must feed the cow some sort of a ration. She must live. Now, then, why not feed her a balanced ration, one that contains the food nutrients in the right proportions, or nearly so, that the food consumed will more nearly be digested and assimilated without loss.

A Study of Dairy Costs.

WHAT does it really cost to produce a gallon of market milk? The question is an important one, since it will show the dairy farmer at once what he must get for his product. It is a question that is very hard to answer with accuracy, since farming is a most complex business and does not submit to cost systems with the readiness of a mercantile or ordinary manufacturing business. Hence, up to this time we have had to get along with guesses.

Two years ago the dairy division of the U. S. Department of Agriculture got in touch with several states, Michigan among the number, with reference to co-operative tests or experiments, but Congress failed to appropriate the money and so Uncle Sam had to drop out of it for the time being. Largely through the efforts of Prof. A. C. Anderson, of the M. A. C., the Michigan State Experiment Station board voted to take up the work and a test covering a period of two years was decided on, with dairy farms supplying market milk in Grand Rapids as the place of operation. Mr. Rudell, of the College, was sent here and local dairymen have nothing but praise for him and his thorough work.

One year of the experiment has been completed and results were first made public at a meeting held January 28, under auspices of the Grand Rapids Milk Producers' Association, with Prof. Anderson as the leading speaker. The test covered 22 herds, of 409 cows, for the most part grades or common types. Each farm was visited once a month during the year. The figures show the net cost of producing market milk for the past year here to have been as follows: Per gallon, 14.7 cents; per 100 pounds, \$1.77. It was stated at the meeting that one large retail milk concern had made recent contracts with milk producers at 13 cents. Other producers have contracted at 16 cents, and the average price probably runs from 15 to 17 cents at the present time.

Returning to the test and to some of the more interesting figures, it was found that the cows averaged 7,026.6 pounds of milk apiece for the year, which is a good showing. The average time required in caring for a cow for one day was 29.2 minutes, which was sub-divided as follows: Milking, 16.4 minutes; feeding, four minutes; cleaning barn, 5.1 minutes; care of milk and utensils, 2.7 minutes; cleaning cow, one minute. Average cost of labor per hour was 16.4 cents and the total cost of labor per cow per year was \$29.93. The average value of housing per cow was \$120.89, which ranged from the high figure of \$233.86 down to \$37.58.

Expenditures were given under the following items, the figures in each case being the averages per cow: Man labor cost \$29.36; hauling milk and horse labor, \$13.68; feeds—roughage, \$31.45; concentrates, \$30.25; pasture, \$8.52; cash sundries, \$1.99; veterinary sundries and drugs, 88 cents; taxes, interest and depreciation of herd, \$9.98; taxes, interest and depreciation on buildings, \$8.37; depreciation on tools, etc., 52 cents; actual losses from tuberculosis, tests and death, \$2; added earning power of owner over ordinary labor, \$6; added risk of market, \$8.52. The average expenditures per cow foot a total of \$151.52.

Receipts were given as follows: For milk, \$142.11 per cow; for manure, \$17.42, making a total of \$159.53 per cow. Calves were not taken account of, being placed as an offset against cost of keeping sire.

Prof. Anderson does not claim that these figures are infallible or the last word to be said on the subject; they merely represent an effort to get at the truth and are the basis for further investigation. Figures for the coming year will differ, since conditions are

different. For the first time in at least a dozen years, the carbohydrates are costing more than the proteins in feeds. Then the actual losses from tuberculosis varies greatly from year to year. The problem was shown to be very complex throughout. Feeds were figured on the basis of prices delivered at the barn. Depreciation of tools was figured at 25 per cent each year. Value of manure was based on the proposition that a 1,000-pound cow will produce 12 tons per year. Value of pasture land was based on assessed valuation, plus taxes paid, plus upkeep of fences, etc. The fact that a farmer is not always able to sell all his milk, especially in times of depression, when factories are shut down, is recognized in the allowance made under the item, "added risk of market." The fact is also recognized that an owner, with personal interests at stake, has added earning power, as a rule, over hired help, but these differences, and others entering into the cost system on the farm, are hard to express with accuracy in figures.

Later on Prof. Anderson expects to take up the question of pastures alone and will try to show when, if ever, pastures are profitable to the farmer. The problem of figuring costs on the farm has many interesting angles and is one that has concern not so much with higher mathematics as with common sense.

It was the general opinion of Grand Rapids dairy farmers, as expressed at the meeting, that there is no money in the milk business at present prices, the only real gain being in the gradual upbuilding of their farms and herds through the years.

Kent Co. ALMOND GRIFFEN.

SELL THE BARLEY, OR OATS, OR BOTH.

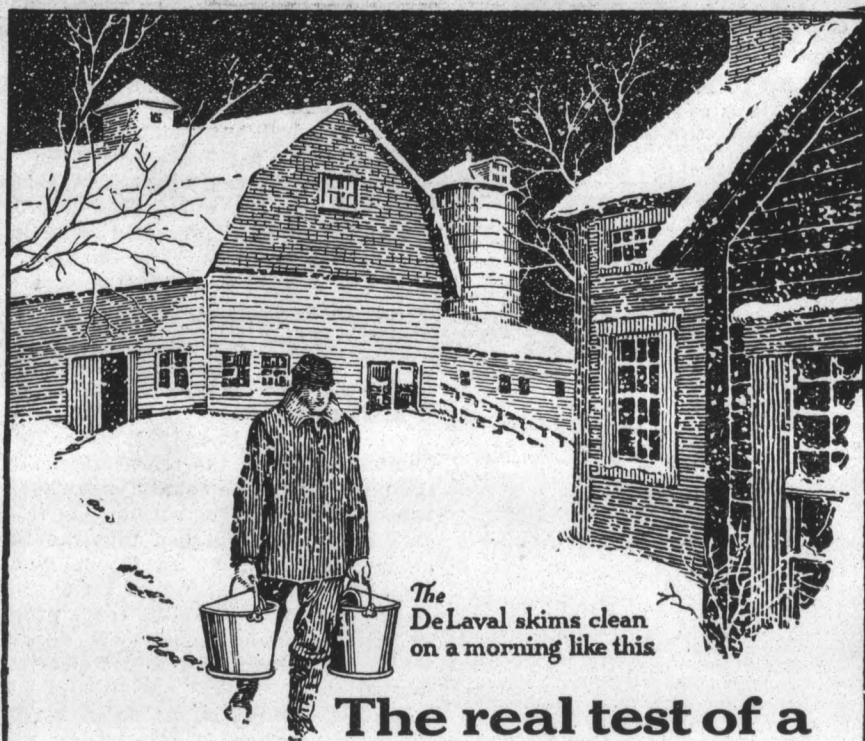
Will you balance a ration for milch cows of the following: Barley, oats, corn, bean straw, millet, clover and corn fodder, all of which I have on hand? I also have quite an amount of sugar beets and carrots. Have been feeding carrots night and morning, with the mixed chop, corn, oats and barley, with a feed of clover in the morning, and then some fodder and millet through the day, with a good feed of bean straw at night, all they will eat all the time.

Sanilac Co. L. O'M.

The roughage is good, and furnishes good variety. The bean straw and cornstalks cannot be sold in the market, at least to any advantage, and should be sold to the cows. One reason a farmer keeps cows is to furnish a market for such unmarketable stuff, and the cows will pay a good price for it. One good feed of clover hay they should have, then feed the other roughage for variety and to turn it all into money.

Corn, oats and barley are all splendid foods, but all nearly alike so far as their chemical analysis is concerned. It would be better for the cows and more economical to sell some of the oats or barley and buy bran, oil meal, gluten feed or cottonseed meal, because these are much richer in protein and not nearly as much will be necessary. My opinion would be to sell the barley if you did not need it for hog feed, and buy cottonseed meal. Feed two pounds of cottonseed meal a day and then mix the corn and oats and feed these for the balance of the grain ration. If you have good dairy cows, they will pay for as many pounds of grain per day as they produce pounds of butter fat in a week. Watch them carefully, keep account of what they produce and feed all the grain they will pay for, but feed in the above proportions.

What is said to be the most valuable herd of Swiss cattle in the world was slaughtered in Hinsdale, Ill., recently in the fight against the foot-and-mouth disease. There were 200 head, and they were valued at \$80,000.



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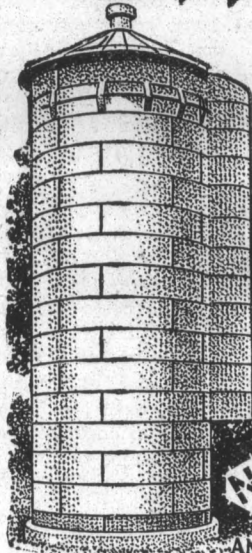
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DETROIT, FEB. 13, 1915.

LINCOLN.

Great captains with their guns and drums

Disturb our judgment for the hour:
But at last silence comes.

These are all gone and standing like a tower,

Our children shall behold his fame,
New birth of our new soil—
The first American.

Of course, all have heard the story of the ambassador from one of the middle European nations who, having traveled extensively, and speaking English fluently, appeared so much like an American, that Lincoln one day said to him in conversation: "If I did not know what nation you were from, I think I would be puzzled to assign your nationality," and then added, "If you did not know that I am an American, what would you take me for?" to which the ambassador promptly replied: "I think, Mr. President, that if I understood that you were not an American, I would take you for a Pole."

As we move farther away, and the perspective of the historic period of which the American Civil War was the central event, becomes clearer, the greatness of Lincoln's work and influence, and his pre-eminence among his contemporaries in a time prolific of great character, becomes more and more apparent.

"Standing like a tower," forsooth, Lincoln's place in the American heart seems as fixed as that of David in the history of Israel—the great national hero. And yet, happily for America, so unlike David that a Plutarch could only sketch their lives in contrast.

How farmer-like was Lincoln in his simplicity, his earnestness, his integrity, his keen appreciation of human nature, his unfailing "horse-sense," his admirable sense of humor, which is usually the twin brother of wisdom! How sweetly, tenderly sympathetic his great heart that carried the sorrows of the nation! How homely and uncouth seemed the wrinkled face and long, gaunt figure when he first stood in the limelight of the public gaze! How beautiful it has become as we now lovingly look back to it, enshrined in the national heart!

"Standing like a tower!" Aye, indeed, and with foundation growing firmer and the simple outlines taking on increasing interest and beauty as the years roll by. His life story, though sorrowful in every chapter, seems a veritable "tale that never tires."

Someone has said that tragedy herself hung over the humble pallet—for

cradle he had none—on which the baby Lincoln lay; nestled with him in his mother's arms, followed him to the little grave in the wildwood and attended him till the fall of the curtain in the brilliantly lighted theatre in the nation's capital.

And when the great pure heart had ceased to beat, it was indeed a prophetic vision that prompted Stanton to say, "Now he belongs to the ages."

CURRENT COMMENT.

Cash Value Assessments. In the last issue appeared a criticism of the work of the Board of State Tax

Commissioners in the reassessment of the property in one county where such reassessment has been made. In this criticism it was charged that the increase in valuations made on farm property was out of proportion to the increase in valuations on town property in the same community to an extent which constituted unjust discrimination.

In this connection, as noted in an editorial comment published in the last issue, we have undertaken to ascertain whether a similar complaint could justly be made by the farmers of other sections. As a result of this investigation we have found that in a great many localities the reverse is apparently true. As bearing on this point we quote from data recently submitted by the Tax Commission, as follows:

"The State Tax Commission declares that 46 counties are now approximately at cash value. These 46 counties as a total are assessed at approximately 97.7 per cent of their full value. The State Tax Commission, in its report to the State Board of Equalization, reported these 46 counties at the figures at which they had been reassessed or at which they had been placed by local assessors working in conjunction with the Tax Commission. As a result of such work 34 of the counties were reported for a decrease in the per cent of state tax and only 12 were reported for an increase, and the 12 counties reported for an increase were manufacturing counties, such as Saginaw and Kent; iron mining counties like Iron and Keweenaw and a group of agricultural counties like Gratiot, Isabella, Midland, Clare, where there had been great development and settlement. On the other hand, farming counties like Allegan, Barry, Berrien, Clinton, Eaton, Hillsdale, Ionia, Livingston, etc., 34 in all, profited through the work of the State Tax Commission in having their proportion of state tax reduced.

"The effect of the reassessment work of the State Tax Commission upon the farmer is perhaps better shown by comparing assessments as between the cities and country districts of the same county, and here the comparison in almost every instance is strongly in favor of the farmer. When Kalamazoo county was reassessed the assessment of the country districts was increased 74.3 per cent but the assessment of the cities of the county was increased 99.3 per cent. Ingham county was reassessed and the townships increased 62 per cent, but the cities of Lansing, East Lansing and Mason together were increased 122 per cent. Calhoun county was reassessed and the townships in all increased 57.1 per cent, but the cities of Battle Creek, Marshall and Albion together were increased 77.8 per cent, so also, in Jackson county the townships were increased 60.5 per cent and the city of Jackson 69.8 per cent. In Shiawassee county the total increase of the townships was 65.9 per cent but the city of Owosso was increased 70 per cent.

"There are some communities in the state where these results have not followed, for some cities have increased their assessments because of the necessity of raising larger revenues

for development purposes or for the purpose of showing an increased valuation for bonding purposes, but where no such conditions prevail the country districts have almost uniformly benefited as a result of a reassessment."

It is, of course, generally understood by Michigan Farmer readers that in its work of reassessment of the property of the state the Tax Commission's plain duty is to enforce the constitutional and statutory provisions which require all property to be assessed at its cash value. This result, it is admitted by the commission, can be most equitably accomplished where the local assessors co-operate with the commission to that end, as has been the case in a majority of the counties where valuations have been readjusted. Both errors and criticisms have naturally been more in evidence in communities where such co-operation has not existed.

Thus may the other side of this controversy be briefly presented. There are, however, many related phases of property assessment and taxation in general which might be profitably discussed at this time which will be made the subject of further comment in future issues.

The Cost of the Epidemic. Recent data emanating from the office of the U. S. Department of Agriculture

shows that up to January 1, 1915, the total cost of the recent epidemic of foot-and-mouth disease to the federal government had aggregated \$2,123,138.04. Of this sum \$1,840,328.99 represents the federal government's share of the expense of slaughtering the infected herds and reimbursing the owners for their loss, of which the government pays half and the state the remainder.

Up to January 1, 101,176 animals had been slaughtered, of which 46,268 were cattle, 47,735 swine and the remainder sheep and goats. In Michigan a total of 7,728 animals were slaughtered, and in Indiana 6,127, while in Illinois the losses have aggregated 36,758 animals. The losses in that state are greater than in any other, apparently due to lack of co-operation between local officials and owners of live stock, while the losses in Michigan, for instance, were relatively small, notwithstanding the start which the disease attained before the federal quarantine was established, much smaller than in many other states to which the infection spread.

The total loss to the live stock interests is, however, far greater than the loss to the federal and state governments. The necessity of preventing re-shipment of live stock from yards to which they are consigned for immediate slaughter gives the buyers in those markets a leverage which they are not slow in using to force prices to lower levels. There is little doubt among well informed observers that the hog market would be at least a cent a pound higher at the present time if it were not for this influence, and that the market on other kinds of live stock is affected in a similar, though perhaps less striking degree.

But it is far better to have this disease effectually eradicated even at a much greater cost than to permit its continuous presence and consequent continual loss to our live stock interests. Michigan is to be congratulated upon the fact that her farmers and live stock owners were so ready to co-operate with the state and federal officials in the eradication of this unfortunate epidemic.

WEST MICHIGAN STATE FAIR.

The West Michigan State Fair Association at its recent annual meeting re-elected Joseph H. Brewer president and chose Lyman A. Lilly secretary for the ensuing year. The dates selected for the fair are September 20-24 inclusive. This date was chosen with a view of securing better farm exhibits, as crops will be more mature than at an earlier date.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—No decisive results appear to have been accomplished the last week by any of the belligerent nations. There has been, however, more or less activity along the battlefronts at both the east and the west. In Belgium and France both the Allies and Germans have taken the offensive at different points and each are rewarded with the gaining of minor advantages. The most vigorous fighting seems to have occurred north of Soissons where the German forces seem anxious to break the Allies line for a general attack upon Paris, this point being the nearest to the French capital. Notwithstanding this attack the lines remain unchanged according to reports. In the east the Russians are reported to be advancing in their Prussian campaign. Large forces are apparently taking part in this movement, which at present seems effective in withdrawing the German pressure in Russian Poland. Before Warsaw the Germans lost heavily in a recent encounter and have been obliged to abandon some of their most advanced positions. In the Carpathian district severe fighting is reported, the outcome of which is yet to be learned. The Austro-Germany army is fighting desperately to prevent the Russians from making the passes through the mountains into Hungary, and they seem to have been successful to date. The Austrians and Serbians have not been active in the south. There was fighting last week between the Turkish and Egyptian forces in the vicinity of the Suez Canal, but from the reports, it appears that no special advantage has been gained by either side.

Gen. Villa has established his headquarters at Irapuato, 100 miles north of Mexico City, and is directing a general campaign looking toward the domination of the northern half of Mexico. Gen. Obregon who has control of Mexico City, has established relief stations for distribution of money and supplies among the poor. The nullification of bills issued by Gen. Villa has caused much distress among the lower classes. There is a shortage of water in the city, due to the source of supply being in the hands of Zapata's men.

An official statement has just been issued by Germany in which that government declares that grain imported from America will not be used by the German army or the administration, and to assure dealers that shipments will be used as promised, the government is willing to entrust the distribution of the grain to agents of the United States. The German government has merely assumed control of grain already in the possession of her citizens.

It is expected that a portion of the joint war loan to be made by Great Britain, France and Russia will be placed in this country. It is felt that no objections will likely be made to this, providing the bonds or notes sold here will remain in this country to be used for the purchase of American goods.

A ministerial decree has been issued by the Austrian government limiting the amount of flour or rye meal in bread to 50 per cent. The shortage of cereals appears to be the cause for making this drastic decree.

A report indicates that China is resenting certain demands made upon her by Japan. What the demands are has not been made public.

The Canadian government is considering the prohibition of wheat exports from Canada to any other country than Great Britain, the British Colonies, France, Russia and Japan.

All German municipalities have been empowered to take over all amounts of flour belonging to private parties in excess of 25 kilograms.

Italy has called out her war reservists, who are expected to join the colors by February 20.

National.

The steamship Dacia has left Galveston for Rotterdam with 11,000 bales of cotton to be trans-shipped to Bremen, Germany. The object of this shipment is stated to be for the purpose of testing certain international rights regarding the shipment of non-contraband goods by neutral nations to one of the belligerents.

A report on the work of convicts in New York state shows that the labor of these men saved the state fully \$100,000 on road work during the past year. The report would indicate also that outdoor work has a direct benefit to the men in keeping them in good health and also in encouraging good conduct among them.

After six weeks of voting, the Illinois House of Representatives has failed to select a speaker. The contest is between the "wets" and "drys" and the deadlock may not be broken for some time.

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

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

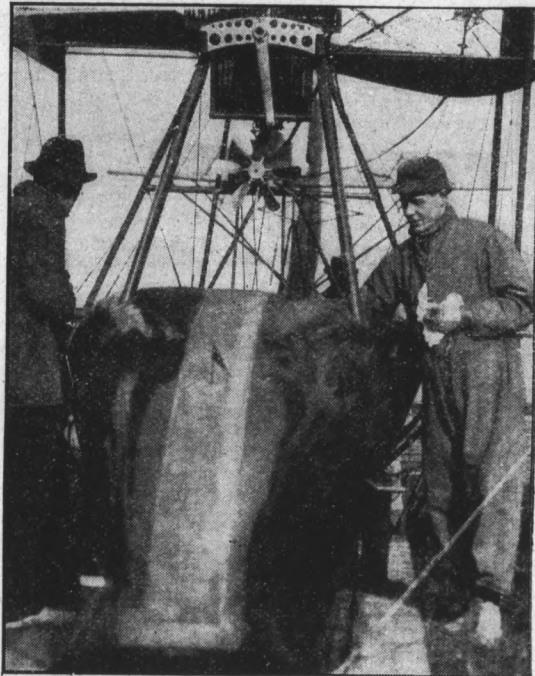
The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

WORLD EVENTS IN PICTURES.



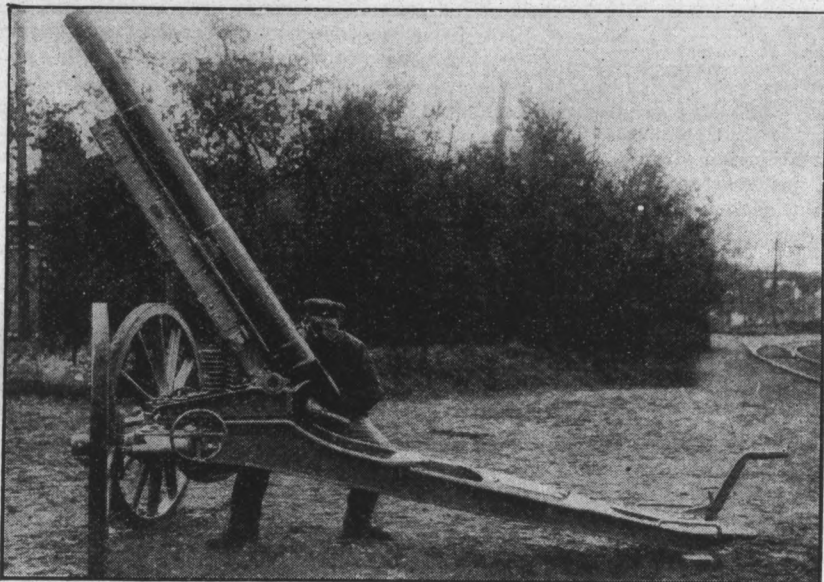
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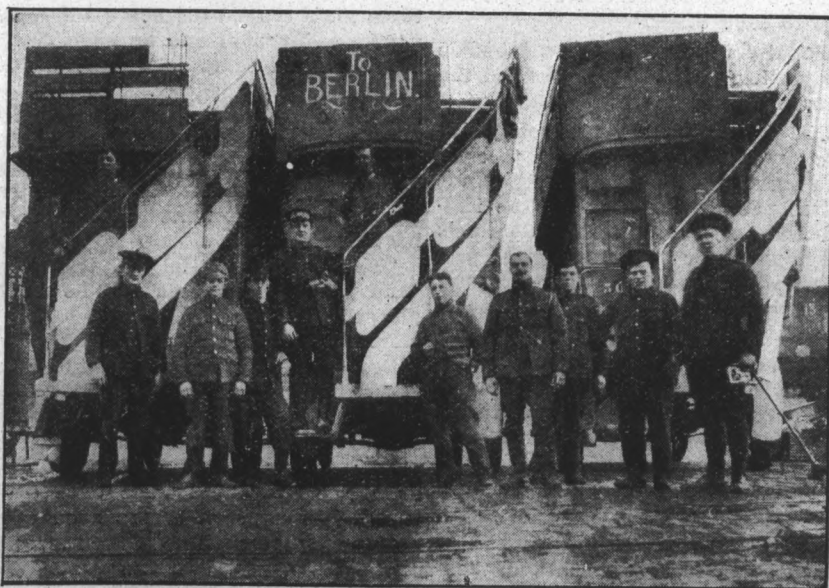
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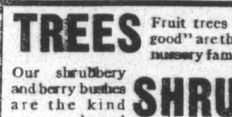
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Old-Time Love Tokens

By CAROL C. CRAIN.

WHEN Tommy Wise wiped his slate spotlessly clean and slyly noted that the teacher was not watching his maneuvers, he very stealthily imprinted thereon his St. Valentine's message for his "best girl," Susie Jones. His bit of verse was the time-honored token we all know:

Roses are red,
Violets are blue,
Sugar is sweet,
And so are you!

But the comedy was mixed with tragedy for Tommy, because Susie, when she saw the bit of romantic verse from the budding poet, giggled right out in school. Of course, Tommy preferred that she take the sentiment as silently as it was given, and afterward, Tommy ruefully philosophized, "Girls is jist girls anyhow." Yes, it is painfully true that the teacher had heard Susie's giggle and that Tommy had paid for his pleasure with a vigorous shaking-up by the constituted authority of Ruggles Center school.

However, the old formula as Tommy wrote it, still holds a place in the hearts of the people of the mountains—but scarcely anywhere else. The change from the old to the new has been almost miraculous. The modern swain sends his love a most elaborate and expensive remembrance—in colors, in rhyme, in pictures, and with gew-gaws on it.

One of the earliest valentines on record is ascribed to the poet, John Lydgate. It was written at the beginning of the fourteenth century in praise of Catherine, who was the wife of Henry V, King of England. The daring poet sings as follows:

Saint Valentine of custom year by year
Men have an "assurance" in this region
To look and search Cupid's calendar,
And chose their choice by great affection,
Such as been moved with Cupid's motion,
Taking their choice as their soft doth fall;
But I love one which exceleth all.

Charles, Duke of Orleans, who for many years was confined in prison, wrote valentines as early as 1415. He was a prolific producer of verses bearing the sentiments appropriate to the spirit of St. Valentine's day. The following is probably best known:

Wilt thou be mine? Dear love, reply—
Sweetly consent or else deny;
Whisper softly, none shall know—
Wilt thou be mine, love?—aye or no?
Spite of fortune we may be
Happy by one word from thee;
Life flies swiftly—ere it go,
Wilt thou be mine, love?—aye or no?

In the days of quill pens and dear postage the sending of valentines through the mails was an expensive luxury. The amorously inclined swains of that period had to content themselves and their idolized fair ones with thick sheets of gilt-edged paper. Envelopes had not then been adopted and cheap postage was still unknown. The first page of each sheet of this cumbersome valentine was adorned with a gift Cupid, which had been carefully affixed with gum and which surmounted the love message or token. The first use of drawings or mottoes with valentines is described in Pepy's Diary, an old English record. It is as follows:

"This morning, there come up to my wives bed a little Will Mercer to be her valentine, and brought her name writ upon blue paper, in gold letters, done by himself very prettily; and we were both well pleased with it. * * I do first observe the drawing of mottoes as well as of names; so that Pierce, who drew my wife's, did raw also a motto. Her motto was 'Most courteous and most fair,' which as it may be used for an anagram upon for her the first thing next morning, each name, might be very pretty."

The foregoing was entered under date of February 14, 1667.

Shakespeare mentions the valentine custom in his well-known play, "Hamlet." Ophelia, the heroine or leading woman character, sings in this style: Tomorrow is St. Valentine's day,
All in the morning betime,
And I a maid at your window,
To be your valentine.

It was popularly supposed that the first unmarried person whom one met on St. Valentine's day was a destined lover, and possibly a future wife or husband. Gay expresses this sentiment when he writes:

I early rose at break of day,
Before the sun had chased the stars away;
A-field I went, amid the morning dew,
To milk my kine (for so should housewives do).
The first I spied—and the first swain we see,
In spite of fortune shall our true love be.

"On the eve of St. Valentine's day," says Misson, "the young folks of England and Scotland, by ancient custom, celebrated a little festival. An equal number of maids and bachelors get together. Each writes his true name or some assumed name on separate billets, which they roll up and draw by lot, the maids taking the man's billets, and the men taking the maids.' Thus each man lights upon a girl that he calls his valentine, and each girl lights upon a man whom she calls her valentine. Fortune having thus divided the company into so many couples. The valentines give balls and treats to their maids and wear their billets upon their bosoms or sleeves; and this little sport often ends in love."

An anonymous little valentine has been appearing at the book-stores year after year, and is considered by many to be a most appropriate little sentiment. It reads:

If you'll be mine,
I will be thine,
And so good-morrow,
Saint Valentine.

In 1754, the "Connoisseur," an English publication, anonymously printed an account of the celebration of the day. The writer said in part:

"Last Friday was St. Valentine's day, and the night before I got five bay-leaves and pinned four of them to the four corners of my pillow and

the fifth to the middle of my pillow; then I dreamt of my sweetheart. Betty said we should be married before the year was out. But to make it more sure I boiled an egg hard, and took out the yolk and filled it with salt, and when I went to bed I ate it, shell and all, without speaking or whispering after it. We also wrote our lovers' names on bits of paper, rolled them up in clay and put them into water; the first that rose up was to be our valentine."

In 1797 a chapbook, containing many forms of valentines, was issued. It was called the "Gentlemen's and Ladies' Polite Valentine Writer," and was of great help to those unfortunate persons who possessed not the poetic temperament. A sample valentine from this book reads:

You are witty, you are pretty;
You are single! What a pity!
I am single for your sake,
What a handsome couple we should make.

Here is a shorter one from the same book, one which is better and more effective perhaps, than the preceding. However that may be, this is only a couplet:

Round is the ring that has no end;
So is my love to you, my friend.

Very early on St. Valentine's day a serenade was sometimes given by the children to the various residences of the villages. If the performance pleased, they received small gifts as tokens of good will. A favorite little verse with the children was:

Good-morrow to you, Valentine;
Curl your locks as I do mine,
Two before and three behind;
Good-morrow to you, Valentine.

Strange as it may seem, there is no record that St. Valentine wrote love-songs. No one has ever accused him of flirting with any of the Roman maidens of his time. The connection of St. Valentine with the day that bears his name has never been satisfactorily explained.

However, he was a Roman bishop of the third century. Amiable and eloquent, he was successful in converting pagans to Christianity. His religious zeal resulted in his zeal in A. D. 278 when, by order of Emperor Claudius, he was "beaten with clubs and afterwards beheaded," although he had been successful in restoring the sight of his jailer's daughter. St. Valentine was a Christian martyr. February fourteenth fittingly honors his name by the love tokens sent and received and by the hearts that are made glad on this day.

St. Valentine's Day

By M. PELTON WHITE

MY little daughter entered the study a few evenings ago, ostensibly to bid me good-night, in reality to give information.

"Tomorrow is Valentine's Day," she sandwiched between hugs and kisses, "and we're going to have a box on teacher's desk so we can send valentines to each other."

"You'll get a funny one—a fat little maid with a pug nose," I prodded the retrorse feature gently.

"Oh, father, you don't really believe anyone is mean enough to send me a horrid one?" The sensitive face flushed painfully. "Miss B. (the idolized teacher) says that Valentine's Day is made for love and that no person who loves another will ever, ever send her the ugly kind of valentine."

"Miss B. is quite right," I agreed, wondering how I could have ever forgotten my one-time chagrin at receiving a comic valentine which alluded in no flattering terms, to my bow legs. For weeks I felt uncomfortable if any one so much as glanced at my nether extremities.

"What kind of valentines is my little girl going to give?" I asked, mentally picturing the kind I would buy for her the first thing next morning. "Come and look." She sprang from

my knee and pulled me toward the dining-room. The display on the table would have gladdened the eyes of any child.

"I made them all myself," she explained joyfully. "Mother bought me a package of lace paper doilies at the Ten Cent store. I cut the pretty pictures from the old calendars and magazines and pasted one on each doily. Then I fixed them this way." The small fingers turned the lace edge of a doily over the four sides of a picture, making a dainty frame for it. "Then I cut lots and lots of red, gold and silver paper hearts and pasted them on the corners. Aren't they beautiful?"

"They are beautiful," I told her, "and your little friends will be much pleased with them."

As the small feet pattered up the stairs and I returned to my study the thought came to me that St. Valentine even as the dear old Santa Claus, belonged chiefly to the children. The celebration of the good Saint's day should bring to the little ones only joy and happiness. There should be no flings and taunts at red hair, freckles, squint eyes, stuttering, and deformities which is the order of wit usually displayed by the maker of the comic valentine.

Land O' Nod Stories.

By HOWARD T. KNAPP.

Mr. Too Whoo & Mr. Mink Both Enjoy Suppers.

THE fairies must have been playing a game of marbles in the snow last night," said Billy Be By Bo Bum, as he stopped suddenly under a big oak that grew on the bank of the dried up creek that wound its crooked way through the White Forest.

"What makes you think that?" asked Tinker Teedle Tee, the merry little elf, who was helping Billy follow the trail of Sharpnose the Mink to find out how the old villain came out with his hunting.

"Why, don't you see their marbles?" asked Billy, pointing to three or four hard little balls half buried in the snow.

"Ho, ho, ho, ha, ha, ha," laughed Tinker, jumping up and cracking his heels together. "That's the best joke I've heard for a long while," and he laughed so hard his sides shook like a bowl full of jelly and the weeny copper kettle he wore for a hat bounced up and down at a great rate.

"I'm sure I don't see anything to laugh at," said Billy crossly, the corners of his mouth beginning to turn down. "I don't think you are very polite to make fun of a fellow when he hasn't done anything."

"Now, don't get cross, Billy Boy," coaxed Tinker, spreading his wings and flying up on the little boy's shoulder. "I didn't mean to hurt your feelings, honest I didn't, and if I did I'm sorry. But it sure did strike me funny that anyone should mistake those spit balls for fairies' marbles."

"Spit balls, what do you mean Tinker?" asked Billy, more puzzled than ever.

"I mean that old Too Whoo the Owl didn't go hungry last night, even if Sharpnose did," replied the elf. "And what's more, the Terror of the Forest, as the Little People call the Owl, ate his dinner in this very tree."

"How do you know?" demanded Billy.

"By those spit balls you thought were fairies' marbles,"

"But if they aren't marbles, what are they?"

"Lumps of feathers or fur," replied Tinker. "Those little balls are all that is left of some poor bird or animal unlucky enough to cross old Too Whoo's path when he was out hunting last night. None of the Little People are quick enough to escape when Mr. Owl swoops down out of the darkness, and none of them can hear him coming, for he flits through the woods as silently as a shadow. With his prey clutched tightly in his claws, he flew to this tree to eat his dinner. Now, Too Whoo is as greedy as he is cruel, and never takes time to eat his meals properly. He is in such a hurry he

just swallows his food whole, bones, fur, feathers and all.

"Now, you know feathers are not good to eat at all, at all, and they don't agree with even an Owl's digestion. But Old Mother Nature has given Too Whoo a funny kind of a tummy. Indeed, if she hadn't, he would have died of a stomach ache long ago. So after he has bolted the unlucky bird or animal, the fur or feathers are separated from the meat and rolled into hard little balls, for all the world like marbles. Then Too Whoo spits them up and is ready for another meal. So, whenever you find any of these fairies' marbles under a tree, you know Too Whoo ate his dinner in the branches. But if we are going to find out where Sharpnose got his dinner last night, we had better be hurrying."

So Billy and the elf trudged on and on, following the double row of neat little footprints in the snow, but although he kept a sharp watch, Billy could see no signs of the Little People. He was beginning to get tired after his long walk and had about made up his mind to start back home, when he saw a narrow path, only about three inches wide, winding in and out between the trees. Sharpnose had seen it too, for his trail turned off and joined the path, and of course Billy and Tinker followed.

"Now, who do you suppose made this little road?" asked Billy.

"The Rabbits," Tinker replied. "This is one of their many runways, and Mr. Mink knows it. I shouldn't be at all surprised if we found where he had a rabbit supper not far from here."

The snow in the runway was beaten down so hard it was impossible to see the tracks of either Mr. Rabbit or Sharpnose, but Billy and Tinker trotted along as fast as they could, for they were both anxious to see how Mr. Mink came out with his hunting.

Before they had gone very far they heard Busybody the Bluejay screaming and scolding at the top of his voice. Now Busybody is the most curious fellow alive, and is forever poking into other people's business, but he always warns the Little People when an enemy is afoot. So Billy and Tinker knew something was the matter, and they soon found out what it was. For just at the spot where the runway disappeared into a briar patch, they stumbled onto the body of a dead rabbit in the snow.

"Poor Bunny," said Tinker, wiping his eyes with his tiny handkerchief. "So old Sharpnose caught you at last, the wicked old villain."

That was the end of Mr. Rabbit, but next week I'll tell you about Frisky the Red squirrel.

Winston of the Prairie

BY HAROLD BINDLOSS.

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CHAPTER XIX.

"Then we will let it go; in the meanwhile," he said, "take me across the bridge."

They were half-way along it when he pulled the horse up, and once more looked down on Winston.

"Your hand is a tolerably good one so long as you are willing to sacrifice yourself, but it has its weak points, and there is one thing I could not tolerate," he said.

"What is that?"

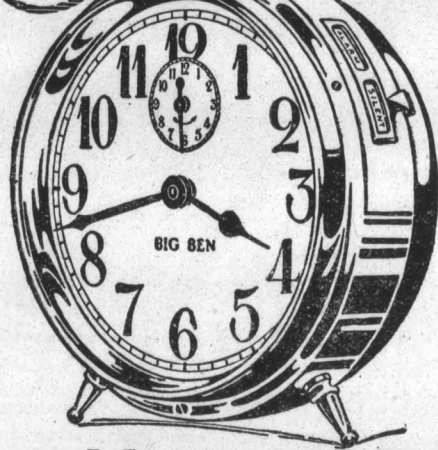
Courthorne laughed wickedly. "You wish me to be explicit? Maud Barrington is devilishly pretty, but it is quite out of the question that you should ever marry her."

Winston turned towards him with the veins on his forehead swollen. "Granting that it is so, what is that to you?"

Courthorne nodded as if in comprehension. "Well, I'm probably not consistent, but one rarely quite loses touch with everything, and if I believed that my kins-woman was growing fond of a beggarly prairie-farmer,

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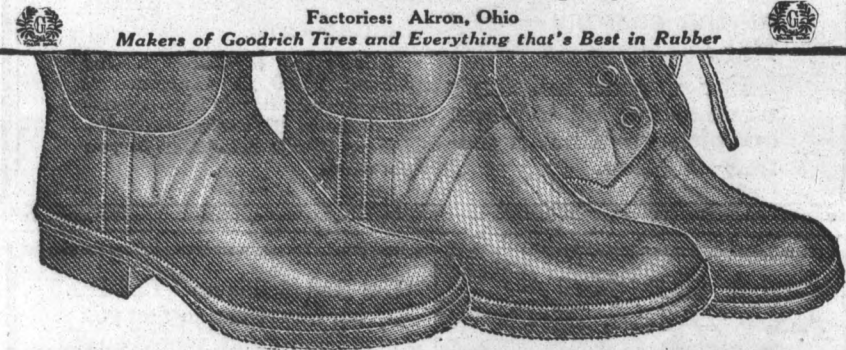
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Winston had borne a good deal of late, and his hatred of the man flared up. He had no definite intention, but he moved a pace forward, and Courthorne touched the horse with his heel. It backed, and then, growing afraid of the blackness about it, plunged, while Winston for the first time saw that there was a gap in the loosely-laid planking close behind it. Another plunge or flounder, and horse and rider would go down together.

For a moment he held his breath and watched. Then as the beast resisting its rider's efforts backed again, he sprang forward and seized the bridle.

"Get your spurs in! Shove him forward for your life," he said.

There was a momentary struggle on the slippery planking, and, almost as its hind hoofs overhung the edge, Winston dragged the horse away. Courthorne swung himself out of the saddle, left the farmer the bridle, and glanced behind him at the gap. Then he turned, and the two men looked at each other steadily. Their faces were a trifle paler than usual.

"You saw it?" asked Courthorne.

"Yes, but not until you backed the beast and he commenced plunging."

"He plunged once or twice before you caught the bridle."

"Yes," said Winston.

Courthorne laughed. "You are a curious man. It would have cleared the ground for you."

"No," said Winston dryly. "I don't know that you will understand me, but I scarcely think that it would. It may have been a mistake of mine to do what I did, but I have a good deal on my shoulders already."

Courthorne made no answer as he led his horse across the bridge. Then he mounted, and looked down on the farmer who stood beside him.

"I remember some things, though I don't always let them influence me to my detriment," he said. "I'm going back to the railroad, and the west, and don't quite know when you will have the pleasure of seeing me again."

Winston watched him quietly. "It would be wiser if you did not come back until I send for you."

CHAPTER XX.

Courthorne Blunders.

Lance Courthorne had lightly taken a good many risks in his time, for he usually found a spice of danger stimulating, and there was in him an irresponsible daring that not infrequently served him better than a well-laid plan. There are also men of his type, who for a time, at least, appear immune from the disasters which follow the one rash venture the prudent make, and it was half in frolic and half in malice he rode to Silverdale dressed as a prairie farmer in the light of day, and forgot that their occupation sets a stamp he had never worn upon the tillers of the soil. The same spirit induced him to imitate one or two of Winston's gestures for the benefit of his cook, and afterwards wait for a police trooper, who apparently desired to overtake him when he had just left the homestead.

He pulled his horse up when the other man shouted to him, and trusting in the wide hat that hid most of his face, smiled out of half-closed eyes when he handed a packet.

"You have saved me a ride, Mr. Courthorne. I heard you were at the bridge," the trooper said. "If you'll sign for these documents I need not keep you."

He brought out a pencil, and Courthorne scribbled on the paper handed him. He was quite aware that there was a risk attached to this, but if Winston had any communications with the police, it appeared advisable to discover what they were about. Then he laughed, as riding on again he opened the packet.

Agricultural Bureau documents," he said. "This lot to be returned filled in! Well, if I can remember, I'll give them to Winston."

As it happened, he did not remember, but he made a worse mistake just before his departure from the railroad settlement. He had spent two nights at a little wooden hotel, which was not the one where Winston put up when he drove into the place, and to pass the time commenced a flirtation with the proprietor's daughter. The girl was pretty, and Courthorne a man of different type from the wheat-growers she had been used to. When his horse was at the door, he strolled into the saloon where he found the girl alone in the bar.

"I'm a very sad man, today, my dear," he said, and his melancholy became him.

The girl blushed prettily. "Still," she said, "whenever you want to, you can come back again."

"If I did would you be pleased to see me?"

"Of course!" said the girl. "Now, you wait a minute, and I'll give you something to remember me by. I don't mix this for everybody."

She busied herself with certain decanters and essences, and Courthorne held the glass she handed him high.

"The brightest eyes and the ruddiest lips between Winnipeg and the Rockies!" he said. "This is nectar, but I would like to remember you by something sweeter still!"

Their heads were not far apart when he laid down his glass, and before the girl quite knew what was happening an arm was around her neck. Next moment she had flung the man backwards and stood very straight, quivering with anger and crimson in face, for Courthorne, as occasionally happens with men of his type, assumed much, and did not always know when to stop. Then she called sharply, "Jake!"

There was a tramp of feet outside, and when a big grim-faced man looked in at the door, Courthorne decided it was time for him to effect his retreat while it could be done with safety. He knew already that there were two more doors to the saloon, and his fingers closed on the neck of a decanter. Next moment it smote the newcomer on the chest, and while he staggered backwards with the fluid trickling from him, Courthorne departed through the opposite entrance. Once outside, he mounted leisurely, but nobody came out from the hotel, and shaking the bridle with a little laugh he cantered out of the settlement.

In the meanwhile the other man carefully wiped his garments, and then turned on his companion.

"Now what's this all about?" he asked.

The girl told him and the man ruminated for a minute or two. "Well, he's gone, and I don't know that I'm sorry there wasn't a circus here," he said. "I figure there was something not square about that fellow anyway. Registered as Guyler from Minnesota, but I've seen somebody like him among the boys from Silverdale. Guess I'll find out when I ride over about the horse, and then I'll have a talk with him quietly."

In the meanwhile the police trooper who had handed him the packet returned to the outpost, and, as it happened, found the grizzled Sergeant Stimson, who appeared astonished to see him back so soon, there.

"I met Courthorne near his homestead, and gave him the papers, sir," he said.

"You did?" said the Sergeant. "Now, that's kind of curious, because he's at the bridge."

"It couldn't have been anybody else, because he took the documents and signed for them," said the trooper. "Big bay horse?"

"No, sir," said the trooper. "It was a broncho, and a screw at that."

"Well," said Stimson dryly, "let me

have your book. If Payne has come in, tell him I want him."

The trooper went out, and when his comrade came in, Stimson laid a strip of paper before him. "You have seen Courthorne's writing," he said, "would you call it anything like that?"

"No, sir," said Trooper Payne. "I would not!"

Stimson nodded. "Take a good horse and ride round by the bridge. If you find Courthorne there, as you probably will, head for the settlement and see if you can come across a man who might pass for him. Ask your questions as though the answer didn't count, and tell nobody what you hear but me."

Payne rode out, and when he returned three days later, Sergeant Stimson made a journey to confer with one of his superiors. The officer was a man who had risen in the service somewhat rapidly, and when he heard the tale, said nothing while he turned over a bundle of papers a trooper brought him. Then he glanced at Stimson thoughtfully.

"I have a report of the Shannon shooting case here," he said. "How did it strike you at the time?"

Stimson's answer was guarded. "As a curious affair. You see, it was quite easy to get at Winston's character from anybody down there, and he was not the kind of a man to do the thing. There were one or two other trifles I couldn't quite figure out the meaning of."

"Winston was drowned?" said the officer.

"Well," said Stimson, "the trooper who rode after him heard him break through the ice, but nobody ever found him, though a farmer came upon his horse."

The officer nodded. "I fancy you are right, and the point is this. There were two men, who apparently bore some resemblance to each other, engaged in an unlawful venture, and one of them commits a crime nobody believed him capable of, but which would have been less out of keeping with the other's character. Then the second man comes into an inheritance, and leads a life which seems to have astonished everybody who knows him. Now, have you ever seen these two men side by side?"

"No, sir," said Stimson. "Courthorne kept out of our sight when he could, in Alberta, and I don't think I or any of the boys except Shannon ever saw him for more than a minute or two. Now and then we passed Winston on the prairie or saw him from the trail, but I think I only once spoke to him."

"Well," said the officer, "it seems to me I had better get you sent back to your old station, where you can quietly pick up the threads again. Would the trooper you mentioned be fit to keep an eye on things at Silverdale?"

"No one better, sir," said Stimson.

"Then it shall be done," said the officer. "The quieter you keep the affair the better."

It was a week or two later when Winston returned to his homestead from the bridge, which was almost completed. Dusk was closing in, but as he rode down the rise he could see the wheat roll in slow ripples back into the distance. The steady beat of its rhythmic murmur told of heavy ears, and where the stalks stood waist high on the rise, the last flush of saffron in the northwest was flung back in a dull bronze gleam. The rest swayed athwart the shadowy hollow, dusky indigo and green, but that flash of gold and red told that harvest was nigh again.

(Continued next week).

Love must be cultivated, and can be increased by judicious culture, as wild fruits may double their bearing under the hand of a gardener; and love can dwindle and die out of neglect, as choice flower seeds planted in poor soil dwindle and grow single.—Harriet Beecher Stowe.

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Goodyear policy on price is to give the utmost in a tire at the lowest possible profit. Our reductions are made to that end, without ever reducing the quality.

That always means, with our matchless output, more for the money than any other maker can give.

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Last year we increased our output 26.6 per cent. A few days ago the embargo on rubber was modified so that supplies seem assured. The market price of rubber seems for a time established. Fabric costs less than last year. So, under our minimum profit policy, we announce this new reduction.

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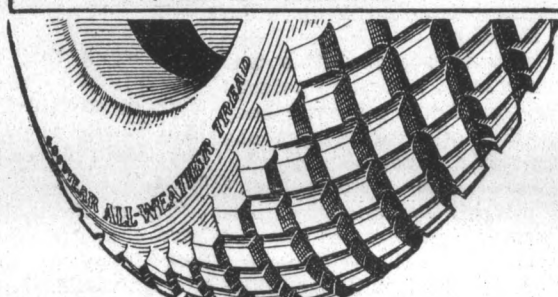
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Woman and Her Needs

At Home and Elsewhere



The Domestic Crucible—8.

Grace Finds Masculine Eyes Are Blind.

A SHARP crease appeared between Grace Ludlow's eyes, a crease which grew deeper the longer she looked at the half-smoked cigar which lay on the living-room mantel. John Ludlow had no less than three ash-trays, there was a stove in the kitchen, and another in the shed. Why couldn't he take care of his old cigars instead of littering up her living-room with them? She picked the cigar up gingerly between thumb and finger and dropped it into the ash receiver, frowning impatiently at the ashes which remained, a silent witness of masculine depravity. Why need men be so untidy and careless, never thinking of the extra work they made their wives? She glanced about the room with a sharp eye, looking for other proofs of her husband's utter disregard for her feelings.

The evidence was not hard to find. A smoking-jacket was draped carelessly over the end of the davenport. Two slippers, remarkable more for size than beauty, grinned up at her, one from under the easy chair and the other on top of the footstool, where it had landed when John kicked it off. The easy chair itself was not where it belonged, back by the fireplace, but pushed over by the window where light and air were a-plenty. In the middle of the table was a plate bearing the remains of a half dozen apples. Magazines and farm papers were strewn everywhere and, crowning indignity of all, John's Sunday clothes were piled up in a heap in the center of the room.

It was easy to see that this was Monday morning. Everyone relaxed on Sunday, you didn't expect to keep things up like other days, but she picked up after herself, and why couldn't John? His mother hadn't trained him right, that was why. But his wife was going to correct some of his bad habits! John should be taught to take care of his own things. She wasn't going to go through life picking up after a man and a family of children—for, of course, they would have children, five or six of them. The light of a firm resolve began to glow

in Grace's eyes, and grim lines settled around her mouth. John Ludlow should pick up after himself, and so should all the boys. There would be one family in America where mother and the girls were not simply slaves for the men of the family. She would pick up the papers, straighten the furniture and dust, and leave John's clothes and slippers for him to put away. Her head ached and her back ached and she was half sick, she told herself. It was time someone waited on her.

A half hour sufficed to set the room to rights, all but the clothes, and Grace turned toward the kitchen. At the door she paused to survey the room, its orderly precision marred by the heap of clothes. Her housewifely soul revolted at leaving the things there, her fingers itched to pick them up, fold them neatly and put them away on their proper hangers. She started forward, then stopped. No, never! This habit of untidiness must be nipped in the bud. It must be met and conquered now, or she was shackled for life. John should take care of his own clothes. She turned reluctantly away, with a sigh.

Dinner was not on the table when John came up, and she ushered him into the living-room to wait. The clothes screamed at her from the floor, the slippers leered horribly from under the chair, but John was apparently oblivious. She paused on the threshold, marveling at his denseness.

"Where's that stock paper I was reading?" he demanded. "There was a dandy article in there about purebred Holsteins. I don't know but I'll buy some instead of that other 80 acres."

"It's on the table," Grace said. He'd have either to step on his clothes or pick them up to get to the table, which would he do? She waited breathlessly, but John was already brushing them out of the way with his foot, not even seeing what was there.

A sharp exclamation burst from

Grace's lips, but she checked it and flew for the kitchen. He just had to see for himself. It wouldn't do for her to nag him.

"Did you speak?" John called after her.

"I bumped my head," lied Grace. But John never heard her. He was already buried in the Holstein article.

"I wonder if he never saw them or if he knows what I'm trying to do and won't pick them?" Grace pondered as, after the men left, she returned to the living-room door and gazed sadly on the glaring mark of untidiness. "If I thought he hadn't seen I'd be tempted to pick them up, but if he did see and won't pick them up, I can't give in either."

She returned to the kitchen, and tried to forget her disorderly living-room, but a horrible fascination drew her again and again to the door. She almost wondered that the clothes didn't shamefacedly pick themselves up. But they were always there.

They stayed there all that evening, though a chill wind kept her and John in the room instead of on the porch. And the next forenoon they held the fort. Grace could have screamed every time she glimpsed them through the half-open door. At noon she again ushered John in, and again he read, oblivious to the sign of his total depravity.

It was three o'clock that afternoon when Grace heard a horse nicker, and a cheery girlish voice called lustily for "Gracie." A hasty glance showed her Bessie Brown, her dearest girl friend. She had come for her first visit, and John's clothes were draped all over the living-room! Grace flew into the room, snatched up clothes, slippers and smoking-jacket, and dashed with them into the spareroom closet. She emerged a moment later, flushed and panting, and ran out to greet Bessie.

"I thought you were not home," greeted that young lady, between hearty kisses. "You didn't answer."

"I guess I didn't hear you the first time," said Grace. "I was straightening up my closet."

"Bessie Brown drove up this afternoon," she told John that evening, "and your clothes were thrown all around the living-room. I was mortified to death."

"Well, that wasn't much to get fuss-

ed up over," said John. "I'll bet she never saw them. I didn't know they were there, and I've been in that room every day this week."

"A woman would have seen them," said Grace chillingly. "I wouldn't have had Bessie see them for anything, and she didn't. I just managed to get them away before she got in."

"Well, why didn't you put them away before if you knew they were there?" John asked. "Or tell me to take care of them?"

"Oh, I don't know," Grace replied. "I suppose I might as well have hung them up Monday morning when I dusted."

"I should think that would have been the time," John agreed. "What do you say to walking over to Aunt Ann's? If we just had an auto we'd take a spin and pick up everyone we knew."

Grace slipped her hand through his arm. "I think a walk would do me good," she said.

Who could ever tell what a man was thinking about? Here she had been wretched for two days over that heap of clothes and he never felt it, never even saw the clothes, much less sensed her mental upheaval. Men were queer, absolutely without a woman's sensitiveness to situations. Well, she might as well go on picking up all her life. That was woman's work, to straighten up after men, and keep things running smoothly.

DEBORAH.

PREPARING FOOD FOR THE SICK.

BY MAGGIE A. CROMLICH.

There is really no reason why any woman should be unable to prepare delicate and nourishing dishes, adapted to the requirements of the sick. Physicians often depend largely, sometimes almost wholly, upon a nourishing diet to help tide the sufferer over the period of acute disease, and the season of prostration which sometimes follows. In many low grade forms of disease there is more indication for suitable nourishment than for medication; but, too often, when some simple nourishment is ordered, the reply is, "I should be only too glad to prepare anything you think necessary, but really I have had no experience in caring for the sick, and do

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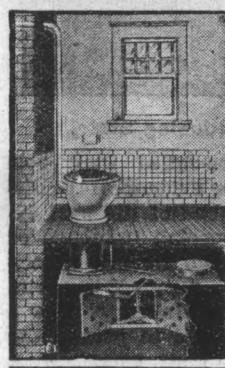
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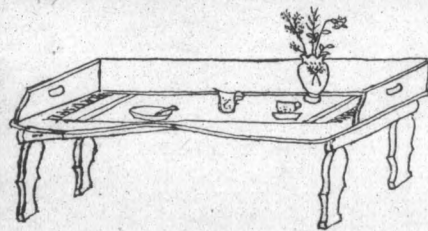
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not know what to cook, nor how to cook it."

Milk is now given in almost all forms of illness, and especially those in which solid food is prohibited. The old fallacy that it raises the temperature, and thus proves injurious in inflammatory disease, has long been dissipated. Hot milk is a valuable stimulant, and proves a most excellent tonic. It should not be permitted to boil, but simply raised to a temperature as hot as proves comfortable in drinking; it should be drank from a spoon, as this slow method insures better digestion. When pure milk disagrees with the patient, a tablespoonful of lime water added to a glassful, or half a pint, overcomes this objection. Only a few dishes, sometimes but one or two, should be served at once, and they should be served in small quantities, and daintiest perfection. Simplicity and variety are the chief requisites in successfully catering to the variable appetite of the sick. It is better always that the patient feels that he had too little, than that his relish is destroyed by a discouragingly large quantity. All food should be served as soon as prepared. This is especially true of tea and coffee, when they are not forbidden. They should be steeped only, never boiled. The process of boiling extracts a most injurious property termed tannin. Neither tea nor coffee should be served in the evening. Cocoa is a most



INVALID'S BED TRAY

nourishing and innocent drink, and, being deprived of the oil which is found in chocolate, is acceptable to the most fastidious palate; with the addition of rich cream it proves doubly nourishing.

The tray should always be covered with a fresh napkin, and the prettiest china and glass should contain the food, that the palate may be tempted by pleasing the eye. One of the greatest conveniences for serving food to those confined to their beds, is the "invalid's bed tray," which I have illustrated. It is made of either walnut or ash, is 16x24 inches in size, and nine inches high. The legs fold up when not in use, and the compact little convenience sells for \$2.50. It proves a most desirable adjunct to pleasurable serving, more especially to the invalid.

Another convenience is termed a "feeder." It is not unlike a miniature teapot; low, oval, provided with a "roomy" handle, and having the spout placed low, on a level with the base. It is really a necessity for giving nourishment satisfactorily to the invalid too feeble to sit up or to be raised from the pillow. Every household should have in reserve, if possible, a tiny pot for tea or coffee, a miniature pitcher for cocoa or chocolate, an individual creamer and sugar bowl, and a couple of dainty cups and saucers. If the ware is from necessity plain, this is no reason it may not be polished to perfection. A tiny vase holding a few buds or delicate blossoms, renders a dainty tray doubly so, attracts the eye, suggests pleasant thoughts and stimulates the appetite.

Neither food nor drink should be permitted to stand in the sick room, where they absorb impurities, and become extremely nauseating to the taste, and offensive to the eye of the patient. The practice of offering such food to an invalid cannot be too strongly condemned; so there is no reason for leaving it. It should be strongly impressed that only freshly-

prepared food may be served, and the nurse who offers remnants of food or liquids, in order to avoid the preparation of other, is guilty of downright cruelty. Neither should food be re-warmed or served in what are called "left-over" or "made" dishes. A common error is the use of too much salt which produces unnatural thirst, and is also an irritant where gastric irritation already exists. Pepper should be excluded. Celery, parsley, nutmeg and horseradish are all innocent flavorings, in very small quantities, create variety, and are usually very acceptable.

Roasted or broiled meats (a trifle rare or underdone), are more digestible than either boiled or fried. The latter should never be permitted.

Fish, which should always be broiled, is the most digestible of animal foods. Game and poultry rank next in the order named. Poultry should be young; that over a year old is rich, heavy and indigestible. While the broth of a spring chicken is, both nutritious and delicious, that from an old fowl often proves injurious. Remove every trace of fat from broths; this may be done by first skimming and afterwards laying a piece of clean white paper upon its surface. Any dish of fish, game or meat is rendered more attractive by a pretty garnish of green. Eggs, when allowed, should be coddled instead of boiled. Boiling renders the white of the egg tough and indigestible, even in those which are termed "soft boiled." To coddle an egg, put it in a quart cup and fill nearly to the brim with boiling water. Let it stand on the back part of the stove (where it cannot even simmer) for five minutes. The white will be found a delicate jelly, and the whole perfectly wholesome and delicious. A potato baked with the skin unbroken, is rich in nutrition, and agreeable to the palate. The addition of a little salt and a tablespoonful of rich, sweet cream, renders it truly delicious.

Asparagus is highly nutritious, and delicious also, if properly cooked. Tie it in bundles and place them upright in a saucepan, containing just enough water to cover the hard portion of the stem, but not the heads. Cover tightly, and cook 30 minutes. Drain, remove the string, and dress with a little salt and rich, hot cream.

FEBRUARY.

BY L. M. THORNTON.

Drifting snow and leafless hedges,
Dreary meads and wind swept sedges
Quails in leafless copses calling,
Clouded skies and frost flakes falling.

Barren hills once gay with heather,
For 'tis February weather.

Golden sunbeams brightly beaming,
Rivers waking from their dreaming,
Buds on willow branches springing,
Birds their straws for nest-walls bringing.

Storm and sunshine close together,
For 'tis February weather.

SHORT CUTS TO HOUSEKEEPING.

Have a carpenter or a handy man in your own home, put a three-cornered strip of wood around the edge of your dish table; a quarter of an inch on the straight sides is large enough. Then cover the whole with zinc, pressing it closely around the strip of wood and in corners. This will wear for years and the edges being high will prevent slops from dripping upon the floor, and hot kettles will not harm it.—Mrs. S. B.

For your small empty paper sacks, make a large strong one and tack it on the back of the pantry door or in the cellarway. Mine is made of blue denim, and is about 18 inches square. Near it I have tacked a cereal box with half of the front side removed, for a receptacle for cord. Then it is handy when I wish to tie up the jars of butter, or for other purposes.—Mrs. S. B.



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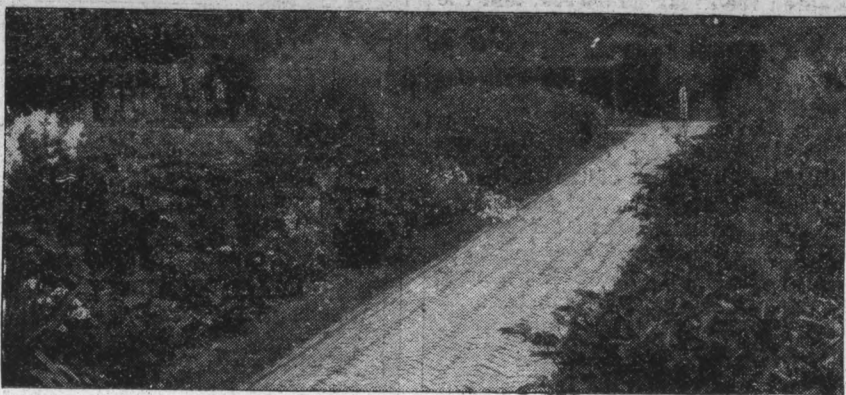
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Our Apple Growing Advantages.

MICHIGAN horticulture may be likened to Rip Van Winkle awakening from his twenty-year sleep, with but two exceptions. In the first place, while this industry has been peacefully slumbering everything has not gone to rack and ruin, for the apple orchards of the state have steadily been coining money for their owners despite neglect. And secondly, this industry will not awaken like the legendary Rip as an old and broken man, but as a youth awakening from a refreshing sleep, ready to recognize latent possibilities and take its place among the leaders.

No one can make an impartial survey of conditions in Michigan without realizing the enormous advantages possessed by this state over many of the famous orchard districts of the country. There is no doubt but that there have arisen many adverse conditions in the state due to neglect, but the impartial critic must acknowledge that the advantages far outweigh the disadvantages.

Chicago the Great Distributing Center.

One of the growers has pointed out the fact that if a circle is drawn with a radius of 900 miles, using Chicago as a center, 80 per cent of the population of the United States will be included within the boundaries of the

for here surely she is supreme. Michigan is right at the door of the great distributing center of the middle west, but even this would be a doubtful advantage except for the dual opportunities for rail and water shipment. A district may be right at the door of a market and at the same time be practically at the mercy of the railroad which may happen to hold a monopoly of shipping facilities. But competition between rail and water carriers in Michigan is keen, with marked advantages to the shipper. Prices western box fruit has brought in eastern markets in the past have naturally attracted many easterners to invest money in western orcharding enterprises. But there were very few of these investors who took the precaution to investigate the net profits received by the western grower after all selling and delivering costs were deducted from the gross selling price.

A Great Natural Advantage.

The greatest natural advantage possessed by the state from the standpoint of the fruit grower is undoubtedly the fact that Michigan is surrounded on three sides by vast bodies of water, and the tempering influence upon the climate is difficult to estimate. There is some doubt as to how far inland the effect of the water is



Michigan is Rapidly Gaining Prestige as a Cherry Producing State.

circumference. Someone may say that this radius is enough to include most of the country; yet a close observation of the map of the United States will reveal some comparison of distance that will surprise the average person. If the state of Texas is swung around with the northeastern corner of the state as a pivot, the extreme western end of the state will overlap Grand Haven, Michigan. Similarly, if the state of North Carolina is revolved, with the western extremity of the state as the pivot, the eastern boundary will reach Chicago. These points are mentioned to bring out the fact that the eastern and southern territory is commonly supposed to be very restricted in area and densely populated, and these illustrations may emphasize somewhat the importance of the statement made above as to the strategic position of Chicago as a distributing center.

Michigan's Market Advantages.

Michigan is right at the door of this market, with advantages possessed by no other district supplying this market. It is a fact that is not generally known, that for the past four years at least, the Chicago market has topped New York for weekly quotations on apples. This fact brings out forcibly the contention that everything considered, it is more advantageous to be situated near Chicago than New York in marketing apples.

When we come to a discussion of the advantages of Michigan from the standpoint of freight charges, the state is able to play her trump card, through pruning fruit of practically as

felt, but in the so-called fruit belt along the shore the evidence is indisputable. Probably one of the best examples of the tempering influence of water is found in the famous cherry district in Door county, Wisconsin. The state of Wisconsin as a whole, has too severe winters to permit the general raising of fruit except in a few favored districts, such as the Bay-field territory and the one mentioned, which is protected by an arm of Lake Michigan, forming a peninsula surrounded on three sides by water.

Michigan probably grows as great a diversity of fruit as any other one district in the country, with the possible exception of the western New York section. Even in this case it is probable that Michigan would lead because of the larger available market for small fruits. The grower who does not have to put all his eggs in one basket has a material advantage over the man who must be dependent upon a single specialized crop.

Michigan Fruit Equal to Any.

When Michigan does fully awake to the possibilities in the state of Michigan fruit will be able to compete with the product from any section. For, while the fair-minded enthusiast must concede the beauty and symmetry of the western fruit, yet he knows that many of the points of superiority can be overcome if the Michigan grower will but adopt some of the lessons taught by the western competitors. Thus, with the proper opening up of the dense-headed trees of Michigan state is able to play her trump card, through pruning fruit of practically as

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good color can be produced as that received on the markets from the Pacific Coast states. Many of the supposed advantages of western districts are due rather to advanced cultural and handling methods of the man behind the fruit. It is doubtful whether, taken as a whole, western apples are inferior in quality to the eastern product. But there is no doubt about the fact that Michigan need take second place with any state in the production of high quality Northern Spy and Canada Red apples. These seem to be Michigan's own product and the growers can well afford to specialize more on these varieties.

J. W. FISHER, JR.

MY NEIGHBOR'S HOT-BED.

He has a hot-bed which is heated by fire and so constructed that it will last for years without labor except removing the soil every two or three years and replacing with fresh rich soil, or well rotted barnyard manure. Such a hotbed, to my mind, is more cheaply built than those where it is necessary to rebuild yearly, with fresh manure for heating. A hot-bed heated by fire, if properly constructed, and rightly managed, will give satisfactory results to the farmer or gardener who desires early plants. In building this hot-bed my neighbor first dug an excavation to the depth of two and one-half feet, sloping upward to six inches in depth at opposite end of bed. Two flues were dug, (beginning at one end of excavation, or firebox, which extends four feet back), six inches deep and eight inches wide, terminating with chimneys at opposite end of bed from firebox or furnace. The chimneys are made of oak lumber eight or ten inches wide, and five feet in length, four pieces being nailed together and placed in an upright position at end of flues. The length of this hot-bed which my neighbor operates yearly, is 75 feet, and wide enough for regular hot-bed sashes.

The flues which run the length of the bed are overlaid with smooth flat rock, not exceeding three inches in thickness. The earth dug out is thrown back upon these rocks until the spaces are all filled evenly between them. Strong stakes are driven firmly in the ground, sufficient distances apart to which a frame of oak plank are nailed. The frame is so constructed as to be six inches lower at one side than the other, to give good slope for the sashes. Earth is then banked outside the frame to prevent tender plants from freezing should a severe cold spell occur. Narrow strips of wood are nailed inside the frame near the top, upon which rests the cross bars three inches wide to support the sashes. Rich soil is thrown in to the depth of eight inches, and six inches of well decayed barnyard manure is mixed thoroughly with the soil. The hot-bed is now complete and may be heated with either wood or coal. The fire is started several days in advance of the sowing of the seed. The heat being tested with a thermometer, which is placed five or six feet back from the furnace, to the depth of three or four inches in the soil. When the heat is 80 or 85 degrees, the seeds are sown in drills four inches apart across the bed.

After this the heat need not be so great except the weather be cold and stormy. Then it is necessary to cover the sash with straw or old pieces of carpet, to be removed on warm days. My neighbor sows tomato seed about the middle of February. The plants are large enough in 20 days for transplanting, and are transplanted to another hot-bed constructed like the seed bed, except that it is covered with canvas. Later the plants are placed in cold-frames until the weather permits setting them out in the open. The transplanting causes the plants to be stocky.—J. T. McCoy.

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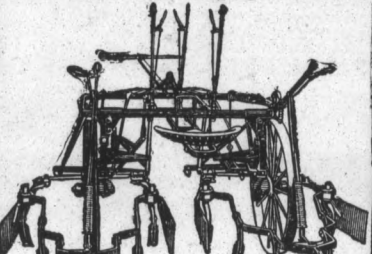
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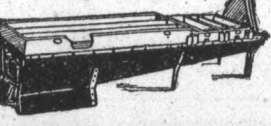
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WANTED—Practical Farmer to take an interest in and charge of Riverview Ranch, Near Moosejaw, Saskatchewan, Canada. 1280 acres No. 1 level prairie wheat land. I will take Michigan real estate for an interest. A fortune for the right parties. Martin H. Holcomb, Owner, 238 Carlton Ave., Grand Rapids, Mich.

Farm Commerce.

Michigan Needs an Apple Grading Law

THAT the apple industry of Michigan is of no small importance may be seen from the fact that the state is very near the head in the apple production, being exceeded only by New York. In 1909, according to the United States Census, about twelve and a quarter million bushels of apples were produced in Michigan, valued at almost \$6,000,000. In this state we have no law compelling growers and dealers to grade and pack apples honestly. In 1913 the apple growers of New York realized the need of such a law, and so they secured a passage of the "New York Apple Grading and Branding Law," which went into effect July 1, 1914. Their chief reason for presenting this law was, that the apple industry of that state was suffering from the absence of honest, uniform grading and packing. New York apples could not compete successfully on the market with apples from the west because the barrels and packages from that section could be relied upon to contain what was claimed for them, while those from New York could not. In the latter state many speculators would buy apples "tree run" from the farmers. Very few apples would reach the cider mill or the evaporator, but would be packed in with the good ones, always in the center of the barrel. Not all the growers were dishonest, but the harm done by those who were and the speculators was greater than the good done by the honest ones. Under these conditions the buyer could not buy with certainty that he was getting what he bargained for. The same conditions that existed in New York exist at the present time in our own state, and therefore these arguments in favor of such a law in our sister state are good for Michigan.

We have the United States (Sulzer) law, passed by Congress in 1912. This is a good law and would be sufficient if all the growers and dealers complied with it, but less than one in a hundred do. The greatest objection to this law is that it is optional. Hence, the only solution to the problem is to pass a law which will compel them to obey either this law or a new one.

Scope of the New York Law.

The New York law provides for four grades: "Fancy," "A," "B," and unclassified. Apples, in order to be put in the "Fancy" grade must have good color for the variety and must be free from diseases and other defects. Also, they must be of good size for the variety; for example, Baldwins should not be less than two and a quarter inches transverse diameter and must be marked "Fancy." Kings and Twenty-Ounce would not be in this grade unless they measured at least three inches. Grade "A" is intended to be a first-class No. 1 apple, and grade "B" a first-class No. 2. The unclassified would include all that could not be placed in any of the other grades. There is, then, nothing in this law to prevent a person from putting on the market all the poor apples he has if he states on the end of the barrel the facts regarding the contents, "fungus," "wormy," "scabby," "windfalls," or whatever they may be, together with his name and address. Obviously this will stop dishonest packing and will keep off the market the poorer quality of fruit. Unpacked apples transported to storage within the state need not be put in branded barrels so as not to work hardship on the owner during the rush of picking the crop.

This law also gives a person a choice between packing and branding under this law and the United States

law, but one or the other must be chosen.

Enforcement of the Law.

The power of enforcing the law is vested in the Commissioner of Agriculture under rules and regulations adopted by him. He has assistants and inspectors in different cities for the purpose of detecting any violations of the law. Complaints can be filed with these officers.

Already, in New York, where this law has been in operation but half a

year, many benefits of it have been noticed. Hundreds, it was noted, purchased apple-grading machines. The commissioner received reports from many markets, as the following: "We have never before seen such fine fruit from New York state;" "it is no trouble to sell your fruit this year." The fruit was not any better this year than last, but it was "packed right," and the marks on the barrels meant something. Another fact which shows the influence of this law is that 75,000 barrels more of apples were sold on the western markets this year than in any other year.

Let Michigan enact such a law and she will not only encourage the raising of better fruit and enable the apple grower to compete successfully on the markets with any state, but will be doing the public a great service.

Ingham Co. A. A. SHILLANDER.

Farmers & Fruit Men Co-operate.

The Fremont Co-operative Produce Company held its annual meeting at the warehouse in Fremont, Newaygo county, with nearly 100 stockholders present, and reports made showed fine progress during the year, with a good balance left in the treasury. Officers were re-elected as follows: President, David H. Brake; vice-president, Chas. Emmons; secretary, Richard Kolk; directors, the officers and Henry Rosema, George Rottier, George R. Warren and John Dobben.

Hillsdale county farmers are getting together, with successful co-operative organizations at Litchfield, Mosher-ville, Homer, Camden, and other places. Newest associations are at Montgomery and Hillsdale. Montgomery is near the Ohio and Indiana borders and the organization is known as the Tri-State, starting with about 200 members. Its officers are: President, John Hoolihan; vice-president, Henry Bradley; secretary, O. K. Coolman; treasurer, John Kintigh. Co-operative stock shipping, with store and creamery ultimately, are planned. The new association at Hillsdale has chosen officers as follows: President, B. S. Lamb; secretary, B. E. Kies; treasurer, Adam Beaver. A committee of five was appointed to solicit stock as follows: Adam Beaver, Edward Wilson, James Gettings, Elmer Cheney and Angus Beers.

The Southern Michigan Fruit Association held its annual meeting at Lawton, and reports showed that 1,301 cars of grapes were shipped during the season, the average price received for Concord in eight-pound baskets being .0978 cents, and on bulk Concord, \$22.36. John Marshall was re-elected auditor and Pliny A. Hubbard and F. J. Stainton were elected directors. It was voted not to hire a manager on salary this year, the board of directors being instructed to place men in the field the coming season to assist in disposing of the crop. Shipments of grapes were made from ten stations, the largest shipments being from Lawton and Mattawan.

The Grand Traverse Fruit & Produce Exchange is now fully organized with incorporation papers filed. Fruit

and produce will be marketed through the North American Fruit Exchange for the next five years and the directors also voted to adopt the New York barrel apple packing regulations. Individual growers are not bound by this marketing system for the five-year period but if dissatisfied may withdraw at the end of any one year. A chemical cold storage plant will be built in Traverse City, though perhaps not this year, but will be necessary soon for the pre-cooling of fruit, especially cherries, and to admit of trans-Atlantic and South American shipments as the markets open there.

Co-operation is the leading topic under discussion at the farmers' institutes this winter. In Berrien county Samuel B. Miners, of Royalton township, made a forceful plea and urged immediate action in co-operative grading and marketing of Berrien products, under direction of an expert manager.

Thirty farmers met at Iron River and formed the Iron County Live Stock Breeders' Association, with the following officers: President, Jens Petersen, Iron River; secretary, Robt. Ende; treasurer, Wm. Greig; executive committee, Philip Boynton, representing the Holsteins; Frank Erickson, Guernseys; Chas. Rogers, Jerseys; Peterson Andreason, Ayrshires. The members will buy a car of pure-bred cattle in the spring.

Creamery men and milk dealers are organizing. At a recent meeting held in Grand Rapids, the Co-operative Association of Creameries, No. 1, was formed, with members as follows: Rogue River creamery, Grant; Calodonia creamery; Hopkins creamery; Coopersville Evaporated creamery; Clarkeville creamery; Mulliken creamery; Middleville creamery; Alto creamery; Farmers' creamery at Saranac; Farmers' creamery at Conklin; Freeport creamery. Headquarters will be in Grand Rapids. The state dairy and food department at Lansing assisted in the organization and it is planned to establish a mark or brand for the output and to improve the quality.

Milk dealers and farmers who are



A Real Problem for Michigan Farmers is to know Whether at Present Prices Grain Should be Marketed through Live Stock.

supplying Owosso trade are getting together concerning territory to be covered in the purchase and sale of milk. If they can agree as to proper division of territory to eliminate doubling of routes and unnecessary waste, they can sell milk at a lower price and at the same time make larger profit for themselves.

Kent Co.

ALMOND GRIFFEN.

MICHIGAN CROP REPORT.

Wheat.—In reply to the question, "Has wheat during January suffered injury from any cause," 42 correspondents in the southern counties answer "yes" and 236 "no;" in the central counties 13 answer "yes" and 108 "no;" in the northern counties 26 answer "yes" and 94 "no," and in the upper peninsula 26 answer "no."

Snow protected wheat in the state, southern, central and northern counties 27 days and in the upper peninsula 30 days.

The average depth of snow on Jan. 15 in the state was 5.98 inches, in the southern counties 5.04, in the central counties 5.67, in the northern counties 7.13 and in the upper peninsula 10.27 inches.

On January 29 the average depth of snow in the state was 6.64 inches, in the southern counties 5.69, in the central counties 5.39, in the northern counties 7.70 and in the upper peninsula 14.80 inches.

The total number of bushels of wheat marketed by farmers in January at 73 flouring mills was 145,570 and at 86 elevators and to grain dealers 193,769, or a total of 339,339 bushels. Of this amount 231,002 bushels were marketed in the southern four tiers of counties, 91,404 in the central counties and 16,933 in the northern counties and upper peninsula.

The estimated total number of bushels of wheat marketed in the six months, August-January, is 7,500,000. Fifty-five mills, elevators and grain dealers report no wheat marketed in January. The average condition of live stock in the state is reported as follows, comparison being with stock in good, healthy and thrifty condition: Horses and sheep 97; cattle and swine 96.

Crop and Market Notes.

Michigan.

Isabella Co., Jan. 25.—Roads are good, but somewhat icy. Wheat is in fair condition. Most farmers are holding their beans as the price is advancing. There is quite a demand for most kinds of stock. Wheat \$1.30; beans \$2.80; butter 25c; eggs 25c; cream 29c; hay \$12.50 loose, baled \$13.

Shiawassee Co., Jan. 26.—We are having a fine winter, and roads are good. Farmers are busy cutting logs and getting up wood. Some grain being hauled to market, but many are holding for better prices. Wheat is in good condition. Not much live stock except hogs. A few auction sales are held, but prices are not very good. There is a large acreage under contract for sugar beets for next season. Beans \$2.80; wheat \$1.35; oats 50c; corn 68c; eggs 28c; butter 28c; hogs \$6.50.

New Jersey.

Monmouth Co., Jan. 25.—Wheat and rye are looking well. Farmers have sufficient feed for home use. About 25 per cent of the grain crop still in farmers' hands. Hogs are the only stock fed for market. Eggs are becoming more plentiful. Farmers are marketing pork at \$8@10, wheat \$1.30@1.45; rye 95c@1; corn 80@85c.

Ohio.

Brown Co., Jan. 25.—There is some fodder for sale but not much surplus hay. Farmers are holding their wheat for higher price. All live stock is looking fine. Hogs and cattle for market are getting scarce. There is a good demand for farms for renting and for purchasing. Wheat \$1.40; corn 70c; rye \$1.12; hay \$18@19; hogs \$6.40; sheep \$3.75@4.25; butter 24c; eggs 28c. Egg production is increasing.

Hardin Co., Jan. 25.—We are having more snow this winter than usual. Live stock is wintering well. Wheat, rye and grass looked good before the snow came. Hay and wheat are not moving to market very fast, in spite of the advance in the price of wheat which is \$1.32; corn \$1 per cwt; oats 50c; hay \$10@12; potatoes 50c; eggs 30c and very scarce; cream 29c per pound.

Indiana.

Daviess Co., Jan. 25.—The winter has been favorable for wheat, which is in fair condition. Feeds are getting scarce, and few farmers have any surplus feed. There is less than the usual number of cattle and hogs on

(Continued on page 200).

THE AUTO-OILED WINDMILL

WITH DUPLICATE GEARS RUNNING IN OIL

Every bearing is constantly flooded with oil. Two quarts of oil in the gear case of this 8-foot auto-oiled windmill will keep the gears and every bearing flooded with oil for a year or more.

The galvanized steel helmet covers the gears, keeps out rain, keeps out dust, keeps in oil. The mill needs oiling but once a year.

There is a windmill, known the world over as "the windmill which runs when all others stand still." This new windmill with gears and bearings flooded with oil runs in much less wind than that well known windmill.

The two large gears, which lift the load straight up, are each independent of the other and each is driven by its own pinion on the main shaft and must take its half of the load at all times.

The auto-oiled windmill, with its duplicate gears and two pinions lifting the load straight up, is unbreakable. Every 8-foot mill is tested under a pumping load of 3000 pounds on the pump rod. For the larger sizes the load is proportionately greater. We know that every one of these windmills is unbreakable. We venture the assertion that this is the most nearly perfect, best made, best tested, best oiled, most nearly perpetual, automatic and self-sufficient of any machine of any kind ever made for farm work and the most nearly fool-proof.

There is no friction on any part of the furling device when the mill is running and very little when the wheel is furlled.

DUPLICATE GEARS RUNNING IN OIL
Oil Annually
EVERY BEARING FLOODED WITH OIL

A small child can easily furl this windmill or an automatic regulator can take care of it. One of these mills has been furlled 10,000 times in one day by a man on our premises—more times than it would ordinarily be furlled in 30 years of service.

A band brake, of the automobile type, is used, and it always holds.

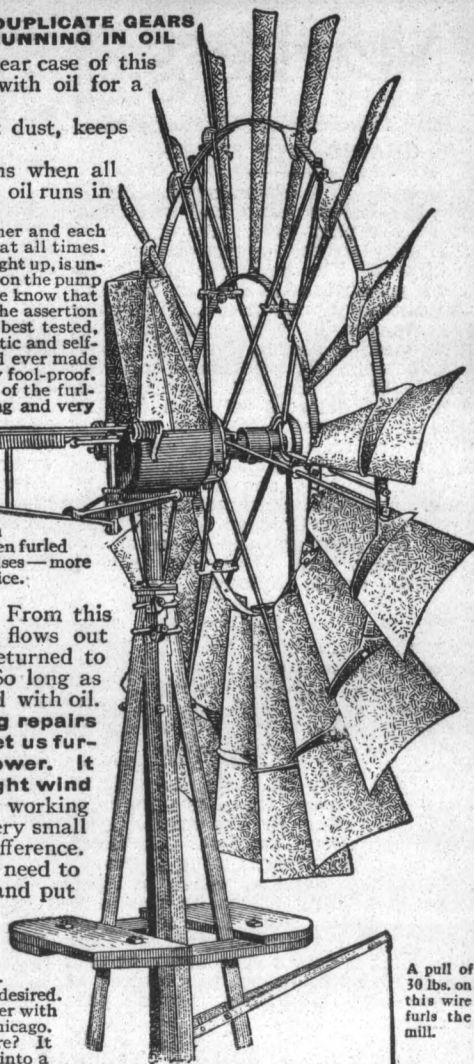
The gear case contains two pairs of gears and the supply of oil. From this gear case the oil circulates to every bearing in a constant stream. It flows out through the friction washers in the hub of the wheel and is automatically returned to the gear case. Not a drop of oil can escape. It is used over and over. So long as there is any oil in the gear case the gears and every bearing will be flooded with oil.

If you are tired of climbing a windmill tower; if you are tired of buying repairs and having them put on; or, if you are tired of waiting for a big wind, let us furnish you an unbreakable, self-oiling, ever-going mill to go on any old tower. It costs but little and you will get the difference between no water in a light wind and an abundance of water in almost no wind. The flooding of all the working parts with oil, the perfect balance of the wheel and vane on the tower, the very small turntable on which the mill pivots and the outside furling device make this difference.

Now there is no objection to a high tower. Have as high a tower as you need to get wind. You don't have to climb it. Your dealer can come once a year and put in oil, if needed, and inspect the mill.

Running water purifies itself—stagnant water, standing water, collects and retains impurities. If you pump from your well constantly all the water it can spare, the water that comes in to take its place will be pure. If the water in your well stands until you happen to want some, and you pump but little, then it is likely that surface water will flow into it and carry in impurities. The unsafe well is the one that has standing water. A flowing stream is the thing to be desired.

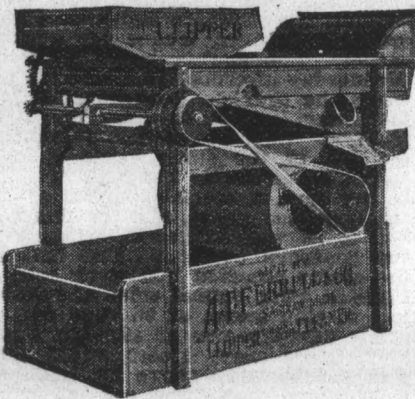
The auto-oiled windmill makes all this possible as it can run from one year's end to the other with practically no wear and no cost. If interested, write Aermotor Co., 1146 So. Campbell Ave., Chicago. Why not have flowing water, cool in summer and warm in winter, always fresh and pure? It will cost next to nothing. It will give health to your family and stock. Let the water run into a good size reservoir and raise all the fish of the choice kinds your family can eat, and have water to irrigate your garden and make it raise many times as much as it would otherwise. Water costs nothing. Use it. We need and must have the best dealers everywhere. They need us if they are going to remain in the windmill business. Write right now.



A pull of 30 lbs. on this wire furls the mill.

To let it stand is to abuse it.

The Clipper Improved No. 1-B Grain and Seed Cleaner



The No. 1-B is sold under a 30-Day Guarantee of Satisfaction or money refunded.

Price, complete, east of the Mississippi, \$23.50 cash, FREIGHT PREPAID to your R. R. station.

In Successful Farming Three Factors are Prominent—the Soil, the Man and Good Seed. The Clipper Cleaner puts success within your reach by insuring Good Seed.

Write for Catalog and address of nearest jobber.

A. T. FERRELL & CO., SAGINAW, MICH.

This Mill has a principle that is different from all others. For years it has been thoroughly tried out and adopted by thousands of the best farmers, the U. S. Dept. of Agriculture, Agricultural Colleges, Experimental Farms and hundreds of the leading seedsmen, seed corn growers, etc.

Ours is the only mill making use of the "vertical blast" which actually weighs every seed and kernel, separating the light, shrunken, immature seeds from the plump, heavy mature seed, 98% of which will germinate under test. This point alone makes much of the difference between crop success and failure.

No Mill Will Do Good Work Without the Right Kind of Screens.

We furnish 12 screens for cleaning and grading all kinds of seed grain, seed corn, all kinds of clovers, alfalfa, timothy, millet, flax, peas, pea beans, cow peas, soy beans, etc. And, after the most careful study and tests in actual work, we guarantee this screen outfit to be the best that has ever been offered with any mill. There are screens for clover containing buckhorn and plantain, timothy containing pepper grass, cockle from wheat and other difficult separations.

THE BOKOP HARROW

THIS IS THE TOOTH THAT DOES THE BUSINESS

It actually cuts. Makes a finer cut than any other Harrow, and Pull the Wide, Upper Face gives Cultivator Action. For Slanting Cut, Way hitch to the other end.

PULVERIZES PERFECTLY

The kind of Harrow you have always wanted. SELF-ADJUSTING—NO LEVERS—ALL STEEL. Simple—Strong—Everlasting. Can't get out of order. WRITE NOW for further particulars of this Time and Money Saving Harrow. If no Bokop Harrows now in your township we have a special proposition FOR YOU.

The Welding Co., Box P, Defiance, O.

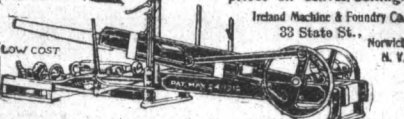
SAW WOOD THIS WAY

Be independent of hired help. Save your time, work and money. Saw big timbers at the rate of 25 to 40 cords a day. It's only "boy's play" with an

IRELAND Drag Saw Machine.

Has no equal in convenience, simplicity and long life. It's light, compact, strong, well-built and warranted. Saws whole log in short length without leaving lever. No turning for last cut. 7 advantages. Write for free printed matter. Also details on our Wood Saw Machines, Saw and Shingle Mills and Hoists. Equally low prices on canvas, belting.

IRELAND Machine & Foundry Co. 33 State St., Norwich, N. Y.

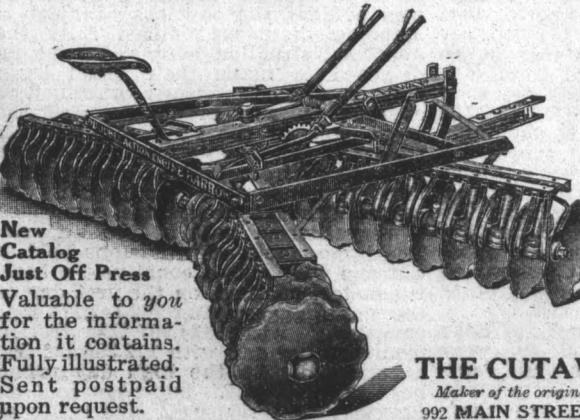


Have You a Tractor?

If you have a tractor, or if you are going to buy one, remember that the success and economy with which it is operated depends very largely upon the machines to which it is hitched.

The **Cutaway** Engine Harrow

was the first harrow built especially for engine power.



New Catalog Just Off Press

Valuable to you for the information it contains. Fully illustrated. Sent postpaid upon request.

It is heavy and strong throughout. The rigid main frame is made of heavy angles and is stoutly braced with angles. The disks are extra heavy cutlery steel, rolled to our own analysis and forged sharp. The bearings are dust-proof oil-soaked hardwood, perfectly lubricated. The hitch is adjustable to any tractor. The rigid main frame and axle draft rods distribute the pull uniformly over the entire machine.

Ask your dealer about the CUTAWAY (CLARK) Double Action Engine Harrow. If he doesn't sell CUTAWAY (CLARK) tools, write us at once. We ship direct where we have no agents.

THE CUTAWAY HARROW CO.

Makers of the original CLARK disk harrows and plows 992 MAIN STREET HIGGANUM, CONN.

It Helped Us Make \$30,000

So writes a farmer and his wife who have taken **The Breeder's Gazette** for twelve years. Thousands of farmers who have made money attribute a large part of their success to **The Breeder's Gazette**. It is the big, well-printed and illustrated farm weekly that tells how other successful farmers are making money. No matter what other papers you are receiving, you should have **The Breeder's Gazette**. Ask for a free copy.

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Room 1125, 542 S. Dearborn St., Chicago

Harvey Bolster Springs

make any wagon a spring wagon. Prevent damage to eggs, fruit, etc., on road to market. Sooner save cost—produce brings more—wagon lasts longer.

MADE LIKE FINEST AUTO SPRINGS

Very resilient and durable. The standard springs of America since 1889. 40 sizes—fit any wagon—sustain load up to 5 tons. If not at dealer's, write us. Catalog and list of proof free.

HARVEY SPRING CO., 752-17th St., RACINE, WIS.



GUARANTEED

Markets.

GRAINS AND SEEDS.

February 9, 1915.

Wheat.—Prices have had wide fluctuations the past week; changes were due largely to the operations of foreign buyers. The main obstacle in the way of a continuous foreign demand is the difficulty encountered in getting the grain out of this country. Not only are ships scarce, but the recent announcement by Germany of the blockade of the English coast has added to the dangers of transporting stocks to Europe. Statistics for this country are on the bullish side; primary receipts have been small and the visible supply shows a large decrease. The Canadian government is buying wheat in Chicago for seed purposes. One year ago the price for No. 2 red wheat was 97½¢ per bushel. Quotations are as follows:

	No. 2	No. 1
	Red.	White.
Wednesday	1.59	1.62
Thursday	1.65	1.62
Friday	1.64½	1.61½
Saturday	1.63½	1.60½
Monday	1.62½	1.59½
Tuesday	1.63½	1.60½

Chicago, (Feb. 9).—No. 2 red wheat \$1.63@1.65; May \$1.63½; July \$1.39.

Corn.—The corn trade is supported to a large extent by the strong position of the wheat market. However, there is at the present time a considerable foreign demand which of itself assists in holding prices on the present high basis, notwithstanding the fact that the visible supply is now twice what it was a year ago. At this time in 1914 No. 3 corn was quoted at 63¢ per bushel. Prices for the past week are:

	No. 3	No. 3
	Mixed.	Yellow.
Wednesday	78	79
Thursday	79	80
Friday	78½	79½
Saturday	78	79
Monday	77½	78½
Tuesday	78½	79½

Chicago, (Feb. 9).—No. 2 yellow 74c; May 81c; July 82c per bushel.

Oats.—While the strength of wheat is assisting in holding up oat values the latter grain has much independent strength. The visible supply shows a decrease, primary receipts are light, and the foreign demand is broadening considerably. The Canadian government is also buying oats here. One year ago standard oats were quoted at 42¢ per bushel. Quotations are as follows:

	Standard.	No. 3
		White.
Wednesday	62	61½
Thursday	62	61½
Friday	62	61½
Saturday	61	60½
Monday	61	60½
Tuesday	61½	61

Chicago, (Feb. 9).—No. 3 white oats 59c; May 61c; July 58c per bushel.

Rye.—There is a good demand for this cereal and nothing offered. Mills have much inquiry for rye flour and are not able to meet their orders because the grain cannot be procured. Cash No. 2 is now quoted at \$1.30 per bushel.

Beans.—Transactions are limited and feeling steady. Detroit quotations are: Immediate and December shipment \$3.15; May \$3.40. Chicago prices are strong to higher. Stocks are small. Pea beans, hand-picked, choice quoted at \$3.25@3.35; common at \$3@3.10; red kidneys, choice at \$3.25@3.50. At Greenville, Mich., farmers are selling on a \$3 basis.

Clover Seed.—Market is easy and lower. Prime spot \$9.30 per bushel; March \$9.35; prime alsike \$9.25.

Toledo.—Common seeds higher, alsike lower. Prime cash \$9.32½; March \$9.35; prime alsike \$9.15.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$7.90; seconds \$7.50; straight \$7.40; spring patent \$8.10; rye flour \$7.20 per barrel.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$28; standard middlings \$28; fine middlings \$32; coarse corn meal \$33; corn and oat chop \$29 per ton; cracked corn \$33.

Hay.—Quotations are steady. Carlots on track at Detroit are: New, No. 1 timothy \$16@16.50; standard \$15@15.50; No. 2, \$14@14.50; No. 1 clover and mixed \$13@13.50.

Chicago.—Market steady and demand good. Choice timothy \$17@18; No. 1, \$15@16; No. 2, \$13.50@14.

New York.—Steady. Prime \$22; No. 1, \$21@21.50; No. 2, \$19@20.

Straw.—Steady. Detroit prices are: Rye straw \$7.50@8; wheat and oat straw \$7@7.50 per ton.

Chicago.—Rye straw, \$8@8.50; oat straw \$7.50@8; wheat straw \$7@7.50. Pork.—Market steady for dressed hogs, light weights selling at \$8.50 per cwt; heavy \$7@7.50. Veal.—Quoted steady at 13@13½¢ for fancy and 9@10¢ for common.

DAIRY AND POULTRY PRODUCTS.

Butter.—Market is steady with demand brisk. Prices are unchanged. Extra creamery 31½¢; firsts 28½¢; dairy 21c; packing stock 19c per lb.

Chicago.—Market steady and trading good. Supply of good stock is increasing. Prices unchanged. Extra creamery 32c; extra firsts 30½¢@31c; firsts 27@29c; seconds 24@26½¢; packing stock 20½@21c.

Elgin.—The price for the week, based on the majority of the sales, is 32c, which is ½¢ higher than last week.

Poultry.—Market is firm with offerings scarce. Prices on all poultry are higher. Springs 15c; hens 8@14½¢; ducks 15½@16c; geese 12@14c; turkeys 21@22c.

Chicago.—A firm feeling exists. Prices higher on most all kinds. Turkeys 15c; fowls 15c; springs 16c; ducks 16c; geese 11@12½¢.

Eggs.—Market easy due to heavy supplies. Prices unchanged. Fresh stock sells at 26½¢ per dozen; current receipts 25½¢.

Chicago.—The general increase in supplies has brought prices to a lower level. Miscellaneous lots, cases included 21@25c; ordinary firsts 23@24c; firsts 25c.

FRUITS AND VEGETABLES.

Apples.—Market active and well supplied, with no change in prices. Baldwins \$2.50@2.75 per bbl; Greenings \$2.75@3; Spy \$3@3.35; Steele Red \$3.50; No. 2, 40@50c per bushel.

Chicago.—The market shows no improvement. Offerings continue free. The prices as here quoted are for refrigerator stock. Common storage sells for 50c@1 less. Baldwins \$2.25@2.50; Kings \$2.75@3.25; Wagener \$2@2.50; Jonathans \$3.50@4; Greenings \$2.75@3; Northern Spy \$2.75@3.25. Western box apples are selling for 90c@2.25 per box.

Potatoes.—Offerings liberal at former prices. Carlots 30@33c per bu; in bulk 36@40c per bushel in sacks; at Chicago the market is quite firm, at slightly higher prices. Michigan white, in bulk, are quoted at 40@48c per bushel. At Greenville potatoes are quoted at 30c.

WOOL.

Trading was active the past week and the aggregate of sales was large considering the small stocks of wool on hand. It has been a good many years since supplies were so small at this season. Prices are being well maintained with a distinctly upward tendency. Fleece wools have advanced with Michigan delaine at 26@27c; do, unwashed combing 29@32c; do, unwashed clothing 25@29c. The asking price for quarter-blood has advanced fully 2c the past ten days.

DETROIT EASTERN MARKET.

The market Tuesday morning was large considering the season. The bulk of the offerings was made up of apples. These sold all the way from 35c@1 per bushel and were moving quite freely. Potatoes not so plentiful at 45@50c per bushel; good cabbage 50c; carrots 50c; eggs 38c; pork \$9@9.25; no loose hay was seen with nominal price at \$17@20 per ton.

THE LIVE STOCK MARKETS.

Buffalo.

February 8, 1915.

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

Receipts here today as follows: Cattle 160 cars; hogs 120 d. d.; sheep and lambs 45 d. d.; calves 800 head.

With 160 cars of cattle here today we have to report the worst market seen here in 60 days. We notice that our paper is going out 15@25c per cwt. below last week and there were decidedly more cattle sold from 40@50c per cwt. and even 65c lower than last week than there were at 15@25c decline, in fact we have not been able to see a load of cattle that sold 25c per cwt lower than last week's prices, except a few handy little butcher steers and heifers weighing from 700 to 850 lbs. Our advice is to be very careful in buying cattle in the country, for it is impossible at present to forecast the future with any degree of certainty.

We had a moderate supply of hogs here today, but with conditions very unsettled, owing to quarantine regulations and one of our chief outlets, the state of Pennsylvania, with their buyers closed against our market, cer-

tainly had a serious effect on our light hog trade here today. All handy weights sold from 15@20c lower than Saturday's best time, while the medium and heavy grades suffered a nickle to dime loss from the best time of Saturday. A few extreme heavy hogs sold at \$6.90 and a good many handy weight mixed at 7c, with yorkers at \$7.15, and a few at \$7.20; pigs generally \$7.15; roughs 6c; stags \$5@5.25. Our late trade was fairly active and everything sold that was yarded in time for market.

The market was active today on lambs and sheep, with prices quarter higher than the close of last week; most of the choice handy lambs selling at \$9.65, and we look for steady to shade lower prices balance of the week.

Handy lambs \$9.60@9.65; 85@90-lb. lambs \$9.25@9.50; 100@120-lb. lambs \$7.85@8; cull to fair \$6@8.75; yearlings \$7@8.25; handy ewes \$6.50@6.75; heavy ewes \$6.25@6.50; wethers \$6.75@7; cull sheep \$3.50@5.50; bucks \$4@5; veals, choice to extra \$12.25@12.50; fair to good \$7.50@12; heavy calves \$6@8.

Chicago.

February 8, 1915.

Cattle. Hogs. Sheep.
Receipts today...13,000 42,000 12,000
Same day 1914...20,599 46,852 22,318
Last week...21,799 160,091 61,620
Same wk 1914...41,354 170,179 88,146

This week opens in great uncertainty, the federal permits of interstate shipments being hampered by numerous quarantines in eastern markets. At a late hour nearly all the sales of cattle were restricted to butcher stock, which sold at stronger to a little better prices, while it was thought that steers would sell at unchanged values mostly. Hogs were steady at Saturday's closing prices, with choice lots taken at \$6.90. The average weight of last week's hog receipts was 225 lbs. Sheep and lambs opened at steady prices.

Cattle, in common with hogs and sheep, were under close quarantine last week, no shipments from here to other places being allowed, so that everything received had to be slaughtered without delay. This caused country shippers to curtail shipments to this market to a great extent, and other markets where the quarantine did not exist received a much larger proportion of live stock than usual. Sellers had anticipated a general decline in prices, and this did take place after Wednesday morning, when early transactions were 30@50c higher as a general rule than on Wednesday a week earlier. The market broke badly on Wednesday afternoon and later in the week, the previous good advance fading away, notwithstanding the light receipts. Capacity of the quarantine division of the stock yards is only such as will enable handling of 25 to 35 per cent of normal supplies of cattle, hogs and sheep, and for this reason there was danger of bringing in too generous supplies. The bulk of the steers received last week sold at \$7@8.50, with limited sales of inferior lots of thin steers at \$5.50@6 and of prime heavy beefs at \$8.60@9. Probably, fancy heavy steers would have sold considerably above \$9, had any been offered, for a few cars of prime yearlings brought \$9.25@9.50. Other sales of yearlings were at a range of \$7.25@9. Very good steers sold after the decline at \$8.25 and upwards, with the break affecting heavy cattle much more than fat light weights, although even yearlings had to go at reduced figures. Butcher cows and heifers sold during the week at \$5.10@8.25, failing to decline with steers, while cutters sold at \$4.40@5, canners at \$3.25@4.35 and bulls at \$4.50@7. Calves had a large outlet at much advanced prices, with not enough offered to go around and sales at a range of \$5@12 per 100 lbs. Late in the week the best yearling steers brought \$9.10.

Hogs suffered reactions last week after upturns, but for several days prices kept on advancing because of unusually light receipts and a good demand, particularly for the better class of hogs of the various weights. It was evident that owners of hogs in shipping districts realized fully the abnormal situation here and were disposed to make their usual large shipments. The offerings continued to average up well in quality, and the great bulk of the hogs sold not far from top daily quotations and within a range of from 10@15c, rather light hogs predominating in the daily receipts, although mere pigs comprised a very limited part of the arrivals. The large stocks of provisions held in Chicago warehouses constitute a bearish factor, holdings on the first day of the month aggregating 162,142,173 lbs., comparing with 114,997,222 lbs. a month earlier and with 112,356,590 lbs. a year ago. On the high day prime hogs brought \$7.25, but hogs sold on Saturday at \$6.55@6.95, pigs going at \$4@6.50. Medium to rather weighty

hogs sold highest. A week earlier hogs brought \$6.40@6.92½.

Sheep and lambs did wonderfully well for their owners last week in spite of the close quarantine, the meager receipts being responsible for the wholly unexpected boom in prices all along the line. Fat stock went like hot cakes, and new high levels for the season were shown for lambs, yearlings and sheep. The spread in prices for lambs has narrowed materially since the receipts have all gone into the quarantine area, and it has been common to see load after load go over the scales straight, without any sorting. On the high time of the week prime lambs brought \$9.35, prime yearlings \$8.50, prime wethers \$7.25 and prime ewes \$6.60. Later declines took place that left prices as follows: Lambs \$6.75@9; yearlings \$7.40@8.25; wethers \$6.25@7; ewes \$4.50@6.50; bucks \$4.25@5. Heavy lambs weighing 90@100 lbs. brought \$8@8.85.

(Continued from page 199).

feed, and many are being marketed while only half fat. Butter and egg production low on account of the cold weather. Cattle \$7; hogs \$6.50; butter 25c; eggs 28c; corn 70c; hay \$14; potatoes 85c.

Missouri.

Warren Co., Jan. 25.—There is lots of snow on the ground, and wheat and rye are in excellent condition. Farmers have almost enough feed for home use but are buying some corn and hay. A few sheep and hogs are being fed, but there are no cattle except dairy cows. Wheat at \$1.30 is about the only grain sold. Eggs are scarce at 30c; butter 30c; corn 75c; oats 55c; alfalfa \$15@19; timothy \$16.50; potatoes 70c.

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MYERS PUMPS, HAY TOOLS AND DOOR HANGERS.
It's give satisfaction, and are durable. Look for the Name MYERS before you buy. Ask your dealer or write us.

DOOR HANGERS

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ASHLAND PUMP AND HAY TOOL WORKS
405 Orange St. ASHLAND, OHIO.

Ironclad WINS In 2 Biggest HATCHING CONTESTS Ever Held

140 Egg Incubator } BOTH \$10
Chick Brooder } FOR

If ordered together, 30 days Freight trial, 10-year Guarantee. Order direct from this advertisement—money back if not satisfied. Incubator is covered with galvanized iron, triple walls, with galvanized iron, triple walls, copper tank, nursery egg test. Set up ready to run. The Brooder is roomy and well made. Send for free catalogue.

Ironclad Incubator Co.
Box 107, Racine, Wis. (3)

Is Your House and Barn LIGHTED SATISFACTORILY?

Our Business is Lighting Country Homes—absolutely safe—economical—convenient. Our guarantee with every system. Write us.

Night Commander Lighting Co.
JACKSON, MICHIGAN.

WHAT DO YOU KNOW ABOUT A HORSE'S FOOT?

There is an old true saying "NO FOOT, NO HORSE." After 20 years experience with the hoof and foot, our saying is NO HOOF, NO FOOT.

EVERY HOOF MUST BE KEPT GROWING.
THERE IS A REASON. YOU WILL FIND IT IN OUR BOOK "TRUTH IN A HOOF-SHELL"

EVERY HORSEOWNER AND CARETAKER SHOULD READ IT.
IT IS SENT FREE ON REQUEST BY

THE EVERIT COMPANY, Dept. E, Wellsville, N. Y.

Time And Labor-Saving Stanchions

The West Bend Swinging Stanchions and Cow Stops permit you to lock or unlock from 2 to 50 cows on one instant, with one motion of the lever. An 8 year old boy can operate it.

West Bend BARN EQUIPMENT

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POTATOES—HAY—More Money if you Consign to **THE E. L. RICHMOND CO.** Detroit. 21 years in business. Reference your Banker.

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WANTED—To hear from owner of good farm or unimproved land for sale. **C. C. BUCKINGHAM,** Houston, Texas.

WANTED to hear of good farm or unimproved land for sale. Send description and price. Northwestern Business Agency, Minneapolis, Minn.

FOR SALE—240 Acres New Land. Three miles east, one south of the village of Twining, Arenac Co., Mich. **M. H. WINGET,** Linden, Michigan.

A Splendid 110 Acre Farm—Excellent location. Will sacrifice for quick sale. For full description, low price and easy terms Address, **M. HARTZ,** Charlotte, Michigan.

Selected southern farms 80 to 5000 acres, two crops a year well located for dairying and live stock raising. \$10 to \$35. **FARM AND LIVE STOCK CO.,** Terminal Bldg., Indianapolis, Ind.

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Beautiful Little Poultry and Truck Farms with nice homes near Brunswick Ga., have just what you want. Address, **Charlton Wright,** Sterling, Ga.

130 ACRES \$5000, \$2000 cash, balance on easy terms. House 7 rooms, 3 barns, good orchard, plenty water, black sandy soil, 2 miles from town. Write J. B. Rice & Co., for farm list, Cortland, O. or Warren, O.

OWN A FARM—My unimproved farming lands in Gladwin county, Mich., will make you independent. Small payment down, 10 years' time on balance. Price \$10 to \$20 per acre. Write for particulars. **U. G. REYNOLDS,** Gladwin, Michigan.

Sunny Tennessee 265 Acres, 125 Acres tillable, 75 Acres bottom, Corn, oats, wheat and clover land, 4-room dwelling, tenant house and barns. Our farms and prices please. Free list. **JENKINS & SON,** HUNTINGDON, TENN.

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Located north of Riverhead, Long Island County Seat. 45 acres clear, balance in large timber. 720 feet frontage on Long Island Sound. Also other farms. **REEVY & BARTLETT,** Greenport, Long Island.

Farm Of 180 Acres Choice land fronting Lake Huron in Sanilac Co. Has 2 large barns, 1 barn 40x70 with cement basement floors and mangers, has 20x40 wing with dairy room in connection, other barn 40x60. One 9-room dwelling in good condition all painted. One 6-room tenant house. Home has pneumatic water system in house & barn. Nice orchard, young orchard coming on, 100 grape vines in bearing. Will bear the closest investigation. Reason for selling going into business. **Wm. Wagner,** Forestville, Mich.

170 Acres \$3800

Live Stock and Tools Included

10 cows, lot of hay, cream separator, corn harvester, etc.; thrown in to induce quick sale of this fine farm as owner is forced to live in distant city; excellent location, only 1 1/2 miles to village; good land, fine crops hay, grain, potatoes, etc.; pasture for 25 cows, some timber; 9 room house, veranda, milk house and butter cellar, big modern farm, cement floor, running spring water; individual drinking basins; patent stanchions, large silo, poultry house, hog house; must be sold at once; price for all only \$3800, easy terms. Full details, location, etc., page 3, "Strout's Special Bargain Sheet", write today for your free copy. **E. A. STROUT FARM AGENCY,** Station 101, Union Bank Bldg., Pittsburgh, Pa.

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THIS IS THE FIRST EDITION.

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

DETROIT LIVE STOCK MARKETS.

Thursday's Market.
February 4, 1915.
Cattle.

Receipts 1180. Bulls and cow stuff steady; all other grades active and 10@15c higher than last week.

Bishop, B. & H. sold Sullivan P. Co. 1 cow wgh 880 at \$4.60 do av 1021 at \$5.30 do av 963 at \$5.50, 13 steers av 907 at \$7.15 butchers av 685 at \$6.50; to Mich. B. Co. 26 steers av 998 at \$7.40, 2 bulls av 1135 at \$6.10 do wgh 1500 at \$6.50, 4 cows av 1050 at \$5.50, 1 do wgh 1270 at \$5.20 do av 1205 at \$6.20 do av 900 at \$4.90 steers av 1025 at \$7.65, 1 cow wgh 800 at \$4.50; to Newton B. Co. 3 steers av 1095 at \$7.10, 1 do wgh 820 at \$7.30 cows av 1017 at \$5.75, 2 canners av 860 at \$3.75, 7 cows av 1010 at \$5.85, 1 do wgh 1050 at \$4.25; to Mason B. Co. 1 do wgh 1300 at \$6.40 do av 915 at \$4.25, 6 butchers av 866 at \$6.25; to Sullivan P. Co. 17 steers av 1101 at \$7.60, 8 do av 854 at \$7.50 cows av 1182 at \$6.10 canner wgh 1140 at \$4.20 cows av 1145 at \$4.25, 6 do av 1091 at \$5.30, 4 butchers av 960 at \$5.50; to Hammond, S. & Co. 2 steers av 1100 \$7.75, 13 do av 894 at \$7.25, 2 bulls av 905 at \$5.50, 1 do wgh 1450 at \$6.50; Reason & S. sold Mich. B. Co. 10 butchers av 828 at \$6.75; to Kull 1 bull wgh 1380 at \$6.35, 2 steers av 900 at \$6.75, 2 bulls av 1025 at \$6.75, 7 butchers av 840 at \$6.25; to Applebaum 2 cows av 1245 at \$5.50, 2 do av 1085 at \$4.75.

Johnson sold Mich. B. Co. 15 butchers av 810 at \$6.60, 1 cow wgh 1250 at \$5.50, 1 bull wgh 1300 at \$6.

Haley & M. sold Rattowsky 3 heifers av 763 at \$6; to Goose 1 cow wgh 860 at \$4; to Newton B. Co. 3 bulls av 873 at \$5.85, 5 steers av 794 at \$6.75, 7 do av 1026 at \$7.25; to Sullivan P. Co. 13 cows av 985 at \$6.20 steers av 955 at \$7.50, 5 cows av 872 at \$4.25; to Hirschleman 1 steer wgh 980 at \$7.50, 1 do wgh 930 at \$6.50, 1 bull wgh 1140 at \$6.25, 2 steers av 850 at \$7.50 butchers av 886 at \$6.25; to Rattowsky 1 bull wgh 1560 at \$6.75, 2 cows av 1130 at \$5.35; to Mich. B. Co. 8 do av 1125 at \$5.25; to Breitenbeck 2 do av 830 at \$4.20 do av 945 at \$5.25, 1 bull wgh 1170 at \$5.50.

Veal Calves.

Receipts 354. Market strong on the good grades; dull on common at last week's prices. Best \$10@11; others \$7@9.50.

Roe Com. Co. sold Mich. B. Co. 3 av 170 at \$9.50.

Haley & M. sold Parker, W. & Co. 5 av 165 at \$10.50, 2 av 145 at \$10.50, 2 av 175 at \$11.

Reason & S. sold Newton B. Co. 3 av 110 at \$8.50, 2 av 150 at \$10.50, 2 av 135 at \$10.50, 8 av 150 at \$10.50, 4 av 155 at \$11, 3 av 155 at \$11; to Layder 6 av 145 at \$10.50; to Rattowsky 7 av 135 at \$9; to Nagle P. Co. 3 av 120 at \$10.

Sheep and Lambs.

Receipts 3357. Lambs 25c higher than last week; sheep steady as follows: Best lambs \$8.50; fair lambs \$7.65@8.25; light to common lambs \$6.50@7.50; heavy lambs \$7@7.25; fair to good sheep \$4.75@5.50; culls and common \$3@4.

Sandal, S., B. & G. sold Newton B. Co. 7 sheep av 85 at \$4.50, 22 lambs av 52 at \$6.50; to Parker, W. & Co. 125 do av 60 at \$7.50; to Sullivan P. Co. 12 sheep av 170 at \$4.50, 47 lambs av 80 at \$8.35.

Roe Com. Co. sold Nagle P. Co. 131 lambs av 75 at \$8.30, 16 sheep av 105 at \$4.75; to Hayes 11 lambs av 65 at \$7; to Youngs 10 do av 85 at \$8.25, 51 do av 65 at \$8.25.

Haley & M. sold Nagle P. Co. 55 lambs av 85 at \$8.25, 56 sheep av 125 at \$5.16 do av 120 at \$5.10, 7 lambs av 100 at \$7.50, 3 sheep av 140 at \$5.25, 30 lambs av 92 at \$7.50; to Parker, W. & Co. 31 do av 80 at \$8.25.

Hogs.

Receipts 7614. Market steady; all heavy grades \$7; medium and light \$7.10.

Reason & S. sold Parker, W. & Co. 450 av 200 at \$7.10.

Bishop, B. & H. sold same 2460 av 200 at \$7.10, 325 av 250 at \$7.

Haley & M. sold Hammond, S. & Co. 350 av 200 at \$7.10.

Sandal, S., B. & G. sold same 375 av 200 at \$7.10.

Roe Com. Co. sold Sullivan P. Co. 480 av 200 at \$7.10.

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BIG COMBINATION SALE of Immune Durocs TUESDAY, FEB. 23, 1915 75 = HEAD = 75

In Warm Sale Pavilion, at New Paris, Indiana, that will easily seat 600 at sale ring. Come be one of that number.

A GOOD PLACE TO BUY.

We are located just about 30 miles south of the Michigan state line. We always try to make a man that buys of us once a regular customer ever afterwards. Our county has never been under quarantine as we have thus far been absolutely free from foot and mouth disease.

Remember these Durocs are of the big prolific type.

SPECIAL ATTRACTIONS.

Nancy Jane, by Highland King, the great, mellow gilt, that was first at Michigan State Fair at Detroit, is bred to John's Orion, the Junior Champion Boar at the International in 1913.

Bob's Defender Queen, which without a doubt is one of the very best and largest Defender sows to be sold this season, is bred to Highland King.

Queen Crimmon, by Crimmon Wonder III, is being consigned by Jas. R. Peters. She was one of the highest priced sows to pass through the fall sale season. She farrowed 14 pigs in Sept. and raised 9 of them.

There will be several great Fancy Col. Again yearlings and gilts.

A gilt by Orion Cherry King, the royal grand champion of all breeds at the Ohio State Fair in 1913 is bred to Highland King.

The greatest gilt we raised this season is by Cherry Prince and bred to Highland King.

OUR HERD BOARS

Highland King, by Cherry King, was Junior Champion at International in 1910. He and his get have won more prizes at the International and State Fairs than any sire living today with possible exception of his sire Cherry King.

This boar was formerly owned by E. C. Stemen & Sons, Middlepoint, Ohio. Fancy Col. Again, by Fancy Col. was Junior Champion at Ohio, Kentucky and Tennessee, 2nd at Illinois and 3rd at Indiana State Fairs in 1911. He was lame when shown at Indianapolis due to an accident.

Cherry Prince by Cherry King is a young sire that would easily have tipped the scales at 700 as a junior yearling had he been fitted. He is the large boned easy feeding type.

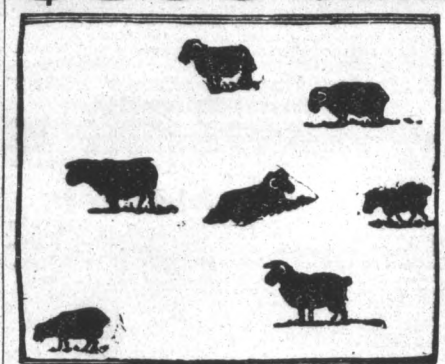
Sows are immuned and guaranteed six months against cholera. Free dinner at 11:00. Sale to begin at 12:30, sharp.

New Paris is on Warsaw-Goshen Division Location of Winona Traction; on Indianapolis Benton Harbor div. of Big Four. On Chicago-Detroit div. of Wabash R. R. Traction service between St. Joe, Mich., and New Paris, Ind.

For catalog address

KOHLI & MISHLER or JAMES R. PETERS, New Paris, Ind.

\$395 Saxon Car Given Away



Here are seven sheep in a pen. By drawing three straight lines you can put each one in a pen by himself. This may seem difficult at first, but you can do it if you try. Solving this puzzle does not win the car, but as soon as we receive your name and address we will tell you how you can become a contestant, and win the fine \$395 Saxon Automobile.

Send Your Name Today

Remember the Saxon car will absolutely be given away. In case of a tie a Saxon car will be given to each person so tied. Send your name at once so you can be entered in this great contest. Enclose a dime with your answer and we will send you our splendid magazine, The People's Popular Monthly, 4 months.

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Both \$10
FREIGHT PAID EAST OF ROCKIES

Wisconsin Incubators have long proved their wonderful hatching qualities. Competing with every make known, they won in the big Nat'l Hatching Contests of 1910-11-12-13-14. Think of it. Five consecutive victories! That certainly proves you can't make a mistake. Shipped on

130-Egg Incubator
130-Chick Brooder

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Money Back if not Satisfied

Wisconsin Incubators have hot water heat, double walls, double glass doors, copper tanks and boilers, self-regulating. Nursery under egg tray. Made of finest select, clear CALIFORNIA REDWOOD, not pine, paper or other flimsy material. Incubator finished in natural color—not painted to cover up cheap, shoddy material. Incubator and Brooder shipped complete with thermometers, egg tester, lamps, everything but the oil. This is the best outfit you can buy. If you don't find it satisfactory after 30 days trial, send it back. Don't buy until you get our New 1915 catalog, fully describing this prize-winning outfit, also shows larger machines. WRITE FOR IT TODAY. You can't make a mistake in buying a Wisconsin.

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Makes big hatches winter or summer for the beginner as well as the oldtimer. Now used by 580,000 poultry raisers, which is three or four times more than the next best can show. That's because Old Trusty owners go in for profits and get them. You take no risks the Johnson way. Old Trusty comes on thirty to ninety days' trial and ten-year guarantee. Also we pay freight. Write today for Old Trusty book and low price based on 100,000 sales this year.

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Here is a quickly portable hover that has made good among thousands of critical buyers. Constructed of galvanized steel, light in weight, heavily insulated, economical in oil consumption. Adapted to any brooder house. A complete equipment at low cost. Built to satisfy the demand for a dependable—practical brooder. Price \$8.00. Write for Catalog.

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150 Styles—13 Cents Per Rod Up

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BOOK FREE **WRITE NOW**

FARM FENCE

41 INCHES HIGH FOR Stays only 6 inches apart. Wires can not slip. 100 styles of Farm, Poultry and Lawn Fencing direct from factory at money saving prices. Ideas Galv. BARBED WIRE \$1.45 80-rod spool. Catalog free.

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DON'T BUY

until you get our factory guaranteed heavy galvanized, open hearth Bessemer steel wire fence. 26-inch hog fence, 14c per rod. 41-inch farm fence 21c per rod. 48-inch poultry fence 22½c per rod. NOTE: All wires are galvanized before woven. Write for free catalog.

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Michigan White Cedar FENCE POSTS

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NO MONEY DOWN—I'll Pay the FREIGHT

I want to send you one (or more) of my famous "CAN'T-SAG" Gates to use on your own farm—30 Days FREE—No Money Down. I want you to see for yourself that they "can't sag" and "don't sag." See how free and easy they swing—how strongly they are made. Cost you less than you can make all wood gates—last longer and give better service than any gate of iron, gas pipe, or wire, at half the cost.

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"CAN'T-SAG" Gates are made in the largest gate factory in the world. You can get any length gate you want—6 feet to 16 feet—4 or 6 inch boards. Each board is double-bolted between eight angle-steel uprights. Triangular frame braces make gates extra strong. Self-locking hinge prevents gate being raised by stock. Gates shipped ready to hang, but I suggest that you order just the Gate Steels as they will save you big money. I ship the steels, hinges, bolts—everything but the boards—you can make your own Guaranteed Can't-Sag gates in 30 minutes. Write for FREE Catalog and my Freight Paid Offer, good anywhere East of Rockies and to Canadian borders. My low prices will surprise you. Send today.

Alvin V. Rowe, Pres., ROWE MANUFACTURING CO., 4407 Adams St., GALESBURG, ILL. (7)

The Early Chickens.

NO matter if the pullets are early green can be had. Steam the meal, or late, they ought to be laying well now, and the hens laying also. This depends, of course, on the care they have received during the winter. I have known farm flocks not to lay an egg until along in April. They had such a time rustling a living in the winter they took a good long period to put themselves in laying condition before entering upon their season's work: A poorly fed hen is a rustler, all right, but such rustlers are not layers. Too much rustle, unless it is a rustling breed like the Leghorns, indicates too much hunger, and you better be feeding heavier or your bank account will suffer. Saving chicken feed is mighty poor economy.

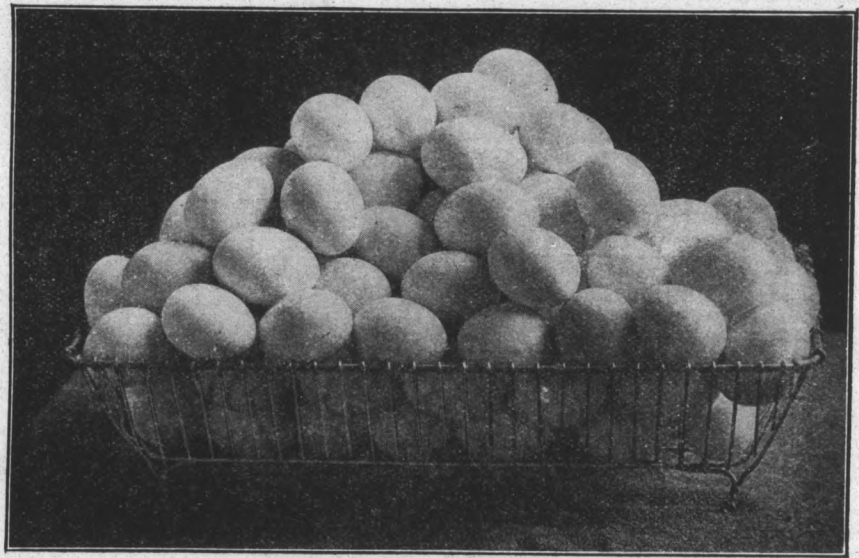
Are you going to let the hens do the chicken raising this season? If they are laying well and you have a reasonably good place to keep an incubator it will be money in your pocket to get one. Ordinarily a hen will lay a setting of eggs while she is hatching one, and then if she is to raise the chickens she will take time that she could put in laying another

or feed it in a mash. When first feeding the steamed alfalfa the hens will not take hold of it, and some chop, kaffir, or other favorite feed should be mixed with it so they will get some of the alfalfa when picking the grain. They will soon learn to eat the alfalfa and will eat heartily afterward without the grain. Beets, turnips, or other roots are good for them.

Roosters Predominate in Early Hatches.

If your chicks are hatched very early the young roosters will easily pay the cost of raising all the pullets to a laying age. I have had them do this without trouble. February or March chickens will more than do it, one reason being that these very early broods have more roosters than pullets. One season a flock of 17 had 13 roosters, but this was an exception to the rule, but 60 per cent roosters will be about the ratio, I should judge. Later this is reversed. One year my flock of 116 hatched in May had 65 pullets.

If you are going to use the eggs for



The Result of Proper Poultry Practice.

setting or two, let us say one. I hatching so early they must be gathered 125 chicks one year, kept many times a day. It does not them in dry coops with board floors, take many minutes of the ordinary February without heat, and raised 116 of ruary weather to destroy the vitality them. They were hatched in May, of an egg. Extreme care is necessary though. Now suppose you set ten in every step of the process of gathering hens to get that number of chicks, and the eggs, keeping them, setting that would be a splendid hatch, the them and caring for the chicks. You eggs the hens would lay while hatch- might as well freeze the chicks solid ing and raising the chicks would equal as to let them get a good chilling. It 25 dozen at least, which, at ordinary would save the little fellows a lot of suffering, and you would be as well off. egg prices would half pay for an incubator and brooder, 140-egg size. Your Kansas. L. H. COBB.

WIRING AND FASTENING FOUNDATION IN BROOD FRAMES.

I am a beginner in beekeeping. Will you please give me full directions on how to wire and put foundation in brood frames?

SUBSCRIBER.

Muskegon Co.
If the Langstroth hive is used, or a hive with frames of similar size, four holes should be pierced in each end bar of the frames, the first hole half an inch from the top bar and the other holes two inches apart. If the frames are purchased, the holes are usually already pierced. No. 30 tin- ned wire is the most commonly used for this purpose. Commencing at the top, run the wire through the four holes and fasten the top wire with a tack. These tacks are usually fastened to the side of the top bar; the wire is then tightened until it begins to cut into the wood and is then fastened on the side of the end bar, at the bottom, similar to the top wire. This gives us a frame with four horizontal wires and the wires as tight as we can comfortably get them.

To put the foundation in the Hoff- man frame, slide the foundation there provide unless one is prepared for it, usually in the nearest to the center of Alfalfa meal will answer if no fresh the two saw cuts in the top bar, then

21 Times World's Champion Belle City

Jim Rohan, Pres.

GET the whole wonderful story of the Belle City's "Hatching Facts." The winners of the 21 World's Championship Hatches tell the story of their money-making, prize-winning success in their own words. Book gives you full information, facts, proofs and particulars about high percentage hatches everywhere with World's Champion Belle City hatching outfits. \$27,000 use.

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Here's the greatest chance you ever had to make money with a hatching outfit. Conditions so easy every man, woman, boy or girl may receive biggest pay. Book gives full particulars of my 1, 2, 3 months' Home Test Offer, my 10 year money back guaranty and my low prices. Freight prepaid. Go after the gold. Don't let anybody get ahead of you. I ship quick from Buffalo, Kansas City, Minneapolis or Racine. Write now. Jim Rohan, Pres.

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No more wet, tired, blistered, calloused, chafed, aching feet. No more hard, cracked, warped, twisted, leaky shoes. No more Rheumatism, Lumbago, Sciatica, Coughs and Colds. No more loss of time and health. Always Comfortable—Always Dry. Save \$10 to \$20 shoe money.

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"The Sole of Steel" illustrates and describes this wonderful money-saving shoe with its Special Process, Long-Wearing Adjustable Leather Taps—Instantly replaced when worn for a few cents. The shoe of the light, springy step—the shoe that makes you sure-footed and tireless—the shoe that protects your health—Your Comfort—Your Purses. It tells how YOU—or anyone—can TRY MY "STEELS" TEN DAYS, FREE. Address your postal to

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At Direct From FACTORY PRICES Copper Hot Water Heating System. Double Glass Door. Machine fully equipped and guaranteed. Set up and ready for use. Write today for our exceedingly low prices, ranging from \$9.90 up. Wolverine Sales Co., 711 Delaware St., Grand Rapids, Mich.

SHOEMAKER'S BOOK ON POULTRY

and Almanac for 1915 has over 200 pages with many colored plates of fowls true to life. It tells all about chickens, their prices, their care, diseases and remedies. All about incubators, their prices and their operation. All about poultry houses and how to build them. It's an encyclopedia of chickendom. You need it. Only 15c. C. C. SHOEMAKER, Box 911 Freeport, Ill.

GREIDER'S Fine CATALOGUE and calendar of pure bred poultry: 70 varieties illustrated and described, many in natural colors. Perfect guide to poultry raisers—full of facts. Low prices on stock and eggs for hatching. Incubators and brooders. 22 years in business. You need this noted book. Send 10c for it—today. B. H. GREIDER :: Box 56, RHEIMS, PA.

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"Hoosier Strain." Established in 1892. Winner of 11 first prizes at Chicago, Cincinnati and Indianapolis in two years. 300 fine Cockerels, some good cock birds, hens and pullets in any number. All stock shipped subject to approval. Prices reasonable. Write your wants. G. Earl Hoover, R.7, Matthews, Ind.

Trained Running Fox Hounds—30 Fox and Coon hound pups, Poodles. Send stamp. W. E. LECKY, Holmesville, Ohio.

press the wedge into the outer saw cut. This will hold the foundation to the top bar, and is ready to have the wire imbedded into the foundation. For this purpose, a board is needed. This board should be slightly thicker than half the width of the end bars and of a size that will just fit into the frame. Lay the board down and then place the frame on top with the foundation between the wires and the board. Then heat a Spur or an East-erday imbedder (see bee supply catalogs), and run it along the wires, using sufficient force to imbed the wire half way into the foundation. The second and third wires should be pulled down slightly towards the bottom bar in the center, and the bottom or fourth wire should be slightly drawn up towards the third wire so that the center of the fourth wire is nearest the center of the third wire. The light brood foundation, nine to ten sheets to the pound, is the foundation usually used when frames are wired.

Mich. Ag. Col. F. E. MILLEN.

WATERY EGGS.

When the white of an egg appears watery, instead of thick and heavy, it is a sign that its producer is being fed a ration deficient in protein. A normal egg should contain 14½ per cent of protein. By including a fair proportion of scalded bran, clover and wheat middlings in the ration we shall secure eggs with sound shells and thick albumen. Sometimes the yolks of eggs appear thin and of a pale color, and as often as not this is an indication of an anemic condition in the hens that produced them. Much can be done to improve the color and consistency of the egg yolks, by giving the laying stock an iron tonic such as sulphate of iron placed in the drinking water, by adding corn meal to the mash, and by keeping the birds well supplied with vegetable matter. With a view to securing eggs with sound shells, firm albumen and rich golden colored yolks, it pays to feed fowls well. Biscuit meal, pea meal, and corn meal may each be used in their turn for mixing with the mash and some meat should be added. The bulk of the mash should consist of boiled vegetables and bran, or failing these, steamed clover may be used. An addition of sharps is necessary to make the mash crumbly—a condition to be aimed for.

Canada. W. R. GILBERT.

SEASONABLE POULTRY NOTES.

The chaff and litter that accumulate in the loft and barn should be placed in the hen house. The hens will get many a seed from the rubbish, and the exercise they get in scratching through the mass will stimulate egg production.

Turnips, pumpkins, parings, etc., are eaten with greater relish by the hens when they are cooked, thoroughly mixed with a mash and fed steaming hot.

About once a month the nesting material should be renewed. The old material should be either burned or spread over a field far removed from the poultry house.

Before throwing to the hens, eggshells should be pulverized. The egg-eating habit may result in the flock from the feeding of half shells.

Were the same care given the hens that is given the cows and pigs, the number of fresh eggs that would reach the market during the winter months would increase by many millions.

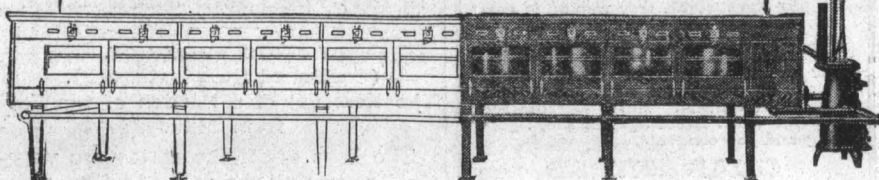
The dropping boards should be regularly cleaned every week or two. Every morning it would be advisable to go through the house with a bucket of fine soil and sprinkle a shovelful over the droppings made during the night. This soil will absorb the liquid portions of the manure and keep down odors.

T. Z. RICHEY.

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You will be able to purchase this additional Hall Mammoth Equipment as a result of

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NEW YORK



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BABY CHICKS—From our heavy laying S. C. W. Leghorns. Order now for future delivery. March \$15 per 100; April \$12; May and June \$10. Custom hatching 25c. in lots of 400 eggs. Satisfaction guaranteed. H. B. BRACKNEY & SON, Clayton, Michigan.

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ROYALTON BRED POULTRY—Fine S. C. Brown Leghorn and White Rock Cockerels at \$2.33 and \$5; from prize winning stock. D. F. VALENTINE, Supt., Temperance, Michigan.

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Mammoth Bronze Turkeys—Pairs not akin Hens \$4.00. COLLAR Bros., Coopersville, Michigan.

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BARRED ROCK COCKERELS—\$3 each, two for \$5. Winners for 10 years. J. A. Barnum, Union City, Mich.

SILVER LACED GOLDEN and WHITE WYANDOTTES—A fine lot of white cockerels weighing 6 to 8 lbs., at \$2 and \$3 each. Browning's Wyandotte Farm, Portland, Michigan.

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BARRED and WHITE ROCKS—Large farm raised utility Cockerels. \$3 two for \$5. Bred for beauty and business. Order from this ad. Eggs in season. RIVERVIEW FARM, Box 798, Union City, Michigan.

White Wyandotte Cockerels, from thorough-bred stock and heavy layers, \$2.50 and \$3.50 each. A. Franklin Smith, R. F. D. No. 9, Ann Arbor, Mich.

White P. Rocks, Pekin and white runner ducks, White guineas, eggs and day old ducks and chicks. H. V. HOSTETLER, St. Johns, Michigan.

White Leghorns Day-Old-Chicks. We guarantee satisfaction to all our customers. MAPLE CITY POULTRY PLANT, Box C, Charlotte, Michigan.

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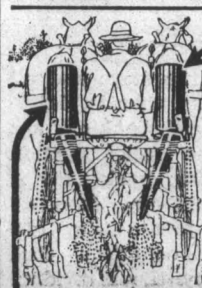


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This New Improvement Brings Better Crops without any extra labor or one cent added expense. It is the Akron Fertilizer Distributor; applies commercial fertilizer while cultivating; hastens the sturdy growth of plants, offsets bad growing weather and greatly increases the yield. Can be used only with the famous

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WANTED—AN IDEA. Who can think of simple thing to patent? Protect your ideas, they may bring you wealth. Write for "Needed Inventions" and "How to Get Your Patent and Your Money." RANDOLPH & CO., PATENT ATTORNEYS, DEPT. 67, WASHINGTON, D. C.

Practical Science.

DAIRY, FOOD AND DRUG LAWS.

BY FLOYD W. ROBISON.
(Continued from last week).

The Removal of a Portion of the Fat from Milk.

The laws of all the states are very rigid regarding the sale of milk. The statute of Michigan on this point was passed by the Michigan Legislature in 1873, known as Act No. 26 on the statute books, therefore long before there was a food department in this state. The part to which we refer reads as follows: "That whoever shall, knowingly, sell * * any milk diluted with water, or in any way adulterated, or milk from which any cream has been taken * * shall be deemed guilty of a misdemeanor * *."

Under this statute there are many common practices of dairymen which are clearly illegal. A man, for example, may have a herd of Jersey cows producing milk which will average five per cent milk fat. He is placed with his product in competition with neighbors whose milk averages 3.5 per cent fat. In other words, each 100 pounds of milk which the first mentioned dairyman sells contains one and one-half pounds more milk fat than does the 100 pounds sold by the second man. The invention of the milk separator—centrifugal—has made it possible to remove almost completely the fat from milk. It would be possible for the first dairyman to reduce the fat content of his milk from five to 3.5 per cent and thus sell it upon an equal footing with his neighbor. This, according to the law above cited, constitutes an adulteration and has been so held time and time again by food departments. The same result, however, may be accomplished in a more extensive way by cutting down the percentage of high fat-producing cows in the herd. In this way a product of the same approximate composition, that is, a milk containing 3.5 per cent fat, may be produced and the law has been circumvented in an entirely legal manner.

Food Officials Need to be Frank with Manufacturers.

We believe in the above case, which is typical of conditions which occur frequently among food manufacturers, that a food department should not wink at cases of this kind and hold up their hands helplessly, but should attempt to find intelligently some middle ground and if the law does not cover the point clearly and justly, their policy regarding the enforcement of that particular law should be made perfectly clear to the manufacturers and consumers as well. This is not a compromise measure, but a measure attempting to bring order out of chaos. We do not mean either, that in so doing the food department should do what is forbidden in the law. Frankness should certainly be a part of the makeup of an executive department. Otherwise, those individuals of honor and integrity, manufacturers and producers whose support is clearly noted in the enforcement of the law, are placed at an enormous disadvantage while the unrighteous manufacturer and vendor ruin the business of the righteous manufacturer by destructive competition because he is not ashamed to take advantage of the food department.

A Common Practice.

Dairymen all over the state and all over the United States, that is, dairymen who have financial backing, are today separating the fatty portion from milk and putting back into it less fat than was taken out. In other words, in the milk plants they are producing the same condition that would be produced by the individual

dairyman, changing the composite makeup of his herd. We do not think this is criminal but it is, of course, almost criminal to the honest producer that an executive department will not permit or countenance this very procedure which he knows is being followed by his competitor, and which a food department is powerless to prevent. There is a certain minimum standard for fat in milk below which no milk is salable in the markets of the state. This is right, and except for a probable standard in solids, that is all that need be said on the milk question with the exception, of course, that the milk must contain no added substances. Again, manufacturers have certain standards of value for their products which are not always apparent to the ordinary executive official. It is reasonable, therefore, that such a department should be under the jurisdiction of a man of keen discrimination. The law places upon food manufacturers certain responsibilities. It places upon the food law administrator certain duties, none of which are secret, but the makeup of his mind and his attitude towards the enforcement of those laws are important to each and every food manufacturer as well as consumer.

COMBINING LEGUMES WITH CORN.

One year we began experimenting with soy beans to add more protein to our silage crop. We planted two acres of soy beans and harvested them at the time we cut our silage corn. We mixed 12 loads of soy bean fodder with 20 loads of silage corn. The cows ate the mixed silage with a relish and no bad results were noticeable in the milk while it was being fed. We reduced the grain ration about one-sixth while feeding the mixed silage and the cows varied slightly in their yields; it was my intention to reduce the grain ration still further, but we were just about making the amount of milk that our contract called for and were not in a position to do much experimenting.

The large varieties of soy beans, if given good cultivation and planted on a rich soil can readily be made to produce eight or ten tons of fodder per acre when in the early seed stage. The crops seem to thrive better when planted in drills about two feet and a half apart and with the plants about two inches apart in the rows. Some have advocated double cropping, but better results can be obtained by growing each crop by itself. Each crop needs a large amount of sunlight for its growth and perfection and one crop is sure to suffer when they are grown together.

New York. W. MILTON KELLY.

CATALOG NOTICES.

"Why do you Stay at Home?" is the title of a booklet sent on request by the Willys-Overland Co., Toledo, Ohio. Its subject matter deals directly with the average farmer's needs for more rest and relaxation, for an occasional change of scene and frequent mingling with his fellowmen, with particular reference to the advantages of an automobile as a means of supplying these needs. It is profusely illustrated, and presents many lessons which would benefit any reader. Send for a copy of this booklet, mentioning the Michigan Farmer.

Marlin repeaters, rifles, carbines, shot guns, manufactured by the Marlin Firearms Co., of New Haven, Conn., are fully illustrated and described in a 130-page illustrated catalog published by this company. This catalog describes the different types of repeating guns and ammunition for same in detail, together with parts, equipment, etc. It is conveniently indexed for reference, and is of special interest to sportsmen and farmers who have use for this class of firearms.

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"I have had lots of experience with different gasoline engines," writes Dave Linton, Ransom, Ill. "We have all makes in this neighborhood. Some do what their makers claim, but it takes a team of horses and a crowbar to get them on the job. A Cushman of the same horsepower will do the same work, and a 14-year-old boy will move it from one job to another."

4 H. P. Only 190 lbs. Easy to Move Around

This is used for all regular light jobs, and can be attached to other machines, such as grain and corn binders, etc. 8 H. P. weighs only 320 lbs., for heavier work, as grinding, sawing, etc., and can be attached to hay balers, corn pickers, etc., to save a team. Throttle Governor gives steady power, with extra power quickly when needed, as in sawing and grinding. Schebler Carburetor. 4-Cycle. Not a cheap engine, but built to do work no other engine will do and run without trouble. Sizes 4 to 20 H. P. On skid or truck. 40-page Book free.

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Down with the bugs! We demand a fair chance for the birds.

Insects destroy a billion dollars worth of farmers' crops yearly because there are too few birds to eat all the insects.

The Farm Journal believes that most of the insect-eating birds have been killed. Hence insects increase and destroy crops. Hence certain birds must be protected. Hence the Liberty Bell Bird Club has been organized.

Already 190,000 members—3,000 clubs in schools. More members are wanted. Fathers, mothers, children. No dues, button free. Everybody write. We can save a billion dollars of crops with your help. Send for list of beneficial and harmful birds. The Farm Journal is \$1 for 5 years.

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Profitable for the large or small grower. Plants potatoes at lowest possible cost. One man operates it. Opens the furrow—drops the seed any distance or depth required—puts on fertilizer (if wanted)—covers up—marks the next row. Accurate, automatic and dependable. Sold with or without Fertilizer Attachment.

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Farmers' Clubs

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Vice-president—C. J. Reed, Spring Arbor.
Secretary and Treasurer—Mrs. J. S. Brown, Howell.
Directors—Alfred Allen, Mason; Joseph Harmon, Battle Creek; C. B. Scully, Almont; C. T. Hamline, Alma; W. K. Crafts, Grass Lake; Edward Burke, St. Johns.

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."

BOYS' AND GIRLS' CLUB WORK.

Associational President R. J. Robb announces that the Boy and Girl Club work of the State Association for 1915 will be in charge of Mr. Theo. H. Townsend, of St. Johns.

Local Club officials who are interested in this phase of educational work should communicate with Mr. Townsend, either direct or through President Robb.

CLUB DISCUSSIONS.

Hold Annual Oyster Dinner.—Clover Leaf Farmers' Club, of Allegan county, held their annual oyster dinner on January 12, at the home of Mr. and Mrs. O. S. Howe. A supper consisting not only of oysters, but of many other good things as well. A few songs by the Club and a reading by Miss Barker, made up the program. Then followed an interesting and lively discussion in which many good ideas were brought forth. The topic was, "The cheapest way to veal calves." The new officers had charge of the meeting. There were 71 present.—Mrs. Starr Fenner, Cor. Sec.

Education vs. Acres.—On January 27 the members of the Essex Farmers' Club, with a goodly number of guests, were very pleasantly entertained by Mr. and Mrs. Sterling Skinner. The exercises were opened with singing by the Club, followed by repeating, in unison, The Lord's Prayer. The minutes having been approved and some business matters cared for the treasurer's report was read, showing the finances of the Club to be satisfactory. Resolutions on the death of a former member, Mrs. Chas. Luck, were presented, approved, and ordered spread on the minutes and a copy to be sent to the family of the deceased. The new president, Mrs. J. Blemaster, on taking the chair, urged, in earnest words, the making of the present Club year, one of the best of its 29 years of usefulness. Several new committees were announced, after which the program committee reported and the neat new yearly programs were distributed to the members. Verses, treating of the subject of Death, were recited, very appropriately by Mrs. Frank Bottom. The morning program being concluded, the next hour and a half was interestingly occupied in the partaking of dinner and in social enjoyment. The afternoon exercises were opened with a vocal solo, pathetic in sentiment and beautifully rendered by Mrs. Millard, wife of the pastor of the M. E. Church, of Maple Rapids. Next came roll call, with responses consisting of "Humorous Sayings" of children. The question, "Is gift-giving at Christmas time overdone?" was next discussed, C. A. Mathews opening the discussion, followed by Mrs. G. J. Jewett and others. While extravagance should be avoided, the giving of appropriate gifts, possessing somewhat of the quality of usefulness, was earnestly commended. "Ought the surplus money from the farm be used to buy more land, or should it be used for the present benefit of the family?" was the next question dissected, bringing forth a variety of views, the majority of which appeared to favor, quite strongly, the using of surplus funds for the present good of the family, which should include the developing of the higher faculties through the true education of the boys and girls. Some earnest words were next spoken by several members in regard to the present efforts to secure a state-wide prohibition law by act of the present Legislature, and all who spoke urged that the proposed law be enacted. An instrumental solo, by Mrs. Dewey Luck, closed the exercises. The February meeting will be held at "Fair Oaks," with Mr. and Mrs. Wm. Newman.—J. T. Daniells, Cor. Sec.

Grange.

STATE GRANGE OFFICERS.

Master—John C. Ketcham, Hastings.
Overseer—C. H. Bramble, Tecumseh.
Lecturer—Dora H. Stockman, Lansing.
Secretary—Jennie Buell, Ann Arbor.
Treasurer—Frank Coward, Bronson.
Executive Committee—C. S. Bartlett, Pontiac; Geo. B. Horton, Fruit Ridge; J. W. Hutchins, Hanover; W. F. Taylor, Shelby.

PROGRAM FOR FEBRUARY MEETINGS.

State Lecturer's Suggestions for Second Meeting.

Song, "Why Don't Parents Visit the School?" By some of the school children.

Roll call with quotations from Longfellow.

"How can the Grange help to 'Standardize the Schools?' by a teacher.

Solo, "The Bridge," or some other song with the words by Longfellow.

Debate, "Resolved, that one-half the funds now spent for armament be used for building federal roads," by four young men.

Surprise feature, a contest on seeing who can write the most words from the letters in the name Washington.

Song, "Mount Union Bells," by the school children.

POMONA GRANGE IN SOUTH BOSTON.

The Pomona Grange meeting recently held at South Boston was a grand success from every point of view. The day was a typical Michigan winter's day. Before noon the sleighs in numbers began to collect in the yard and the old sheds were soon filled with horses. On entering the hall one was greeted with the pleasant odors from the kitchen which foretold the good things to come. After the friendly greeting of neighbor with neighbor, dinner was said to be ready and all responded quickly by filling the places at the tables. And such a dinner! No, none but the people of South Boston could do it so well. To this those present can well testify. When dinner was over those present assembled with others who came later, in the auditorium and the program opened by the president, after which the meeting was given in charge of Mrs. Frank Daniels. Owing to the fact that Mr. Ketcham could not be present during the entire meeting the order of the program was changed to meet his convenience and the part referring to "Liabilities" was at once taken up. He talked from 1:30 until nearly 4 o'clock, and it seemed to the writer that no one lost a single word of what he had to say. It was one of his usual spell-binders for which he is becoming famous. When he had concluded everybody present seemed to act as if glad he was there.

The speaker was followed by H. H. Lowrey, who spoke on the general theme of organization and dwelt upon the advisability of the country school district organizing into the township unit system.

The evening session was called for 7:30 and was opened with music, a chorus by the Berlin Grange. In this chorus there were 40 voices, the whole delegation from the Berlin Grange singing. The program was taken in order as arranged previously. Bro. Claude Lytell, of Berlin, rendered a number of solos at this session, to the enjoyment of those present. Velma Tucker played a piano solo to which she was accorded a hearty encore.

At the close a vote of thanks was extended the South Boston Grange for the royal entertainment given the visitors.

A delegation from the South Lowell Grange, the only one representing Kent county, was present at this meeting. Then a number of visitors not members were present at this gathering. Every Grange in Ionia county excepting two was represented.

COMING EVENTS.

The next Pomona meeting for Ionia county will be held in Belding on February 18. Miss Jennie Buell, secretary of the Michigan State Grange, will be the principal speaker. Theme, "Our Business Relations."

At a recent farmers' institute held at Sparta, the business men furnished an oyster dinner which was served by the ladies of Sparta Grange. This suggests another means of co-operation between Grangers and the local business men.

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Veterinary.

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

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

Worms—Farcy.—I have a mare which, to my mind, shows symptoms of worms; she also has quite a lot of small boils on inside of thighs, and another on shoulder. A. P., Moline, Mich.—Mix one part powdered sulphate iron, one part ground wormseed, one part salt and three parts ground gentian, and give her a tablespoonful at a dose in feed twice a day. If the discharge from boils is sticky, and if the sores are indolent, slow in healing, and if she remains unthrifty for two weeks longer, have her tested with mallein to ascertain if she has farcy or glanders, and if she reacts, she will, of course, have to be destroyed. The state veterinarian should be consulted if she re-acts to the Mallein test.

Sprained Tendons—Bone Spavin.—My ten-year-old horse sprained fore leg by snow collecting and freezing in shoe, causing the toe to tip up, allowing heel to sag. I also have a horse lame from bone spavin; starts out quite lame, but improves with exercise. C. H. W., Berville, Mich.—Apply equal parts turpentine, aqua ammonia, and olive oil to sprained parts every two days. Give your spavined horse rest, clip hair off bunch; apply one part red iodine mercury and four parts lard every ten days. If this treatment fails at the end of six weeks, have him fired.

Brittle Hoofs.—I have a Percheron mare four years old that has rather small feet; they are also dry, hard, and do not seem to grow as rapidly as they should. H. M., Quincy, Mich.—Clip hair off coronet and apply one part cantharides and six parts lard which will blister and stimulate a healthy growth of horn; also apply lanolin to brittle hoofs once a day.

Ringworm.—My calves, ranging in age from six months to one year, all seem to have a growing scab disease over the eye and I am quite sure one gives it to the other. E. A., Washington Co., Mich.—Your calves suffer from either ringworm or warts. Apply iodine ointment to sore parts cautiously every day or two.

Indigestion.—I have a steer nine months old that has bloated twice during the winter. Once a month ago and again a day or two ago. He runs loose with five others. I feed hay and grain in the morning, fodder at noon and bean pods at night. I have been giving him kerosene after bloating, but that is too severe—it seems to weaken him so much. What can I do to prevent these sick spells? W. K., Claire, Mich.—Give your steer a teaspoonful of hypo-sulphite of soda and a dessertspoonful of ground ginger at a dose in feed two or three times a day. If his bowels are costive, give him three-quarters of a pound of epsom salts. Discontinue giving him kerosene or you will perhaps cause his death. If he has a severe attack of bloat, give him large doses of hypo-sulphite of soda, or large doses of aromatic spirits of ammonia and do not hesitate to puncture him in left flank with a trocar and canula.

Loss of Appetite.—I have a six-year-old horse who occasionally loses his appetite for oats. H. A. F., Port Hope, Mich.—If his teeth are in good condition and he shows no symptoms of sickness, then frequently change his feed and give him a tablespoonful of ground gentian and a teaspoonful of hypo-sulphite of soda at a dose three times a day.

Rheumatism.—I have a two-year-old colt that suffers from a rheumatic stiffness in hind quarters, worse in one leg and unable to get up without assistance. I also have a 12-year-old mare ailing much the same way, but lame in one leg. She stands up all the time. F. S. D., Assyria, Mich.—Give two-year-old colt a teaspoonful of sodium salicylate and half a teaspoonful of powdered colchicum seed at a dose three times a day and rub hind quarters with alcohol twice a day. If her bowels are costive, give her a pint or two of raw linseed oil occasionally. Your other mare has an attack of rheumatic gout. If not in foal, give her one quart of raw linseed

oil to open bowels. Also give her a dessertspoonful of powdered nitrate of potash at a dose in feed three times a day, and rub her hind legs with alcohol two or three times a day.

Chronic Cough—Incipient Heaves.—My nine-year-old mare has been troubled with a cough for some time and I am inclined to believe she is developing heaves. C. S., Ludington, Mich.—Feed no clover or dusty, musty, badly cured fodder of any kind, also increase her grain ration and decrease her fodder supply. Keep her stable clean, well supplied with fresh air and properly ventilated. Give her 40 drops of fluid extract lobelia and ½ oz. of Fowler's solution at a dose in damp feed three times a day.

Unthrifty Mare.—I have a six-year-old mare that is fed 15 to 18 ears of corn a day with a little oil meal, bran and salt night and morning. Sometimes feeding her ground oats and corn, but she fails to pick up. S. M. V. N., Alto, Mich.—Mix one part powdered sulphate iron, one part ground nux vomica, one part ground wormseed, one part salt, four parts ground gentian and give her a tablespoonful or two at a dose three times a day.

Anaemia.—In this locality we have a disease which occasionally affects cows, called gaunt gut. The animal does not appear to be sick, seems to lose appetite, gradually loses flesh and usually dies. Had a case last winter which pulled through and cow fleshed up soon after grass came. Is this disease contagious? H. L. H., Wexford, Mich.—Lack of proper care, protection from storms, feeding an unbalanced ration, or insufficient stable ventilation and lack of proper nutrition gives rise to digestive disturbance, followed by anaemia and death. Feed grain, clover or well-cured corn fodder and roots. Give 1 oz. of ground gentian, 1 dr. ground nux vomica, ½ oz. of hypo-sulphite of soda at a dose three times a day. The disease is not contagious.

Diarrhea.—We have a four-week-old calf that is bothered with diarrhea. J. V. T., Nunica, Mich.—Give your calf an ounce or two of castor oil to clean him out, then give him 10 grs. of salol every four hours; also 20 grs. of sub-nitrate of bismuth three or four times a day. Sterilize the milk you feed him.

Abscesses on Face.—I have a heifer that has boils on face which first swell up, then open, discharge pus, then dry up. G. H. L., Hart, Mich.—Give your heifer a teaspoonful of Donovan's solution and a dessertspoonful of sulphate of soda at a dose in feed three times a day. Paint bunches with tincture iodine daily.

Chronic Cough.—For the past 12 months one of my breeding ewes has been troubled with cough. She appears to be a little worse this winter than last, has no discharge to amount to anything, from nose, has spells of coughing quite hard, but is thrifty and keeps in good flesh all the time. D. A., Montague, Mich.—Mix together equal parts ginger, ground gentian and powdered licorice and give her a teaspoonful at a dose in feed three times a day. If glands of throat are enlarged, apply tincture of iodine two or three times a week.

Sore Shoulders.—I have a mare that had collar boils. I removed part of collar padding, which relieved them some, rested her and healed all the sores; I then worked her a day with solid collar, and bunches returned, all going to show that she had not recovered. W. W. E., East Lake, Mich.—As you perhaps know, certain horses have a thin skin which is easily irritated and unless collar is fitted properly and the skin somewhat toughened with cooling astringents the shoulders will get sore. Dissolve ¼ lb. of acetate of lead, 3 ozs. of sulphate of zinc and 2 ozs. of tannic acid in a gallon of water and wet shoulder with this solution three or four times a day. It is good practice to make these applications to the shoulder when the animal is idle as well as when working. Furthermore, the collar or sweat pad should be kept clean and dried after use.

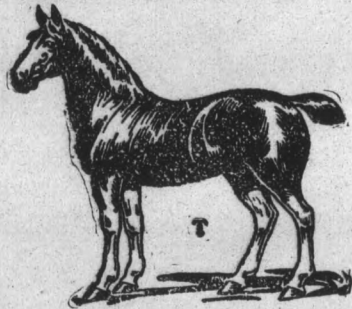
Snagged.—I have a two-year-old colt that jumped a board fence and ran a sliver into body about midway between elbow and stifle. The wound healed over, but there is left a bunch that appears and feels like a rupture. With the end of fingers you can put this bunch up into body, but in a minute it drops down. W. W., Central Lake, Mich.—The only treatment that will give you satisfactory results is a surgical operation performed by a competent vet.; however, this hernia (rupture) may never grow any larger or do any harm if left alone.

Nervousness.—For the past six months my seven-year-old mare has been inclined to switch and grow vicious and I would like to know what can be done for her. P. C. M., Petersburg, Mich.—She should be given more work and less feed; besides, treat her kindly, but firmly.

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If you are not positive as to the cause of your horse's lameness, mark on horse above where lameness occurs and tell us how it effects his gait, also tell age of animal. Our graduate veterinarian will diagnose the trouble and tell you how to cure it. This service is free.

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The Cattle will be sold the 4th day of March at 10 A. M. The latter will be sold the 3rd day of March, on my farm 2 miles Northwest of Bath. Train will be met by rigs. Free Lunch.

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FOR SALE—One Pair of Ch. Belgian Gold's 5 yrs. old, wt. 2800 lbs.; One Pair of 5 yr. old Percherons, wt. 2800 lbs.; One Pair of Brown Belgian Geldings, wt. 2850 lbs.; One Blue Roan Gelding, 6 yrs. old, wt. 1540 lbs.; One Brown Gelding, 5 yrs. old, wt. 1500 lbs.; one Bay Blooky Mare, 6 yrs. old, wt. 1500 lbs.; One Red Roan Gelding, wt. 1300 lbs., 7 yrs. old; One Black Mare, 8 yrs. old, wt. 1350 in foal to 2000 lb. Belgian Stallion. No. of other single Mares and Geldings suitable for Farm or Draft Purposes, also one Bay Road Horse 4 yrs., sired by Online. Horses for all purposes at the right price. Quality considered.

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Four Pure Bred Angus Bulls. Extra good ones. One show bull. Eight and nine months old. Priced reasonable. Inquire F. J. WILBER, Olio, Mich.

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GUERNSEY CATTLE.

Guernseys—Famous May Rose Strain. A select herd. Tub. Tested. Several A. R. O. Cows. J. K. Blackford, Windermere Farm, Watervliet, Mich.

Registered Guernseys—Cow and two heifers. Also good Oollie female eligible to registry. G. A. WIGENT, Watervliet, Michigan.

For Sale Reg. Guernsey Bulls, Berkshire hogs, sow and gilts, and gilts bred for spring farrow. Write JOHN EBELS, R. 10, Holland, Michigan.

HEREFORD; Three bull calves and one two year old.
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Registered Holstein Friesian Sires—Grandsons of the World's Greatest Dairy Sire. They are out of choice A. R. O. dams. Their sire is: Half brother to the World's record cow 44.15 pounds in 7 days. Average record of 50 dams in his pedigree 31.25 lbs. in 7 days. Average per cent of fat three nearest dams 4.37. Sires in first three generations already have over 500 A. R. O. daughters. Prices reasonable so you can have the best.



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She has a \$20,000 sire with 9-30 lb. daughters. She also has a \$10,000 dam, (year's record: Milk, 2202; Butter, 1088 lbs. Bull calves ready for service, \$100 up.

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Hereford Bulls for Sale—We offer a few yearling bulls and some Polled bull calves about seven months old. These are well bred and will be priced right. **BEAVER LAKE RANCH CO.,** Alpena, Mich.

\$25 Delivered—Handsome thoroughbred Holstein Bull Calf. Not eligible to registry. By 24-pound butter bull, and heavy milking cow. A beauty. Half white. **ROUGEMONT FARM S.,** Detroit, Michigan.

Registered Holstein Cattle. Young bulls for sale from A. R. O. Cows. Sired by Hengerveld Coin Pletertie. Prices reasonable. Floyd F. Jones, R. No. 3, Oak Grove, Mich.

\$50 cash, balance note, gets H. F. bull calf. You will be proud of both. Individuality. Write for buying good ones. M. L. McLaughlin, Redford, Mich.

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OFFERS FOR SALE A SPLENDID Registered Holstein Bull Calf

A bargain for a quick sale
A few females for sale.
CHAS. S. OSBORN, ADAM E. FERGUSON, Owners.

FOR SALE—Fine 3 year old Holstein heifer bred to grandson of Colantha Johanna Lad. Also beautiful bull calf. **GEO. D. CLARKE,** Vassar, Michigan.

A Choice Holstein Bull Calf

From a 30 lb. bull, full brother in blood to the World's Champion Holstein, the World's Champion 4-yr. old, and own brother to the 3d greatest cow. Dam an 18 lb. three year old.

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Holstein Bull—He has a 20.73 lb. dam with a 20 lb. dam. His sire has a 30 lb. dam, 125 lbs. 30 days, and a 31.26 lb. 4-yr. old sister. 2 months old. \$75 delivered. Hobart W. Fay, Mason, Michigan.

A BARGAIN ONLY \$50 Registered Holstein Bull Calf. Best blood and best A. R. O. book on both sides. Half white. Perfect and handsome individual. **Bougemont Farms,** Detroit, Mich.

High Class HOLSTEINS My herd is headed by Smithdale Alcatraz Pontiac, whose is the famous Alcatraz Polkadot. Have few young bulls and females for sale at reasonable prices. Will raise a few heifers about 18 months old. Farm 3 miles from court house. **SETH B. RUBERT,** Howell, Mich.

Q Mo. old Holstein Bull—Sire has 34.31 lb. sister—Dam has 25.77 lb. sister. De Kol 2d, Butterboy 3d breeding. Price low, quality considered. **ELMER E. SMITH,** Redford, Mich.

\$50—Takes your choice of 6 fine bull calves from 2 to 6 months old, from good A. R. O. Dams. **WM. GRIFFIN,** Howell, Mich.

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Extra large fine young bull, 3/4 white, born Oct. 4, 1913. Dam has official record of 29.40 lbs. butter in 7 days, 117.50 lbs. in 30 days. Sire's dam is a 22.64 lb. 4-yr. old daughter of a 30.59 lb. cow.

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2 Two-year-old Heifers, bred.
1 Six-year-old grand-daughter of King Segis, due in December.

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Berkshire Hogs—Choice gilts bred to farrow in March and April. Also a number of Barred Plymouth Rock Cockerels. **Chase's Stock Farm, R. No. 1, Mariette, Mich.**

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Hampshire swine, some good Boars for Breeding and some Fall pigs both sexes at right prices. **West Wind Farm, Pontiac, Mich. E. P. Hammond,** owner. N. A. Wiser, manager.

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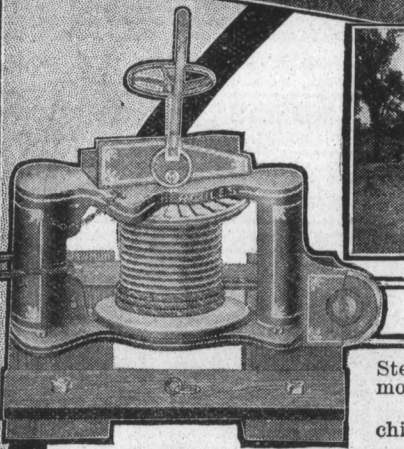
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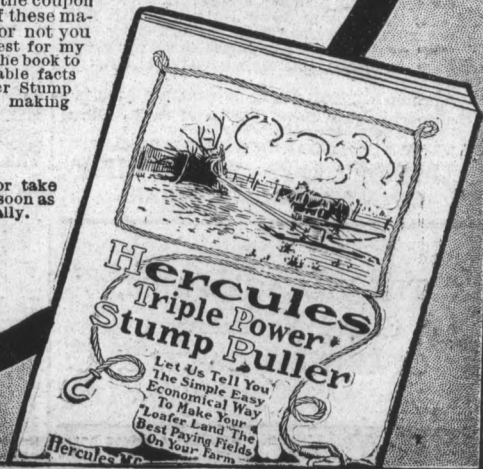
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