

MICHIGAN FARMER

AND LIVE STOCK JOURNAL.
PUBLISHED WEEKLY. ESTABLISHED 1843.

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

VOL. CXLIV. No. 11
Whole Number 3826

DETROIT, MICH., SATURDAY, MARCH 13, 1915.

50 CENTS A YEAR.
\$2 FOR 5 YEARS.

The Field Pea in Michigan Agriculture

By EDW. E. EVANS.

FORTY years ago field peas were a common crop in Michigan, clear down to the Ohio-Indiana line. I remember having seen large fields of them in Washtenaw, Hillsdale and Calhoun counties in 1872-3, and they seemed to be as good as any crops we have ever grown in north-eastern Michigan. I have also seen some fine pea fields in southern Pennsylvania, and have personally grown very fine peas from seed that came from India, Abyssinia and Spain. The idea that peas can be grown only in northern, cool, moist climates is entirely erroneous. Certainly they will not stand hot, dry weather, particularly with high winds, during their period of growth. On that basis you can grow good peas in any state east of the Mississippi, clear down to the Gulf. Many varieties attain maximum growth in 60 to 70 days. The Gulf states have longer periods of ideal pea weather than that. Weather bureaus' tables of temperature and rainfall show that some parts of the southern states have longer periods of good pea weather than any part of the lower peninsula of Michigan. I do not mean that our best peas are ready to harvest in 60 or 70 days, but they reach their full growth in that time, and are ripe (dry) and ready to harvest in seven to 15 days more, depending upon the variety and weather. The great difficulty here, as at the south, is to get farmers to sow peas early, as soon as it is safe to sow oats. One will stand as much frost as the other, with the advantage in hardiness slightly in favor of the pea. I have known thousands of acres sown in June. If such crops make a good yield it is not due to good judgment or good farming.

Insect Pests.

The growing of peas as a money crop has occupied a very large acreage in Michigan for more than half a century, but the appearance of the pea weevil in the southern counties for many years forced the growing area northward, until at present the forty-fourth parallel of latitude may be considered the southern limit of the real pea district of Michigan, where peas

are grown for market. In all the north-eastern counties, from Iosco, Ogemaw and Roscommon northward, there have been sporadic appearances of the weevil, but never in sufficient numbers to prove a serious menace to the industry. I do not recall a time in 18 years when Ogemaw county was entirely free from the weevil, nor a

time when one-tenth of one per cent of the crop contained "bugs."

The green pea louse, which first appeared here eight or nine years ago, and is easily the most deadly insect enemy of the pea, has made but one serious attack, in 1914, when it appeared simultaneously in the pea fields of Wisconsin, Michigan and Ontario.

Its presence here was first noticed on July 3, and during the ensuing six days it damaged the crop about 40 per cent. Fortunately the lice were practically exterminated by the general rain of July 9-10. In some fields they did not appear; in others only in spots, generally where the vine growth was most luxuriant, while in some the damage was at least 70 per cent. Fortunately the serious attacks of this insect appear like those of the army worm and grasshopper, to depend largely upon favorable weather conditions or causes unknown. On July 4 I dusted a small plot in my trial grounds with a mixture of gypsum and ashes. On this plot no lice appeared and the yield of peas was phenomenal. This season I shall heavily lime all ground intended for peas.

Climatic Influences.

The most serious setback ever received by the pea industry of this district began with the 1910 crop, continuing during the two succeeding years, during which the annual crop of the district was reduced 75 per cent or more, a loss that could not be attributed to either insect pests or disease. Some farmers said their land had "gone sour," but the litmus paper said emphatically, "no." Some said their land was "pea sick," but those who still had "sand" enough to plant peas in 1913 were rewarded by normal crops, while the yield in 1914, in fields not damaged by lice, was above the average. You could not blame any decent soil if it did "get sick" of growing four to six crops of peas, beans, clover or corn in ten years.

This same district, beginning about 1900, performed some of the most remarkable feats in clover seed ever recorded. Yields of six to eight bushels were so common as to cause no comment. Yields of 10 to 14 bushels of seed per acre are matters of record. The whole district went clover crazy—talked, thought and dreamed clover seed. And then, I guess, the land was affected by clover artrophy. Our rocket was a burned-out stick. A man said to me last fall: "I don't know what is the matter with the clover crop. I have a field of alsike that I have cut



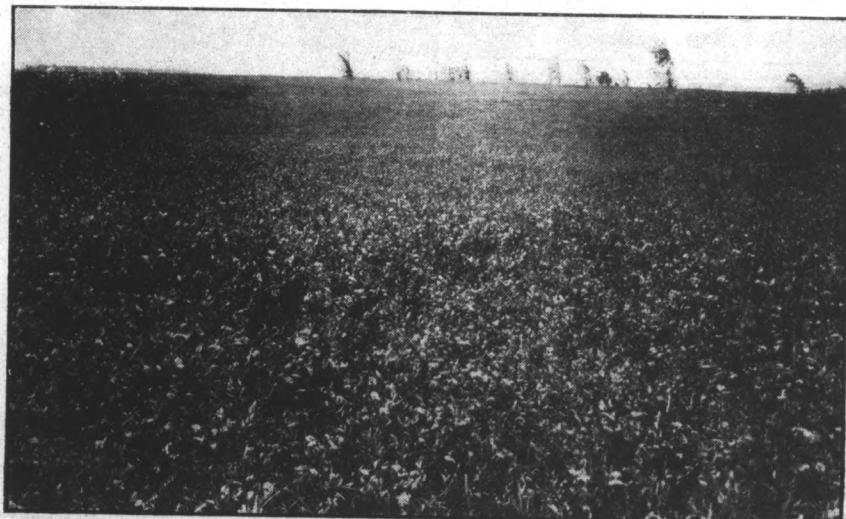
Eighty Varieties of Field Peas Growing in Trial Grounds.



Growing "Stock Seed" of Field Peas of Selected Varieties.



Harvesting "Khaba" Field Peas in Ogemaw County in 1914.



Field of "Kaiser" Peas Grown in Ogemaw County in 1914.

Insure Your Seed

Success with CLOVER, ALFALFA, Peas, Beans, Vetch and all other Legumes.

A "catch" — bigger yield — greatest feeding value — richer soil for succeeding crops.

Inoculate all Legumes with

THE IMPROVED GERMAN SOIL INOCULATOR ROSS-HILTMER PROCESS

NITRAGIN

PURE CULTURE

THE SIMPLEST SAFEST AND SURIST SYSTEM OF SOIL INOCULATION FOR ALL LEGUMES AWARDED GOLD MEDAL, ST. LOUIS, 1904

For success with legumes you must have air nitrogen. Each can of "NITRAGIN" Pure Culture contains billions of germs, without which legumes cannot take up air nitrogen. Vitality and virulence of germs guaranteed for six months.

Packed in ventilated cans. Nothing to break or spill. Harmless, easy to use. An investment — not an expense. Don't buy imitations. Look for the Armour oval label.

See your seed dealer or write for free booklet

ARMOUR FERTILIZER WORKS, Dept. 79

Chicago, Ill. Baltimore, Md. Atlanta, Ga.
Greensboro, N. C. Jacksonville, Fla. Nashville, Tenn.

MAKE YOUR HOGS YIELD BIGGER PROFITS

Clean, healthy Hogs become the fattest, and yield the best profits. Keep your Hogs healthy — make them produce bigger profits by using Meyer's Hog Lubricator.

Hogs Like It

Meyer's Hog Lubricator

Newest and best way to oil Hogs. Works on new principle. No Valves, Springs, Wheels or Gears. Nothing to get out of order. The most simple, durable and efficient device of the kind made. Requires no attention except to fill oil tank occasionally.

Cures and prevents Lice, Nits, Mange and other Vermin-caused Skin Diseases. Prevents Worms through Hogs eating our specially prepared Antiseptic-Disinfectant Hog Oil. Tends to prevent Cholera, as well as Hoof and Mouth Disease.

Price low. Write at once for particulars of 30 Day Free Trial Offer, and our \$10,000.00 Guarantee Bond.

Agents Wanted

30 Days Free Trial

The Meyer Corporation
136 Main St., Morton, Ill.

Light Running Silberzahn

So strong — so durable — so dependable — so simple — so absolutely superior to all others is the "Light Running Silberzahn" that it has been pronounced

"The King of Ensilage Cutters"

Has strongest built frame, throat and blower that never clog, positive safety device; and with its accurate knife adjustment produces that fine uniform ensilage you are looking for. Speed of blower can be regulated according to height of silo. Thousands in use — Ask the man who owns one — he'll say "By all means get a Silberzahn".

Write for catalog and proof.

GEHL BROS. MFG. CO.,
1542 S. Water Street
West Bend, Wis.

Buy This **MIXER** For \$49.50 Only

The Van Duzen mixer saves enough material to pay for itself. Makes a quicker, better mix than back-breaking labor with a hoe.

A Mix a Minute

Hand or engine power. Mounted on skids or trucks easily moved about. Machine-mixed concrete lasts forever.

FREE Booklet on "What To Use and How To Mix and Lay Concrete." Write today.

THE VAN DUZEN-BOYS CO.,
403 Hartman Bldg., Columbus, Ohio.

IT TELESCOPE

PROOF AGAINST Rats and all Enemies

Circulars Free

CYCLONEMFG.CO.
DEPT. L, URBANA, ILL.

for seed nine years and it never failed me before." Oh, well!

As a matter of fact, the shortness of the pea crops of 1910-12 was due to the fact that during the blooming period each year we had continued dry, hot southwesterly winds, which caused the blossoms to fall, or to form very short or half filled pods. There were a few normal yields in those years, nearly all on early sown fields, that were past bloom when the hot winds came. The same conditions will knock out a pea crop, anywhere any time.

Present war prices for field peas will stimulate the sowing of a larger acreage this season, as will be the case with beans. This will be all right — if the war still continues and we can still get the goods to the war zone.

It is to be hoped that peas, beans and clover will each take their proper place in orderly crop rotation, in place of the jumping-jack style of farming so frequently followed in the past.

Varieties.

I have grown experimentally or as field crops more than one hundred varieties of field peas from many lands, including nearly all the countries of Europe, India, China, Japan, Abyssinia, Chile and New Zealand, but have found only one variety that, under our conditions, could compete with the French June (Russian, Kovaleff), which I placed on the American market in 1900. This latter variety raised the output of Ogemaw county from less than 10 to more than one hundred thousand bushels per annum in six years. A small blackeyed pea which one of our agricultural explorers brought from China, and which I have named Chang (in honor of China's greatest statesman, Marquis Li Hung

Chang), is probably a week earlier than the June, and its vine growth perhaps six inches longer. The peas are small, about the same size as the old Golden Vine. This variety will not be in the market for two or three years. The Kaiser, an introduction by the U. S. Bureau of Plant Industry, is a midseason variety, with rather heavy foliage, colored blossoms and wrinkled gray seeds. Under extended trials in several states it has proven remarkably resistant to heat. It has done very well in field culture in Ogemaw. I experimented with the Russian Khaba for eight years, finally introducing to the American trade in 1909. This is a long, heavy vined variety, rather late. The peas are an exact counterpart of the Scotch Beauty green pea, except in color, which is a golden waxy yellow. It is in the first rank of soup peas or "cookers." Canadian breeders have produced some fine cross-breeds of the Marrow-fat type, of which Nelson and Gregory (white) and Paragon (a blackeye), have made the best showing in my trials. All three are superior in yield to the old White and Blackeye Marrowfats. I will say here that none of the large seeded peas, though requiring much heavier seeding, have been able to compare in yield with the best of the smaller seeded type. The old Golden Vine, so ancient that its history is lost, was brought to America by the early English settlers of Virginia and Massachusetts. Prior to the days of French June it was the most common variety in the United States, and is still grown in the Upper Peninsula, though rapidly disappearing before its smaller and earlier relative.

(The nineteenth of 52 special articles to be published in consecutive issues of the Michigan Farmer.—Eds.)

Planning for Increased Profits

AT this time when plans are being made for the coming season's work it is well to plan especially for abundant yields of all crops grown on the farm this year. Too many farmers, in our opinion, plan for a large acreage of the various crops but they neglect to seek ways and means of increasing the productivity of their fields as compared with the yields secured in preceding seasons. The price of all farming lands has increased rapidly, farm wages are higher and nearly all raw materials which enter into the production of farm crops and animals cost more now than they did a few years back. These facts should inspire farmers to make their land more productive in order that a fair rate of interest may be secured on the investment.

Of course, weather conditions over which farmers have no control always influence the yield of crops to a certain extent, and there will be seasons when unfavorable weather conditions will make it impossible to secure large yields, even though the best efforts be directed to that end. But in starting work in the spring we usually assume that the weather will be favorable for the season's crops, and since in a normal season yields can be greatly increased if a little effort is made along that line, it is well not to neglect this phase of the farm work. The use of improved machinery, better preparation of the seed bed, better seeds and the use of fertilizers, and more intensive tillage of the growing crops will in nearly every instance very materially increase the yield; and an increase in yield of one or more bushels per acre means just that much more profit money, minus the extra expense of seed and labor required to produce the additional yield. But since the necessary field expenses of producing a crop are about the same whether the yield be heavy or light, by using better seeds and fertilizers the expense of producing a crop is not greatly increased but the net returns from

the crop may be increased several fold.

There is a vast army of earnest, well-equipped workers and experimenters working all over the land with the object in view of making farming lands more productive — no other occupation has such forces operating for it as those that operate for the farmer. But these men can accomplish no permanent results unless farmers will accept and apply the information that is secured for their benefit.

Ambition vs. Disease.

The ambition to own and cultivate broad acres is undoubtedly a laudable ambition, though it is sometimes termed a disease. This "disease" is perhaps not so much a sordid desire to add to worldly possessions as it is for a gratification of the desire of dominion. The man who owns only a small farm or the renter is often tempted to rent adjoining acres with the hope of increasing his income so that he, too, may become the owner of broad acres. But it is a lamentable fact that many ambitious farmers who try to farm all their neighbors' lands learn at the end of the season that their additional acres have not returned any profit, but rather, that they have been the cause of a serious loss at home. Good advice for any farmer to heed is: Don't go a distance from home to rent land unless you have a surplus of help, teams, tools, etc., that cannot profitably be employed on the home farm. In other words, don't "bite off more than you can chew." The farmer who is short of help is usually behind with his work during the entire season, for in the last few years the problem of securing good help has been a difficult one to solve in many sections when the busy season is on us.

Better Work Means Increased Profits.

The most practical way of increasing one's acres is to do better work as outlined above on the acres you already control. When an acre is made

to double its product, the acres are doubled, but the investment and care have not increased in the same ratio. A farmer may, by hard work and economy, make a living by raising ten bushels of wheat, twenty-five bushels of corn and fifty bushels of potatoes to the acre. Twice the number of acres with the same production will not much increase his profit, but will double his work and worry and investment. But twice the yield to the acre will mean more than five times the other profit, with but little more work and investment. The love of domain may not have been gratified in increasing the production of the land, but the spirit of conquest has; the primitive reaching out for more land has grown to the keen intellectual pleasure of having made better land.

Make preparations this spring to provide an abundance of pasture for stock, and then raise more cattle and hogs. Taking one year with another, cattle and hog feeders make money, but they realize their greatest net profits only when grain is fed in connection with good pasturage. In traveling through the country I have observed that many of the pig pastures are not pastures in fact, but simply small runs. This means that the pigs get a little grass or clover while it is at its best early in the spring, and go without the rest of the season. It also means that before fall the soil will be rooted over and over again unless the pigs are rung frequently. Those farmers who have tried the plan testify to the fact that it pays exceedingly well to give the growing pigs a good big pasture where they will have more range and all the grass, clover particularly, they will eat and some to spare. It has been found that clover is very much cheaper feed for pigs than grain; that fattening hogs will make the same gains on at least 25 per cent less grain where they have access to good clover pasture. If this be true, why not arrange to give the pigs all the clover they will eat in order to increase the margin of profit in pork production? W. F. PURDUE.

SPRING CLEARING OF NEW LAND.

The task of clearing new land of stumps is usually delayed because it has been thought necessary to do it during the active summer campaign on the farm. It has been generally considered impracticable to do anything at land clearing in March before the frost is all out of the ground or even in November after the ground commences to freeze in the fall. The introduction of new low freezing explosives for blasting stumps, however, has made it possible to do this work much earlier in the season and much later in the fall than was formerly practicable, in fact, this kind of work can be carried on in any weather when it is possible to bore the holes under the stumps, it not being necessary to thaw these modern explosives in order to use them successfully. There is a better prospect than usual for high prices for farm products grown during the present season and a great many farmers could increase their area of cash crops by clearing areas of cut-over land before the active spring season commences, thus enabling them to utilize the ground for crops during the present season. This advantage, together with the advantage of getting this kind of work out of the way before the rush of spring work comes is a strong argument in favor of the use of this method of clearing stump land at the present time. The longer the European war continues the greater will be the demand for American products, not alone during its progress but after it is finished. The American farmer is assured of a market for every product which he can grow this year, and on this account should increase his production to the maximum of his ability. Wayne Co. C. A. H.

LIVE STOCK AND SPECIAL CROPS.

The fight against hog cholera and foot-and-mouth disease will continue until these plagues are stamped out—for a time. But the risk and anxiety will remain and sooner or later another outbreak will bring further loss to stockmen. This makes the tiller of the soil wonder if he may not reap better returns by selling his crops than by feeding them.

A clearer understanding of this problem will be had when the farmer realizes that if he feeds his crops to live stock he is running two separate enterprises. As a cropper he sells grain and hay to himself as a feeder. The stock must be charged for what they eat at market prices, no matter who grows their feed. The advantage in raising stock where their feed was grown is the saving in hauling of the crop to market, and the return to the soil of the resultant manures. There are thousands of cattle and hog men who admit that the manure is their only profit.

Investigations made by the Department of Agriculture (reported in Bulletin No. 41), show that the average yield of crops on grain farms is but slightly less than on the live stock farms. As a matter of fact, animals are not made from nothing. Manure is only a more "available" form of hay and grain. The same amount of straw, stubble, cornstalks, etc., returned to the land will supply as much fertility as if fed to animals and the manure scattered where the crops were grown.

Live stock alone can not maintain the fertility of the soil. No land ever was or ever will be made rich from manures from animals fed exclusively by the crops grown on the land.

Under a system of grain farming, nothing but the grain and seed are sold. All roughage is put back on the land, even the clover haulm after the seed is hulled out. Phosphorous must be applied in the form of purchased fertilizers and crops of clover or other legumes must be plowed under; but these elements must be added also in the case of live stock farming.

Whether exclusive grain farming can be made profitable or not will depend upon the relation of yield to price. If a farmer can grow a heavy yield per acre with small expense for the increase above the average, and average yields hold prices up to a fair level, he can make a goodly profit on his labor and investment.

World competition in grain growing keeps prices at a low level because the growers do not set the price on their own product—they blindly accept the "quotation" which is governed by the law of supply and demand. The law does not operate naturally, but unscrupulous speculators manipulate the visible supply and thus control the price.

No radical change is recommended but the grain grower and the farmer who diversifies and the live stock farmer might as well raise something else besides staples. The writer has heard hundreds of farmers say they made no money in oats. If so, why raise oats? Others declare there is no profit in wheat at current prices. Some extensive experiments in the Red River valley demonstrated that it costs over a dollar a bushel to grow wheat. To sell hay extensively means soil exhaustion. To feed it involves grave risks and questionable returns, even if all the manure were applied to the land. As a matter of fact, a large per cent of the manure is wasted.

The salvation of the average farmer is along the line of mixed farming, establishing a self-supporting home, producing everything that can be done economically for home consumption, and specializing in one or more money crops in which can be put both skill and experience.

Illinois.

H. A. BEREMAN.

TRY-A-BAG—TRY-A-BAG—TRY-A-BAG

Give Every Stalk a Square Meal

IT PAYS. Just as it pays to put steers in prime condition by supplementing pasturage with grain, just so it pays to treat your crops; to give them the *quickly available* kind of plant food in addition to the slowly available plant food already in the soil. No matter how splendid your pastures may be, yet prime beef demands concentrates, and no matter how rich your soil may be, bumper crops demand *active, soluble, fertilizers* which are plant concentrates. The actual feeding period (about 60 days for most crops) is not long enough to allow abundant absorption from usual sources, and just as sure as it pays to feed concentrates to stock, it pays to feed concentrates to crops. It's a matter of give and take. Don't be satisfied with less than a 75 bushel corn crop. You can probably get more, by supplementing good cultivation, green crops, liming, etc., with

A. A. Brand Fertilizers

Get a big increase *this season*, at a good profit on the investment. It's just a plain business proposition of "give a little and get much."

"Try-a-bag" \$2.00 to \$4.00 worth will show you on an acre. Prove to your satisfaction at this small expense, that if you "feed the plant it will feed you." You'll find your experiment crop has more vigor, matures earlier and is better quality. You can plant later yet harvest earlier, thereby insuring against early frosts. Our effort in making A. A. Fertilizers superior is to make their Nitrogen, Phosphorus and Potash most highly available. We've succeeded—as thousands of farmers will testify. Yet there is no loss from contact with air and leaching in A. A. Brands. A. A. Fertilizers for corn are especially successful. They contain every element required for quick, heavy growth. We have a splendid agency proposition to make you—also a carload order inducement. Our two books "Plant Food" and "The Problem of Fertility in the Middle West", are free. Write for them today—at the nearest branch, and don't forget to "Try-a-bag".

THE \$1000 CORN-GROWING CONTEST

for Indiana and Ohio last season showed yields of 82.5 bu. to 115 bu. per acre. A. A. Fertilizers did it. "Try-A-Bag" yourself.



The American Agricultural Chemical Company

Cincinnati, Cleveland, Detroit, Buffalo, Baltimore, New York

TRY-A-BAG—TRY-A-BAG—TRY-A-BAG



Let me send you a **WITTE** Engine, to earn its own cost while you pay for it.

GET your engine from an Engine Specialist, on any suitable reasonable terms, at a fair price. **LOOK AT THESE NEW PRICES!**

2 H-P, \$34.95; 4 H-P, \$69.75; 6 H-P, \$97.75; 8 H-P, \$139.65; 12 H-P, \$219.90; 16 H-P, \$298.80; 22 H-P, \$399.65. Portable Engines Proportionally low. Why pay two prices for any good engine, or take chances on a poor or an unknown engine, when the "WITTE" costs so little and saves you all the risk? You can pay more than my prices, but you can't get better engine-value from anyone. That's what my thousands of customers say and they ought to know.

WITTE ENGINES, Kerosene, Distillate, Gasoline and Gas

LIBERAL 5-YEAR GUARANTY.

DIRECT FROM FACTORY TO USERS EVERYWHERE.

Styles—Stationary, Skidded, Mounted and Special Sawing. Thousands in use in all parts of the world. Standard for 27 years—almost ever since there have been any gasoline or oil engines.

In all those years the "WITTE" has proved its high-quality value at all

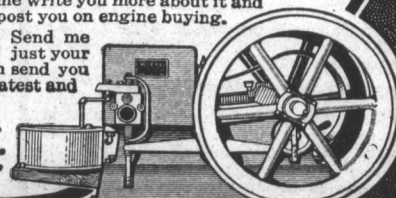
kinds of work, in all parts of the world. It is today better than ever, while the price is lower. My manufacturing advantages make this possible. I am simply sharing my advantages with engine buyers. Let me write you more about it and post you on engine buying.

Send Your Address

name and address so I can send you my New Book with my latest and Best Offer by return mail.

Ed. H. Witte, Witte Iron Works Co.

2192 Oakland Avenue, KANSAS CITY, MO.



When Writing to advertisers please state that you saw their ad. in The Michigan Farmer.

Don't Stop Spraying

It is easier to keep up than catch up. It takes two years for trees to bear after the foliage is destroyed. Remember, too, that dormant spraying is important, and in some states spraying is compulsory. Sprayed fruit is good fruit, and good fruit always brings a good price in any season.

IRON AGE



Bucket, Barrel Power and Traction Sprayers include 70 combinations for orchard, field, garden, poultry house and home uses. Our "Spray" booklet shows how you can buy barrel or bucket Sprayer now and build to larger uses when you need it. Ask your dealer to show this line and write us for "Spray" booklet and our spray calendar, both free. Bateman Mfg. Co. Box 244, Glenloch, N.J.

ALFALFA

AMERICAN NORTHERN GROWN

Our Fall Book tells how to succeed growing Alfalfa on any soil or climate east of the Missouri River; how to sow; how to harvest; what to do to retain a perfect meadow. We refuse to handle "Turkistan" or "Dwarf Alfalfa," our seed is all American grown, guaranteed dodder free and 99% pure. We can furnish Nebraska, Montana or Dakota and Grimm seed at very moderate prices.

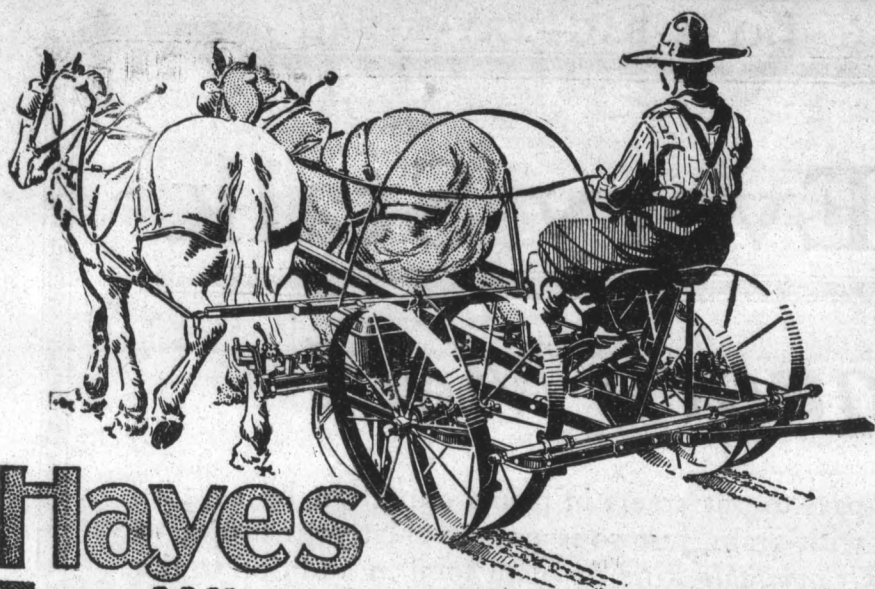
GRIMM ALFALFA We have the Genuine Grimm as well as Hansen's great new Siberian varieties. Also "Dakota 30" and Nebraska seed.

ALFALFA PLANTS beginning the new hardy varieties.

CLOVER AND GRASSES Northern grown and of strongest vitality. We can furnish grass mixture suitable for any soils.

WING'S GARDEN AND FLOWER SEEDS Are of highest quality that can be produced—fully described in our free catalog. Write for it today.

WING SEED CO., Box 243 Mechanicsburg, O.



Hayes Four Wheels—Bigger Yields

GOOD seed, rich soil and favorable 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 complete control—the one thing you can regulate to insure a bigger yield.

The Hayes Four Wheel is guaranteed. 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 cultivation, an earlier harvest, a better quality 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. Fewer 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 practically 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 aggravating delays in the busy planting season. 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.

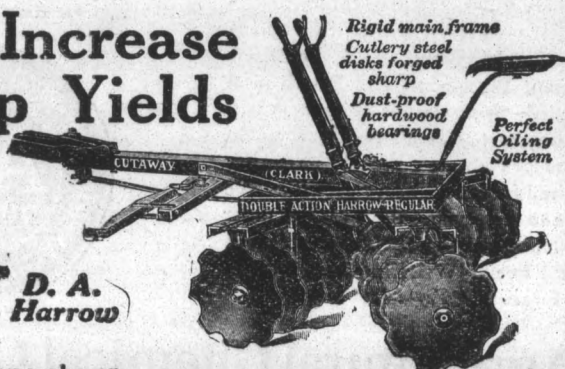
Free book AC of Planter Facts tells all about the Hayes. Write for it today—a postal, or if you wish a letter, asking any questions on planting problems.

HAYES PUMP & PLANTER CO., Galva, Ill.

You Can Increase Your Crop Yields

Regardless of conditions your yields will be larger if you use a

Cutaway D. A. Harrow



No other disk harrow of any make or style approaches the CUTAWAY (CLARK) Double Action for pulverizing the soil, for saving time or for saving horses. The rear disks always cut just midway between where the fore disks cut. Every inch of the soil is pulverized and aerated. With the CUTAWAY (CLARK) Double Action Harrow you can save

25 to 33 1/2% in time. Compared with any single harrow it does 50% more work with the same horse power. It is made in sizes to meet the needs of every farmer. The disks are of a special steel rolled to our own analysis and forged sharp. The bearings are dust-proof oil-soaked hardwood, perfectly lubricated.

Ask your dealer to show you the CUTAWAY (CLARK) Double Action Harrow. If he doesn't handle CUTAWAY (CLARK) tools, write us at once. We ship direct where we have no agent. Send for new catalog.

THE CUTAWAY HARROW COMPANY, 992 Main St., HIGGANUM, CONN.
Maker of the original CLARK disk harrows and plows

Look for the Red Ball

The reasons why you should look for the Red Ball on rubber footwear are the easy fit that you get in "Ball-Band" and the longer wear you get from it.

"BALL-BAND"

Figure the cost of "Ball-Band" Rubber Footwear on what it costs per day's wear, and you will be surprised at how little it costs to keep your feet and legs dry and comfortable.

Write for Free Illustrated Booklet, "More Days Wear"

It tells how to make rubber footwear last longer—tells what is good for rubber and what is not.

50,000 stores sell "Ball-Band" Rubber Footwear.

If the store you regularly patronize does not sell "Ball-Band" write us giving the merchant's name and we will see that you are fitted.

MISHAWAKA WOOLEN MFG. CO.
319 Water Street
Mishawaka, Ind.

"The House That Pays Millions for Quality"

Bacteriology in Relation to Agriculture.

By DR. CHARLES E. MARSHALL.

(Continued from last week.)

The dairy stands out peculiarly as an instance of a bacteriological laboratory in practice, for there is scarcely an act which is not more or less subject to the influence exerted by micro-organisms.

At the start the cow becomes a suspicious creature lest she harbor the germs of some disease. Some of the bovine diseases, as tuberculosis, are transmissible to man; accordingly every effort on the part of man to protect himself is exerted. Laws are enacted and inspection established to curtail the dangers. Each year contributes to the exactness of the knowledge and to the definiteness of control work, both of which redound to the benefit of the producer and consumer.

Even after the milk leaves the cow, further possibilities of disease finding its way into milk exist. The milker, or those having to do with the milk, the water supply and other agents, may furnish contaminations which will produce disease in the consumers. Typhoid fever as an illustration has been known to infect milk through the milker and also through the water employed in cleansing the utensils, thus carrying to the unsuspecting public a dreaded disease.

Besides the diseases which are associated with milk, are troubles arising from the changes produced caused by the entrance of filth organisms. These are borne on the dirt, hairs, dust, straws and other vehicles which center in the pail and milk during milking. At this stage the producer finds his daily trials. Like an army the micro-organisms sweep down upon the milk as if it were a fortress to be captured. To hold this army of micro-organisms in check is the duty of the milker. The avenues of attack are so many that few producers succeed; consequently there are found in some milk only a few hundreds of micro-organisms, while in those milks which are not handled so effectively, there may be millions per cubic centimeter. No one but the producer can fully understand what it means to keep micro-organisms out of milk during the milking of a cow.

Once in it, there is a struggle to get rid of them or stay their activities. Accordingly, straining, cooling, pasteurizing and other methods are resorted to. Of these, perhaps cooling and pasteurizing are the most valuable.

For some reason people have learned to prefer butter made from sour cream, and cheeses which have been treated in various ways with different micro-organisms. Of late years, too, Americans have been following the customs of eastern Europe and western Asia by using fermented milk drinks, as koumiss, kephir, yoghurt, mazoon, and have grown more fond of their own buttermilk.

Sanitation and Diseases.

No branch of bacteriology has made greater strides or done more for humanity than sanitary, hygienic, and medical. Health is concerned, which means happiness and ability to do. The farmer is as much and vitally involved in this as any class. While the good of man alone is the ultimate purpose of workers in this phase of bacteriology, the farmer is additionally economically affected, because what applies to man in disease sanitation and hygiene may in a modified sense apply to animals. It may further be said that all men, whether farmers, business or professional men, are interested in the conservation of food animals. From this we may conclude that the farmer has his own health to preserve for individual usefulness, and the health of his animals for financial reasons and for the good of the world

at large, because he has a responsibility in the production of food.

In 1850 very little was known about infectious or contagious diseases. Plagues visited countries and decimated the population, and as an unseen force laid low thousands of animals and ruined many husbandmen. Asiatic cholera and the pest traveled where they would without interference other than the obstacles they placed in their own way. Tuberculosis was not known to man, but it caused greater ravages than even now, through its subtle approach and its persistent and uncontrolled destruction. Typhoid fever came as a thief in the night, and no one knew the entry way. Diphtheria produced panic and men armed themselves for guard duty as if war waged. Rabies brought horror and dread for it was certain death. Anthrax had no check but swept away thousands of live stock. Blackleg aroused suspicion as if there were some friend about who would poison. Hog cholera had to its credit millions and millions of hogs and dollars. These are only a few of the suggested accomplishments in this field, for cannot man point to the practical control of these diseases provided the managerial conditions are present which will enable him to execute his purpose?

In other directions, the work of the bacteriologist has gone. Through him there has been traced the organisms of malaria and yellow fever in the mosquito and thus he has established their distributions. By his work Panama has been made a safe abode for man in the construction of the canal. He has found that some animals carry micro-organisms without injury to themselves, as the organisms of "Sleeping Sickness" in Africa, or the Texas fever organism in the cattle tick, or even the typhoid or cholera carriers. By his knowledge water supplies have been made safe, food rendered free from harm through inspection and control, and sewage effectively disposed of. Definite facts of this character have made man's acts intelligent and resultful. He can move straight to his goal.

General.

Agricultural micrology or bacteriology may be summed up by saying that the final task in the application of this branch of science consists in fostering those micro-organisms which are favorable to man and checking or destroying those which are injurious, as directed through the accumulated knowledge made available by investigations.

Let me say in concluding this discussion that while I have centered my attention upon one branch of science, seemingly but not intentionally, by the elimination of other branches, science as a whole is so intricately interwoven, so interdependent, so closely bound together that one branch cannot be fairly treated without involving others. One branch of science cannot grow without the help of others; they must all develop together in the interpretation of any industry as agriculture.

BIGGER CROPS ON THE FARM.

While proper soil and the right kind of cultivation mean a great deal, Good Seeds really play the most important part as to whether the Farm is a Success or Failure.

Every farmer in Michigan should secure a copy of the Alfred J. Brown Seed Company's Seed Catalog, "Thirtieth Year Edition." It contains information worth reading. "It is free." If you have not received a copy write for one today, and please mention the Michigan Farmer. Simply address Brown Seed Co., Grand Rapids, Mich. —Adv.

JOINING THE BETTER SEED MOVEMENT.

A movement new to the writer's locality, was launched recently, following an address delivered by Prof. Cox of the M. A. C., to a large and attentive audience of farmers. Prof. Cox's address was on "Farm Crops from the Standpoint of the Experiment Station." The discourse dealt with the selection and improvement of strains of grain as carried out at the experiment station at M. A. C. Following the interesting and instructive talk in this work, the farmers were informed in what way they could come in touch with the experiment station and reap the benefits from the work done there.

Although a large state association of farmers has been in existence for some time and local associations are constantly being formed, comparatively few farmers in Michigan are as yet, in touch with the better seed movement. In this section, which will compare favorably in up-to-date methods with the average farming communities of the state, the idea was a new one. So favorable an impression did the address make on the farmers assembled, that a strong local experiment association was organized on the spot. Officers were elected, and seeds from the state experiment station will be planted by these farmers this spring.

In its reasonableness and fairness, the proposition made by the state experiment station appeals to the farmers. It is true that most prosperous farmers have about reached the limit of what may be done for crops through cultivation. It is also true that these same farmers have long been in possession of the knowledge concerning the most effective methods of fertilization. But in the matter of seed selection, these same farmers have, as a rule, gone no farther than the selection of the best from their own or from their neighbors' crops. To be able to get pedigreed seed that has been scientifically selected and improved, is a new thing, and looks reasonable and good. This also appeals to the farmer as being not only the cheapest, but also the easiest method of increasing the yield per acre of a given crop.

In past years it has been the attitude of many farmers to treat lightly the work of experiment stations and of scientific methods of selection and improvement. But at the meeting already mentioned, there was but little if any of this spirit. The farmer has come to realize that the experiment station is doing a valuable work, and a work which he, the farmer, can not do. To select and improve to its highest efficiency, any strain of grain, is a painstaking, laborious process which would be impracticable for the ordinary farmer to undertake. But when the grain has once been improved and made pure by the scientific methods at the experiment station, the farmer has an opportunity to reap all the benefits. He can procure the pedigreed grain at a comparatively low figure, and can sell his crop for seed purposes, at a price much higher than he realizes ordinarily on the market, for his products. Not only is the farmer who joins the better seed movement helping to spread the better strains throughout Michigan, thus increasing the average yield; he is also making his individual farming operations more profitable and efficient. Thus the better seed movement appeals to the intelligent farmer from a two-fold standpoint. In the writer's section the idea has been taken up with enthusiasm, and good results are promised in the years to come.

Hillsdale Co. J. A. KAISER.

The Storrs & Harrison Co., Painesville, Ohio, send a spring seed catalog of 192 pages describing and profusely illustrating their line of seeds, plants, shrubs and fruit and ornamental trees. Mention the Michigan Farmer when writing for a catalog.

John Deere Implements



John Deere Syracuse Chilled Plows

The Chilled Plows with Perfect Fitting Parts

Perfect fitting shares—proper suction and penetration. Parts are made right in the factory at the start—over forty years of careful study have been devoted to the manufacture of these plows by the Syracuse Chilled Plow Company.

Write us for information on Syracuse Combination Plows Nos. 61 and 62. These are splendid plows for use in sandy loam fairly free from grit, or in sticky soils where good cleaning qualities are desired. Work well in tame sod or old ground. There is a Syracuse Chilled Plow made for your soil.



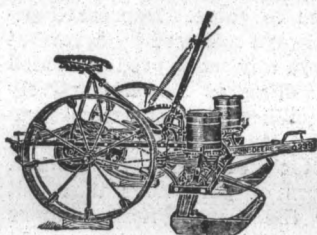
John Deere Corn Planters

John Deere No. 999. The full variable, accurate drop planter. Plants two, three or four kernels as desired—all you do to change number in the hill is to move foot lever. Drilling distances varied and changed from hilling to drilling made just as easily.

Accurate—because it has the "Oblique Selection" or natural drop,—an improvement over previous methods, kernels do not have to be tipped on edge to enter the cells. Surface of hopper bottom and openings to seed cells are oblique, or sloping, and the kernels naturally move toward and fill the cells rapidly.

Many Improvements Make it the Most Accurate Planter

All corn plates for this planter have 16 cells. Therefore, the same drilling distances are obtained with one plate as can be secured on other planters that use 8, 12 and 16 cell plates, and without change of plates.



John Deere No. 999 Planter

Write us for free booklet "More and Better Corn." It tells how to select and test your seed corn, how to prepare the seed bed and the gain in dollars and cents by using an accurate corn planter.

Easily detachable runners enable you to use other furrow openers, if ever desired.

Simplified check heads, disc marker without rope, and underhung reel are also improvements you will appreciate. Fertilizer attachment can also be furnished for this planter.



John Deere Disc Harrow

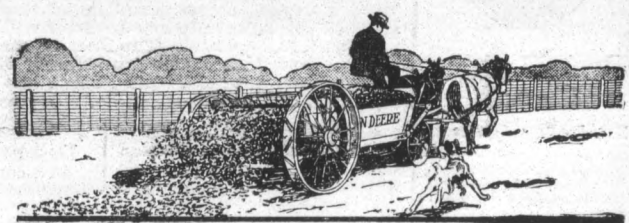
Model "B"—the disc with third lever—an exclusive feature.

You can put heavy or light pressure on the inner ends of the gangs and cut out dead furrows or disc ridges without burying the harrow. Cuts even depth entire width of gangs.

The Flexible Harrow. Only that part passing over an obstruction is raised out of the ground.

Independent Gangs. A separate lever for each gang.

Write for free booklet, "Bigger Crops from Better Seed Beds." Tells all about Discing and Disc Harrows.



John Deere Spreader

The Spreader with the Beater on the Axle

The beater—the business part of a spreader—and all its driving parts, is mounted on the rear axle. This is a patented feature. You cannot get it on any other spreader. Here is what the beater on the axle means to you:

It means: No clutches to give trouble—all taken off.

It means: No chains to break or get out of line—all thrown away.

It means: Less than half the parts heretofore used on the simplest spreader—some two hundred parts are done away with.

It means: Manure is not thrown on the axle—straw and trash cannot wind around it.

It means: You get big drive wheels and a low down spreader, without stub axles—that means traction and strength.

It means: Drive wheels back out of way when loading—you see where you place each forkful.

The John Deere Only Hip High

The top of the box is only as high as your hips. The John Deere Spreader is easy to load. You see where you place each forkful.

To start spreading, you pull back the lever at the driver's right—that's all. A boy can operate it.

Call on nearest John Deere dealer and see the spreader with the beater on the axle. Write for "Farm Manures and Fertilizers", a valuable text book free.



JOHN DEERE Moline, Ill.

Better Farm Implements and How to Use Them

FREE BOOK Illustrates and describes the most complete line of farm implements. Tells how to adjust and use farm tools under varying conditions. It is a practical encyclopedia of farm implements worth dollars to you—a 168 page text book.

It tells about John Deere Implements: Steel plows, cultivators and harrows; corn planters, disc harrows and beet tools; farm and mountain

wagons; manure spreaders; portable and stationary grain elevators and corn shellers; hay loaders, stackers, sweep rakes, mowers and side-delivery rakes, motor hay presses; grain drills and seeders; full line of chilled plows; grain binders and corn binders; hit-and-miss and volume-governing gasoline engines.

To get this book, free, state what special implements you are interested in and ask for the book as Package No. X-5.

John Deere, Publicity Department, Moline, Illinois



WAITING FOR YOU

Yes, waiting for every farmer or farmer's son—any industrious American who is anxious to establish for himself a happy home and prosperity. Canada's hearty invitation this year is more attractive than ever. Wheat is higher but her farm land just as cheap and in the provinces of Manitoba, Saskatchewan and Alberta

160 Acre Homesteads are Actually Free to Settlers and Other Land at From \$15 to \$20 per Acre

The people of European countries as well as the American continent must be fed—thus an even greater demand for Canadian Wheat will keep up the price. Any farmer who can buy land at \$15.00 to \$30.00 per acre—get a dollar for wheat and raise 20 to 45 bushels to the acre is bound to make money—that's what you can expect in Western Canada. Wonderful yields also of Oats, Barley and Flax. Mixed Farming is fully as profitable an industry as grain raising. The excellent grasses full of nutrition, are the only food required either for beef or dairy purposes. Good schools, markets convenient, climate excellent. Military service is not compulsory in Canada but there is an unusual demand for farm labor to replace the many young men who have volunteered for service in the war. Write for literature and particulars as to reduced railway rates to Superintendent Immigration, Ottawa, Canada, or to

M. V. McINNES,
176 Jefferson Avenue, - - Detroit, Mich.

Canadian Government Agent.

WHITE SWEET \$6.00 CLOVER 6 per Bu.

BIGGEST MONEY-MAKER KNOWN—INVESTIGATE
The greatest forage plant that grows. Superior to all as a fertilizer. Equal to Alfalfa for hay. Excels for pasture. Builds up worn-out soil quickly and produces immense crops, worth from \$50 to \$125 per acre. Easy to get started, grows everywhere, on all kinds of soil. Don't delay writing for our Big 92-page free catalog and circular giving full particulars. We can save you money on best tested guaranteed seed. Sample Free. Write today. A. A. BERRY SEED CO., Box 931, CLARINDA, IOWA

Grow More OATS

Grow the choicest procurable! Grow the oats that broke all records for yield per acre and weight per bushel. Grow the oat that is bred especially to suit your soil conditions, grow

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. Garton-Cooper Seed Co., Box 120 Sugar Grove, Illinois

Mention the Michigan Farmer when writing to advertisers.

**This Coupon Is Good for
Prof. Beery's
Introductory
Course in
Horsemanship
FREE!**

CUT OUT AND MAIL TODAY

PROF. JESSE BEERY,
Dept. 42, Pleasant Hill, Ohio
Please send, free of cost, to the address below
**Prof. Beery's Introductory
Course in Horsemanship**

Name _____ State _____
Postoffice _____
R. F. D. _____



Bad Habits Cured

By Beery System

Refusing to lead.
Running away when halter 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.
Lunging on the bit.
Lunging and plunging.
Refusing to stand.
Refusing to back.
Shying. Balking.
Afraid of automobiles.
Afraid of ropes.
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 horse or dogs along the road.
Tail switchers.
Lolling the tongue.
Jumping fences.
Bad to hitch to buggy or wagon.

To all men owning horses, who answer this advertisement immediately, I will positively send my introductory course in Horse Training and Colt Breaking ABSOLUTELY 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 that Prof. Beery cannot handle." My record proves it.

Master Any Horse

The Beery Course gives you the priceless secrets of a lifetime—enables you to master any horse—to tell the disposition of any horse at sight—to add many dollars to the value of every horse you handle—and my students are all good traders.

Break a Colt in Double-Quick Time!

You can do it by my simple, practical, humane system. There is a lot of money in colt training.

Make \$1,200 to \$3,000 a Year

Many of my graduates are making big money as professional horse trainers at home or



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. B. 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 traveling 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 repeated. Act now. Tell me about your horse.

PROF. JESSE BEERY
Dept. 42, Pleasant Hill, Ohio

The Coming Pig Crop.

DURING the next three months young, which will make it possible for the pigs to eat more of the coarse feeds while young, and hasten them along to popular market weights much earlier than would be possible if they were not started along while young.

By starting the pigs along while young one does not have little pigs but a short period of time. They are soon large enough to be counted of some importance. Skillful pig raisers make their pigs weigh 80, 90 and 100 pounds when 100 days old. With pigs thus started it is an easy matter to make market hogs of them in a short period of time. The weights are made cheaply and the chances for profits are better than would be possible if they were neglected while young.

Market Contingencies.

Things were moving along in fine shape as market and prices for meats were concerned, until unexpected interruptions sprang up from several sources. Impaired industrial conditions were bad enough during the spring and midsummer before the breaking out of the European war, many working men were thrown out of employment, and unemployed men are not good purchasers of meat products; they have not the money with which to buy the necessary food for their families. When the war broke out the monied men waited to get their bearings before they ventured. Before conditions became settled, like a thunder clap from a clear sky, the most devastating condition caused by the spread of the foot-and-mouth disease was precipitated on the county. Quarantine regulations were established and the farmers were actually barred from sending their stock to market. When the quarantine was lifted in some places it was retained in others, which hampered shipments to a great extent, and speculators have been taking advantage of the conditions to lower prices. The hindrances to the business have lasted longer than even the most pronounced pessimists had looked for and planned to meet.

Reasons for Optimism

With all that is discouraging that can be said, there is a ray of hope for better times to come. Depressed periods are always followed by a revival of interest in any meat product which has been selling at a comparatively low figure. When pork prices rule unsatisfactory, large numbers of the breeding stock are sent to market. The numbers of pork hogs that will be fed for the market next summer will not be as large as they would have been if this period of depression in prices had not come upon us.

For the pig raisers who will be cautious and careful so as to save a large percentage of their pigs, and will crowd them along on a variety of feeds, there is a chance to make some profits on the pigs at present prices. The fact should be kept in mind that the increase in weights can be made at about one-half the expense that it is possible to secure them if only corn alone is fed. A variety of feeds adds a relish which can not be secured with only one feed, and when feed is relished it is digested and assimilated to much better advantage, than when the feeds are not especially palatable.

Pasture an Important Factor.

Grasses and clover should be utilized to a great extent where one desires to get the most from the grain feeds. Grasses and clovers not only bulk up the feed in the stomach, which enables the gastric juices to permeate it more thoroughly and get more of the nutrients out of it, but they add greatly to the sum of the nutrients in the feeds and make the increased weights at much less cost than is possible without them.

Begin to feed the pigs as soon as they can be coaxed to take feeds other than that supplied by the mother. Extra good feeds will promote the growth and expand the stomach while

young, which will make it possible for the pigs to eat more of the coarse feeds while young, and hasten them along to popular market weights much earlier than would be possible if they were not started along while young.

By starting the pigs along while young one does not have little pigs but a short period of time. They are soon large enough to be counted of some importance. Skillful pig raisers make their pigs weigh 80, 90 and 100 pounds when 100 days old. With pigs thus started it is an easy matter to make market hogs of them in a short period of time. The weights are made cheaply and the chances for profits are better than would be possible if they were neglected while young.

Wayne Co.

N. A. CLAPP.

FEEDERS' PROBLEMS.

Oats vs. Barley as a Stock Food.

Please state in your paper which has the most feed value, per pound, for horses or other stock, oats or barley.

Lapeer Co.

SUBSCRIBER.

According to Henry's feeding tables, 100 lbs. of oats contain 9.2 lbs. of protein, 47.3 lbs. of carbohydrates and 4.2 lbs. of ether extract or fat, while 100 lbs. of barley contains 8.7 lbs. of protein, 65.6 lbs. of carbohydrates and 1.6 lbs. of fat. Reducing these two foods to their respective nutritive ratios we find that oats has a nutritive ratio of approximately 1:6.22, while barley has a nutritive ratio approximating 1:8. The nutritive ratio of oats is about right for horses doing medium to heavy work, consequently if the grain is to be fed alone, oats would have a higher food value, pound for pound, for horses, than would barley when these grains are fed with mixed hay. Barley is a grain which is more comparable with corn in its nutritive ratio and place in the ration of horses and other animals. For the idle horse or the horse at light work, where fed clover or alfalfa hay, barley would have a somewhat higher feeding value pound for pound on account of its greater fat-producing qualities. When fed to other stock, the same basis of figuring relative values may still prevail, except that for horses oats are generally conceded to have a tonic value not possessed to so great a degree by other grains. For fattening cattle or pigs barley would, on this basis, have a higher feeding value than oats, while for cows in connection with corn, the oats would be more valuable.

As a source of protein for live stock other than horses, oats are relatively more costly than other protein concentrates, so that in the feeding of such live stock barley is deemed to be a more valuable feed than oats by many experienced feeders, and it would have a slightly higher theoretical value in proper combination with other grains. It is quite difficult, if not impossible, however, to fix an absolute value on the different food nutrients, since such value is constantly shifting, due to the change in market values of different grains which may be used in compounding a ration for any kind of animals. This variation in costs is a factor which every feeder can well afford to consider, since practically the same results can very often be gotten at very much less cost by a judicious combination of grains. This is true in feeding horses as well as other live stock. At present values, for instance, a combination of corn, oil meal and a little wheat bran or oats would be a much cheaper horse feed than oats alone. Many other suitable combinations of grains might also be used to the same end, although oats will doubtless remain in high favor as a horse feed, owing to their peculiar adaptability to this use.

ZENOLEUM

A Remedy for All Live Stock

A Standardized coal-tar disinfectant, insecticide, animal dip; always the same.

Use Zenoleum; get more milk from your cows; more pork from your hogs; more wool from your sheep; more eggs from your hens; more work from your horses. In short, make more money in the Live Stock business by using this great preventative.

Used and Endorsed by 50 Agricultural Colleges

Our guarantee: If Zenoleum is not all that YOU think it ought to be, you can have your money back; no letters, no talk, just money back.

Prices: postpaid—8 oz. 25c; qt. 50c; gal. \$1.50. Ask for our free 1915 Live Stock Life Insurance Policy.

The Zenner Disinfectant Company
318 Lafayette Ave., Detroit, Mich.
Use Zenoleum Lice Powder for Poultry.

If a horse could talk—or a sheep.

"Thank you boss, I feel fine after that hair cut"

"I've just had more wool off me than ever before"

Clip Before the Spring Work Begins

Horses and Mules will be healthier and render better service. When the heavy coat that holds the wet sweat and dirt is removed, they are more easily kept clean, look better, get more good from their feed and are better in every way. If you want to sell them they will bring a higher price. The best and most generally used clipper is

The Stewart
Ball Bearing
Clipping Machine

It turns easier, clips faster and closer and stays sharp longer than any other. Gears are all cut from solid steel bar. They are enclosed, protected and run in oil; little friction, little wear. Has six feet of new style easy running flexible shaft and the celebrated Stewart single tension clipping head, highest grade. Get one from your dealer or send \$2.00 and we will ship C.O.D. for balance. Money and shipping charges back if not satisfied.

CHICAGO FLEXIBLE SHAFT CO.
115 N. LaSalle St. Chicago, Illinois
Write for complete new catalog showing world's largest and most modern line of horse clippers and sheep shearing machines, mailed free.

Get All The Wool
and a longer, better grade that will bring the highest price. You can easily net from 15 to 20 percent more on every sheep you shear with a

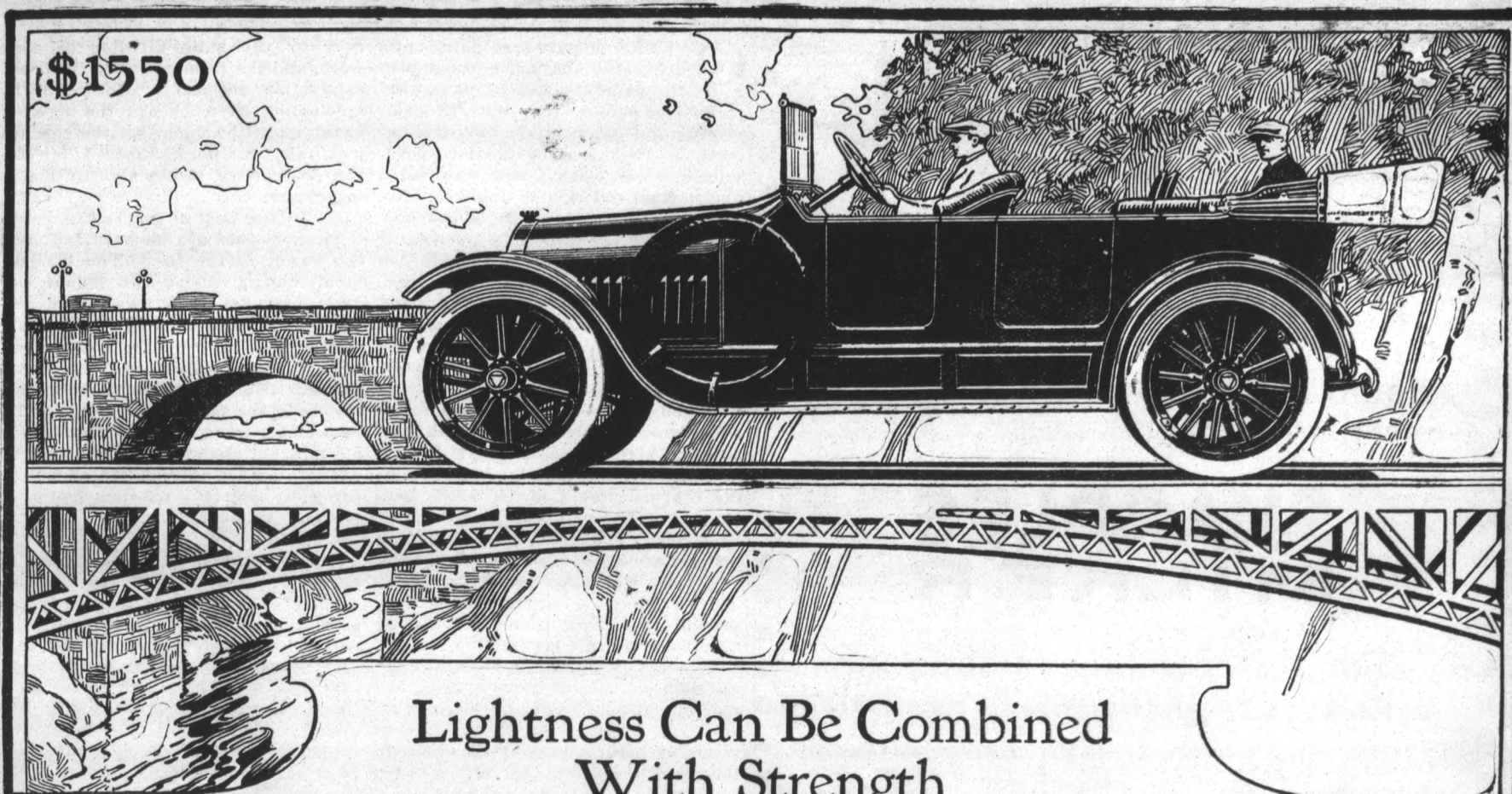
Stewart No. 9
Shearing Machine

It is the most perfect hand operated shearing machine every devised. Has ball bearings in every part where friction or wear occurs. Has a ball bearing shearing head of the latest improved Stewart pattern. Complete, including four combs and four cutters of the celebrated Stewart quality \$11.50. Set one free year dealer, or send \$2 and we will ship C.O.D. for balance. Satisfaction Guaranteed or Money Refunded.

PRICE \$7.50

PRICE \$11.50

When Writing to advertisers please mention The Michigan Farmer.



Lightness Can Be Combined
With Strength

HUDSON PROVED IT

When light steel bridges took the place of stone, there came up the question of strength in them.

When steel buildings displaced solid masonry, the question arose again.

So in automobiles. The early high-grade Sixes weighed 4500 pounds. That overtax in tires and fuel barred the Six to most men. Now it is known that overweight was a crudeness, a weakness in itself.

The Hudson Remedy

Howard E. Coffin, the great HUDSON engineer, long ago decided that lightness could be combined with strength. He displaced cast iron with aluminum. He adopted pressed steel. He re-designed a thousand parts to secure staunchness without weight. His hollow driving shaft illustrates one method of weight reduction.

Then he designed a small-bore, high-speed motor. That let him lighten a hundred parts because of the lesser shocks.

After four years of effort, the final result is this HUDSON for \$1550. It weighs 2890 pounds, ready for the road. As compared with old-time Sixes, it has cut fuel and tire cost in two.

Excess Out-of-Date

The Light Six vogue started with this HUDSON. Now crude excess is distinctly out-of-date. The leading cars average hundreds of pounds less than last year. But the HUDSON, because of our years of refinements, is the lightest in its class—the lightest 7-passenger Six.

We have Dealers everywhere. These are a few in your vicinity:

MICHIGAN DEALERS

Ann Arbor—Ann Arbor Garage.
Big Rapids—C. P. Judson.
Bessemer—E. H. Ekman.
Battle Creek—American Motor Co.
Birmingham—Morris Levinson.
Bay City—Peter J. Oswald.
Chassell—Edwin E. Warner.
Durand—Durand Auto Co.

Dundee—McIntyre Bros.
Detroit—The Bemb-Robinson Co., 288
Jefferson Ave.
Eagle River—R. L. Blight.
Flint—A. A. Farnam.
Gladstone—Holmgren Auto Co.
Grand Rapids—Reid Auto Co.
Hillsdale—L. E. Roethlisberger.
Iron River—Lindwall & Lindstrom.
Ionia—Eugene Kerstetter.
Jackson—Temple Garage Co.

Kalamazoo—Kalamazoo Auto Sales Co.
Lansing—F. A. Roethlisberger, Jr.
Marquette—Superior Garage, Ltd.
Menominee—Auto Service Co.
Manistique—L. Yalomstein.
Owosso—Ferris Bros. & Wolaver.
Plymouth—J. R. Rauch & Son.
Port Huron—George E. Yokom.
Saginaw—Saginaw Hudson Sales Co.
Union City—F. B. Hart.
Wyandotte—A. W. Pardo.

This year, if you pay between \$1000 and \$2000, you are pretty sure to want a Light Six. Your sole question is, "Which is the best Light Six?"

10,000 Men Say Hudson

Over 10,000 men chose the HUDSON. Half of them bought last year's model, and have driven it two seasons. Half bought this year's model. Together they have driven this car, perhaps, 25 million miles.

They have proved it right. They have found no weakness, no shortcoming. Any owner around you will say that.

That's the all-important point. Every old-time standard has been radically revised in creating the Light Six. And only time and tests can demonstrate the avoidance of mistakes.

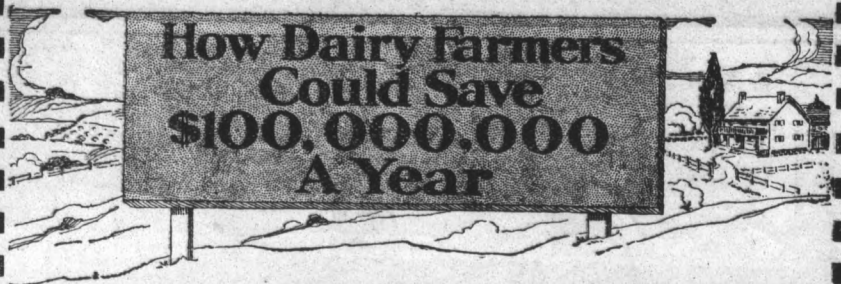
The HUDSON has met those tests. It is a proved success. Its buyers take no chances. It is, in addition, a Howard E. Coffin model. It is a finished product, showing the results of four years of refinement. We believe that you'll select it.

HUDSON Six-40 Seven-Passenger Phaeton, \$1550, f. o. b. Detroit. Four other styles of bodies.

The HUDSON Company never loses interest in the cars it sells. So long as a car is in service we maintain our interest in the character of its service. That's one great reason for HUDSON reputation.

HUDSON MOTOR CAR CO.

Detroit, Michigan



How Dairy Farmers
Could Save
\$100,000,000
A Year

A saving to the dairying interests of \$100,000,000 a year would result from the universal installation of the

SHARPLES MILKER

For this machine alone—now milking 250,000 cows twice daily—has developed the mechanical milker to its highest known degree of efficiency.

The Sharples Milker today is recognized by dairy farmers who have given sincere investigation to the milking problem as standard dairy equipment. "The Teat Cup with the Upward Squeeze"—a device that gently massages the teats upward by means of air pressure after drawing each squirt of milk, keeping the most sensitive teats healthy and pliable—is an exclusive feature.

It is our conviction that cows cannot be successfully milked by a machine without the upward squeeze. This process is covered by the broadest patent which our Government can grant—a process patent—owned by us. No other milker made in the world today gives an upward squeeze. We will promptly defend our customers and ourselves should any infringement be attempted.

The superiority of the *Sharples Tubular Cream Separator* is typical of its popular growth year after year.

Send for literature describing in full detail the manifold advantages accruing from the every-day use of Sharples products. Sent anywhere on request.

The Sharples Separator Company
West Chester, Pa.

Principal Branches: Chicago San Francisco
DISTRICT OFFICES AND AGENCIES EVERYWHERE

Testing Cows for Records.

OWNERS of pure-bred dairy cows are more and more coming to the point reached by most owners of fast horses; they want to make records for dairy production just as much as the horsemen do for speed. The time was when a man who had a phenomenal cow would save her milk, set it to rise, and churn to see how much butter she made in a given time. This method was satisfactory to the owner, but when it came to competitive work among different breeders, each of whom claimed the best record for his own animals, some more accurate method of stating the results had to be found.

Nowadays when a cow gives promise of surprising the owner with phenomenal performance at the milk pail, he sends to Prof. A. C. Anderson at the Agricultural College, East Lansing, Mich., or to his own state dairy department in charge, and asks for a man to come and test his cow.

The Cow Tester.

Soon after, a young man, likely enough a student, if in the vacation time, arrives at his station, armed with a big box of baggage containing his Babcock tested and scales. On reaching the stables, he examines the cow, and compares her description as given in her registry certificate with the animal herself. Having satisfied himself as to the identity of the animal, the official next arranges with the owner as to how often the animal is to be milked.

Usually the plan is to milk every six hours, at least in case the test is to continue for seven days or two weeks only; if for a year, the milking is done twice a day, unless the cow is an unusual one. It is a well proven fact that milk is produced in greater quantities by milking three or four times a day than by milking only twice. In fact, many dairymen claim it is hard on the cow, especially when fresh, to compel her to go for twelve hours without being milked.

Method of Keeping Records.

Having decided on what hours will be designated for milking the animals under test, the official next makes it a point to see the cows milked dry at the appointed time. He notes the exact time at which the stripping is completed in his memorandum book, and the test is then under way. One of the rules which must be considered at this time, however, is that the test shall not commence sooner than six days after the calf was born.

While the cows are under test, the officials must be present at every milking to witness that nothing is credited to the cow but her own milk. He must first weigh the empty pail in pounds and tenths of a pound, and after the milk is drawn, weigh again in the same manner, recording the weight of milk in his notes. The next step is to pour the milk from one pail to another three times, thus thoroughly mixing it, and then dip out a sample of not less than one-half pint. These samples are labeled as to cow and milking, and tested for butter-fat, and the result recorded.

Butter-fat Tests Made in Duplicate.

Butter-fat tests are made in duplicate, and if the two readings vary more than 0.2 per cent, a second duplicate test must be made. Now multiplying the weight of milk by per cent of butter-fat, gives the weight of butter-fat. Blanks are provided for recording all this data, and at the end of the test period, the total production must reach a certain standard, depending upon the breed and age of the animal, in order to admit of Registry of Merit, or Advanced Registry, as the cow-diploma honors are called.

When the papers are fully made out they must be taken before a notary public, and affirmed as correct by the testing official, the owner, milker, and feeder. The figures are then checked

over by the state director of such work, and the papers sent to the breed association secretary. He looks the application over, checks the figuring again, and if he finds that the cow has met the conditions imposed for advanced registry, issues a certificate to the owner.

The Cost of the Test.

The expenses of this work fall upon the owner of the cow. The officials, in Michigan, receive two dollars per day, plus board and traveling expenses. Agricultural College students are usually glad to serve as testing officials, for the sake of the experience gained. The work brings them in contact with the most enterprising dairymen of the state, and the man who is alert to his opportunities will find no end of bits of information which he can give, and take on such points as feeding, grooming, housing, milking the cattle.

Not more than six cows can be inspected at one time by one official. Owners of large herds frequently can enter this number of fresh cows, thus making the cost per cow of the testing work about three dollars per week, exclusive of feeding and care. Sometimes two breeders will combine their operations and divide the expenses of the official between them, but many good dairymen object to this because they are unable to give the cow placed in a neighbor's barn the same care and attention which would be given at home.

Interesting Experiences of Tester.

Many interesting experiences fall to the lot of the testing official. The writer, who followed the work for a year, recalls one week spent with a family of Hollanders, and how he wore wooden shoes at midnight when attending to his duties at the barn at that hour. Another breeder had a habit of shutting off his alarm clock that was within arm's reach and set to ring at midnight; he wanted to milk four times daily, but did not seem responsible for his actions after falling asleep. The official, becoming accustomed to waking at the troublesome hour, was able to come to the rescue.

Most of the questions asked the official center around the matter of feeding. It seems natural for the dairyman to want to feed whatever will produce the biggest yield of butter-fat, and to think that some specific ration will have a marked effect upon that yield. After observing the methods of different successful feeders, however, the writer became convinced that there was no best ration for the purpose. The feeder must be careful not to change the ration suddenly, nor to use ingredients to which the animals are unaccustomed, if he would avoid the danger of throwing the animals "off feed." Plenty of succulent material, a mixed grain ration, and a clean manger within half an hour after feeding, seem safe general suggestions to make.

Care in Feeding.

Not infrequently the feeder, in his effort to make the cow respond to the last full measure of her ability to eat and assimilate, will overfeed. The writer recalls the chagrin which a certain Hollander, hired to supervise the feeding and care of Holsteins by fanciers of that breed all over the United States, was made to feel when he found that a cow which gave promise of exceeding the world's record had gone "off feed" while under his care. He was not feeding as much by a wide margin as he had safely fed to other cows giving butter-fat at her rate, yet this particular cow had a limiting factor of her own, and fell down completely when asked to perform in world's record style as other cows had done.

Benefits Derived from Tests.

Some of the benefits to the breeder of such butter-fat tests are: Better

price for bull calves; advertisement to the farm; a standard established by which to select breeding stock; greater insight gained into methods of intensive feeding and care; a greater love for the betterment of the breed; contact with the best professional men and literature on the subject of dairying.

That the seven-day tests at calving time are of little value for showing the average performance of the animals as compared with the semi-official yearly tests is clearly shown by Prof. Eckles in Missouri Station Bulletin 100. The cow which loses in flesh after calving generally gives a richer milk until the normal weight of flesh is reached. In the semi-official tests, the inspector happens around unknown to the owner, once a month, notes the weights of milk being recorded and compares with the results obtained when he is present, takes and tests samples, and gives the average test for the year as the multiplication factor to be used with the weights given by the owner for milk, in obtaining the butter-fat total for the year. The inspector remains on the job two days out of each month that the cow is in lactation, thus making the cost of the test greater than

is generally better to have two silos of medium size rather than one very large as the different years bring different conditions. In view of these facts, the man who puts up a silo should in every case build it large enough for ordinary needs as it has been conclusively proved that ensilage has practically as important a place in summer feeding as in winter feeding. By this it will be understood that instead of putting up a silo 12x24 feet or 14x24 feet, as the case might be, that a man should build one 12x30 feet or even higher. I am fully confident he will be well repaid in the long run.

Illinois.

W. M. HARDY.

A RATION WITH POTATOES.

I have clover hay, cornstalks, oat straw, corn and cob meal, bran, and potatoes to feed my cattle. Will you please make up a ration to feed the milch cows and young stock? Should I buy any other feed for them? How much salt should cattle have? What is the right temperature for the dairy stall? How much skim-milk with calf feed should a calf have when one month old?

SUBSCRIBER.

If you feed two good feeds of clover hay a day you can get along with corn



A Promising Young Bull.

when a seven-day test is conducted, but the better result would seem to warrant the expenditure.

Benzie Co.

E. H. BROWN.

SILOS SHOULD BE DEEPER.

Of late years much publicity and advice have been given through the agricultural press regarding the danger of constructing silos too large. This has probably resulted in many farmers going to the other extreme and building their silos much smaller than they should be. Two of my neighbors have already discovered their mistake to their sorrow. I believe that where one silo is built too large one hundred are built too small. By this I do not mean that they are necessarily too small in diameter, but that many silos built from 20 to 26 or 28 feet high should properly have been from 30 to 36 or even 40 feet high in order to have insured sufficient capacity. The manufacturers of silos generally recognize more than anyone else the disadvantages of building silos out of proportion and most of them have discontinued the manufacture of those greater than 18 or 20 feet in diameter.

It does not follow that a silo 20 feet in diameter is necessarily out of proportion as these things should in every case be governed by the particular needs of the owner. For instance while a silo 13 feet in diameter would be too large for some farmers who maintain only a limited amount of stock, one 18 or 20 feet would not be excessive for the man who has 75 or 100 head of cattle. But even then it

and cob meal and wheat bran for grain and have a well balanced ration. You can feed oat straw or cornstalks once a day for variety.

Mix the corn and cob meal and bran equal parts by weight, and to your cows feed one pound of grain for every three or four pounds of milk each gives. Feed a peck of potatoes twice a day to each cow. For the young cattle you can feed a little more liberally of the cornstalks and oat straw and not so much grain. If you have the potatoes to spare, feed the young cattle a few also for an appetizer and for succulency.

Cows should have about two ounces of salt a day.

A cow stable ought not to get below 40 degrees nor above 70 degrees in temperature. Of course, in summer we cannot prevent the high temperature, but we can prevent the low temperature in winter.

We never feed over five pounds of skim-milk to a feed, or 10 pounds per day; give it other food for the balance of the ration.

COWS LOSING FLESH.

For some time back my cows have been losing flesh and shrinking on the milk. I feed them a bushel of ensilage twice each day, a good feed of bright corn fodder, and a small feed of hay, mostly clover, for roughage. Their grain ration consists of one pound of grain for every four pounds of milk they produce, of the following mixture: 500 lbs. bran, 300 lbs. of buckwheat middlings, 250 lbs. ground beans. Is this unbalanced? Could beet pulp, dry, be substituted for any



730 times every year you use a Cream Separator

NO other machine or implement used on the farm receives anywhere near such constant use, nor is there any other farm machine or equipment with which quality of work means so much and first cost means so little.

If the separator runs hard, gets out of order or isn't easy to wash, it's a constant bother, and it only takes a very little loss of cream at each separation, when multiplied 730 times, to run into a good deal of money, very soon more than the original cost of the machine. But no matter how small the loss, it is too big a handicap for any cow owner to try to work with.

As a matter of fact, the men who know most about cream separators, the creamerymen, long ago came to the conclusion that the De Laval was the only machine they could afford to use. That's why 98% of the cream separators used in creameries and milk plants the world over are De Lavals.

All the more reason why you should buy a DE LAVAL

No matter where you go you will find the biggest and best dairymen almost invariably are De Laval users. Experience has taught them that it is the best and most economical cream separator.

You don't have to experiment with cream separators any more because the men who are best able to judge as to the merits of the cream separator have already done that for you, and the result of their conclusion is evidenced by the practically exclusive use of the De Laval in creameries and milk plants and the fact that over 1,750,000 farm and dairy size De Lavals—more than all other makes combined—are in daily use.

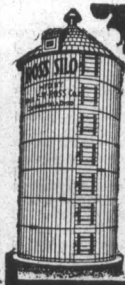
The nearest De Laval agent will be glad to set up a machine for you and arrange for payment of same as is most convenient. If you don't know the local De Laval agent, simply address the nearest main office as given below.

The De Laval Separator Co.

165 Broadway, New York

29 E. Madison St., Chicago

50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER



THE ROSS SILO

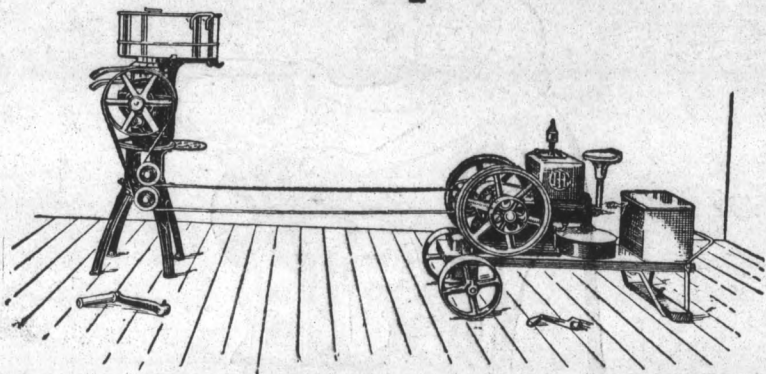
Only silo made with these combined features. Doors on Hinges. Continuous Door Frame. Refrigerator type of Door and Door Frame. Oval Door Frame to fit exact circumference. Not a bolt in entire door frame or doors. Extra Heavy Hoops and Lugs. Roof Rafters and Anchors furnished FREE. Backed up by 63 years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

Bigger better book for Silo owners

If you are thinking of buying an ensilage cutter, write for this new book—'Making Silage Pay Better.' Full of dollar-saving, dollar-making ideas. Tells all about the Blizzard Ensilage Cutter—the original 'blower' cutter. Simple and safe—a work eater—small engine runs it—unlimited elevating capacity—lasts for years. Write today for the book. THE JOS. DICK MFG. CO. Canton, Ohio

Blizzard Ensilage Cutters

International Harvester Cream Separators



PICTURE to yourself the difference in the amount of actual work done, between setting milk in any of the old-time ways and skimming it with an I H C cream separator. What a job it is to wash the pans or crocks. How many handlings they need. What a lot of time it takes to fill them and set them away, to protect them from dirt, to do the actual skimming, to dispose of the cold skim milk, to purify the crocks or pans.

Now note the difference. With an I H C separator the milk is skimmed while still warm from the cows, the separator is washed in a few minutes and everything is ready for the next milking.

You want the separator that will help you most. There are other things than the saving of work to be considered. There is saving of cream, value of the machine, service in case of accident, and many other things to be thought of before you buy a separator.

Take time enough to buy a cream separator. The more carefully you go about it, the more comparisons you make, the more clearly you will see that one of the International Harvester separators—a Dairymaid, Primrose, or Lily, will serve you best. See the I H C dealer. Get catalogues from him or write to us for them.

International Harvester Company of America



CHICAGO

Champion Deering McCormick Milwaukee Osborne Plano

USA



\$15 **95 SENT ON TRIAL**
UPWARD
AMERICAN CREAM SEPARATOR
Thousands In Use giving splendid satisfaction justifies your investigating our wonderful offer to furnish a brand new, well made, easy running, easily cleaned, perfect skimming separator for only \$15.95. Skims one quart of milk a minute, warm or cold. This picture, which illustrates our low priced large capacity machines. The bowl is a sanitary marvel and embodies all our latest improvements.

Our Twenty-Year Guarantee Protects You Our wonderfully low prices and high quality on all sizes and capacities of our separators, do not fail to get our great offer. Our richly illustrated catalog, sent free of charge on request, is the most complete, elaborate and expensive book on Cream Separators issued by any concern in the world. Western orders filled from Western points. Write today for our catalog and see for yourself what a big money saving proposition we will make you. Address, **AMERICAN SEPARATOR CO., Box 1061, Bainbridge, N.Y.**



These Seven Cows
Kept One Year On 1 Acre of Eureka Corn. This seed corn yielded over 70 tons on one acre—enough to feed seven cows a whole year. No other corn has ever equalled it.
EUREKA CORN grows tallest, has most leaves—more ears
Why plant ordinary corn that yields only 15 to 25 tons an acre, when you can get 70 tons an acre at same price? Write for our 1915 catalog, quotations and list of our wonderful varieties of big-yielding corn and seeds.
ROSS BROS. CO.
37 Front St., Worcester, Mass.

Empire Molasses
Saves grain. Puts fat on stock quicker and cheaper. Write us today for low prices and guarantee.
WATLES & COMPANY, Box 13, Litchfield, Michigan

BUY FEED—CAR LOTS Cottonseed Oil Meal, Hominy, Gluten, etc. Save money. Ask price. J. E. Bartlett Co., Red Mill, Jackson, Mich.



Milk Cans that Stand Abuse

It takes a mighty good milk can to stand up long under the bumps and smashes of constant rough handling. The service a milk can gives depends almost entirely upon its construction.

Sturges Guaranteed Capacity Milk Cans

Body of stiff, heavy steel that stands severe shocks without denting. Our famous "S" seam construction gives 4 thicknesses of metal where neck and breast join. A heavy, half-oval steel hoop, shrunk into place—joins the breast and body—gives great strength and serves as a bumper. All parts of Sturges Cans are tinned and retinned after rivet holes are punched and before parts are put together. Thus all surfaces are protected from rust and corrosion. Soldering of inside seams is as smooth as glass. The weight is evenly distributed—Sturges Cans are well balanced, neither top-heavy nor bottom-heavy.

CORRECT CAPACITY GUARANTEED. When a Sturges Can is marked 5 gallons it holds 5 gallons to the ring in the neck—no more, no less. This is an exclusive feature found only in Sturges Cans. A red seal on every can is our guarantee and your protection of correct capacity—and freedom from leaks.

Insist on Sturges Cans. Standard for nearly 50 years. Write for names of dealers in your locality who handle them—and catalog No. 46

Sturges & Burn Mfg. Co., 508 S. Green St., Chicago

of the above and better it, if not what could? Would rather not feed cottonseed and I think oil meal rather high in price.

Genesee Co.

J. W. T.

I believe this ration is lacking in fat and starch. All the concentrates are protein food. Bran, the lowest, contains 15 per cent protein, while buckwheat middlings contain about 22 per cent and bean meal about 20 per cent. I would suggest corn meal in place of bran. If I did not think you were probably getting buckwheat middlings quite cheap for their food value I would drop these out instead, or bean meal is the most undesirable food, but the price probably would warrant you in feeding it. Bran is high, and if you drop this out and substitute corn meal the ration will cost no more and I think you will have better results and the cows will stop losing flesh.

CORN AND COB MEAL NOT AS GOOD AS CORN MEAL.

I wish your advice on a herd of 13 cows we have. We are milking 10 and three of those are due this spring. We feed bran, cut cornstalks, clover hay, corn and oats ground. Last year our cows averaged 40 lbs. and better all through the winter, but this winter they are not as high. They did good the fore part of the winter, when I was feeding half oats and half corn meal, cottonseed meal, clover hay twice a day, cornstalks once and silage twice; one pound of grain to every four pounds of milk. Now I am feeding silage twice, clover hay twice, cornstalks once, corn and cob meal, bran, potatoes and cottonseed meal and the cows are dropping off every day. I salt them in silage night and morning. Have one cow that gave last year as a three-year-old, 40 to 43 lbs. at this time. Now she is down to 32 to 35 and I cannot account for it. They have good drinking water twice a day. Oakland Co. C. W. R.

This ration is composed of good foods, has plenty of variety, and also has succulency. Cows ought to do well. I cannot give a reason unless C. W. R. is figuring that corn and cob meal is equal in feeding value to corn meal. It is not; the corn cob has little or no food value. Sometimes it is wise to grind the cob with the corn to make the ration a little more bulky, but when you feed bran also this would be a detriment rather than a benefit. Try corn meal in place of corn and cob meal and perhaps increase the cottonseed meal a little.

BRAN THE ONLY CONCENTRATE.

We have no regular hay, but grew last year several loads of oat hay, cutting the oats just when in the final milk stage, or just on the turn. We also had three acres of poor corn and we did not husk about half of it. We also had some soy bean hay but have used that up. At present we are feeding the cornstalks with the small ears on, in the morning, mangles toward noon, oats at noon, a feed of bran in the latter part of the afternoon, and cornstalks again at night. Do you think we can get results from this feeding, that will pay? H. P.

The grain ration is hardly sufficient. While bran is a good feed, that alone is hardly enough. I think it would be more economical to mix corn meal with the bran, and besides feed about two pounds of cottonseed meal to each cow. As your ration is, it can be criticized as being too bulky.

WHAT GRAINS TO FEED WITH OAT HAY AND CARROTS.

I would like to know what grain ration to buy and how much to feed my cows, which will soon be fresh. I have an abundance of mixed hay, mostly clover, oat hay, oats that were cut just before they were ripe, and carrots. The grain to make a balanced food I will have to buy. Emmet Co. SUBSCRIBER.

You can figure oat hay as good as your mixed hay, and carrots as good as any succulent food you can get, therefore you have a splendid roughage. Feed the mixed hay once a day and the oat hay once a day. Find what the cows will eat without waste. If you have plenty of carrots, feed a

peck night and morning to each cow, but if you haven't enough for this, one feed a day will do very nicely.

For grain, corn meal, ground oats or bran with a little cottonseed meal. Mix the corn meal and bran equal parts by weight. Feed two pounds of cottonseed meal per day to each cow. Then if you have well-bred dairy cows you can increase the corn meal and bran until each cow is getting as many pounds of feed per day as she produces pounds of butter-fat per week, or one pound of feed for every three or four pounds of milk produced. Better begin with a small feed and gradually increase as long as the cows increase in yield.

REINFORCING CEMENT SILO.

Kindly give me some advice on cement silos. A cement man here makes cement blocks 8x8x20 inches, with 4-in. air space. He advises reinforcing the silo two-third of the way up from the bottom, with two strands of No. 6 wire, one strand the rest of the way. Do you think a silo of this type would stand the pressure and not crack, and also keep silage good? SUBSCRIBER.

Without doubt this will give sufficient strength. It would not cost much more to use more wire if you think there is any doubt, but my opinion is the amount recommended will be sufficient.

If you have a good foundation there is little likelihood of the silo settling and cracking. Dig down at least two feet for your cement base. A cement silo will keep silage well if it is plastered smooth on inside with rich cement mortar. Use two parts fine sand to one of cement, then no one will have a better silo.

AN 18 PER CENT DAIRY FEED.

Kindly give me balanced ration for cows. How much per cow according to the production of milk? Cows have mixed hay and corn fodder, all they want to eat. Would like to feed a dairy feed, 18 per cent protein; 4½ per cent fat, and 52 per cent carbohydrates, with corn and oats. Indiana. SUBSCRIBER.

This 18 per cent dairy food is not rich enough in protein to balance the other foods in the ration. I should use some cottonseed meal with it, say two pounds per day for each cow. Then mix the dairy feed, corn meal and ground oats equal parts by weight and feed enough of this with two pounds of cottonseed meal to furnish one pound of grain per day for each pound of butter-fat each cow produces per week. This will make a cheaper and better ration than to feed enough of the 18 per cent dry feed to furnish the necessary amount of protein.

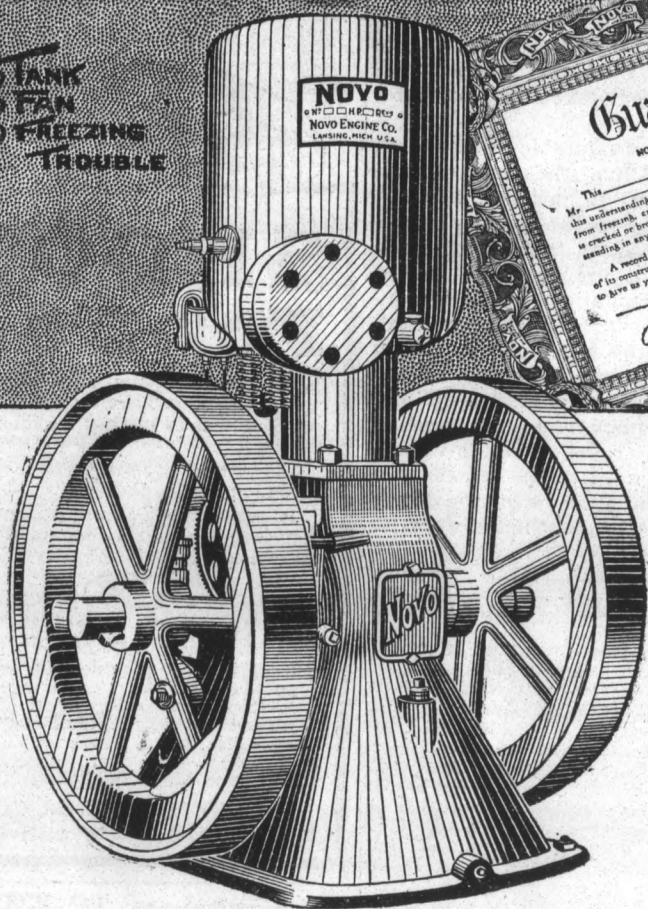
WHAT SIZE SILO?

Would you please give me some advice on building a silo? I am planning to build one this summer. Our basement barn is on eight-foot stone wall and I am planning to dig down about four feet below the basement floor. That will make it 12 feet to the top of the bank. Would use stone for this 12 feet and for the balance cement blocks up to about 24 feet. That will make it about 36 feet in height, but we can't decide whether to have the inside 10 or 12 feet in diameter. We are keeping about 25 to 30 head of cattle. What would you think about white and yellow dent corn that gets ripe in northern Michigan, is planted three feet four inches apart and put in silo with ears on, for silage? Leelanau Co. H. C. H.

With the number of cattle you keep, a 12-foot silo will be none too large. Your plan for building is good, but I would not go down below the stable floor, as water may seep in, and anyway, it will be considerable work to pitch the ensilage out. You can blow the ensilage four feet higher in filling easier than you can pitch it our four feet below the ground. You must plaster the silo on the inside after it is finished, with rich cement mortar, to make it smooth.

If you get good dairy Shorthorns, there is nothing better as dual-purpose animals.

NO TANK
NO FAN
NO FREEZING
TROUBLE



Novo Engines are built according to principles conceded to be best by experienced engineers. Unlike most engines, Novo is of vertical type, the same as engines used in all automobiles. The many advantages of vertical engines are explained fully in our catalogue. There is no racking vibration such as you usually find in horizontal types. There are no complicated parts, cumbersome tanks or circulating pipes. Look at the illustration above. Did you ever see so simple an engine? The fuel is in the base; the water is in the frost-proof hopper around the cylinder. Any one can start and run a Novo.

Furnished in 1-15 Horse-Power Sizes

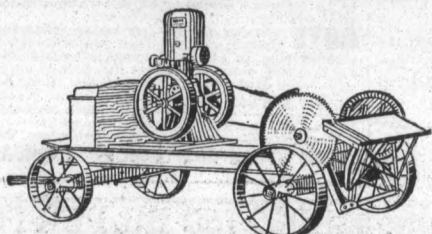


Fig. 1514—Novo Portable Buzz Saw—Built for heavy work. Engine and saw mounted on trucks together. Engine may be detached for separate work. A very handy outfit that a team can draw anywhere.

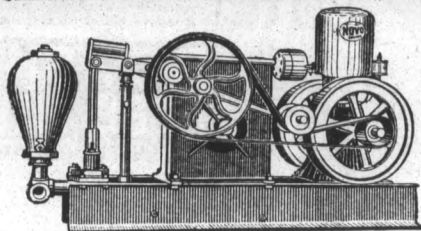


Fig. 200—Novo Deep Well Head—This outfit is used for pumping from deep wells or in any well where the water level is more than 25 feet from the surface. Can be furnished with air compressor attachment for pneumatic systems. All gears are encased in oil, making it noiseless and durable.

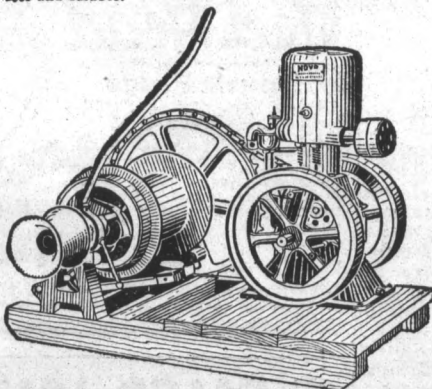
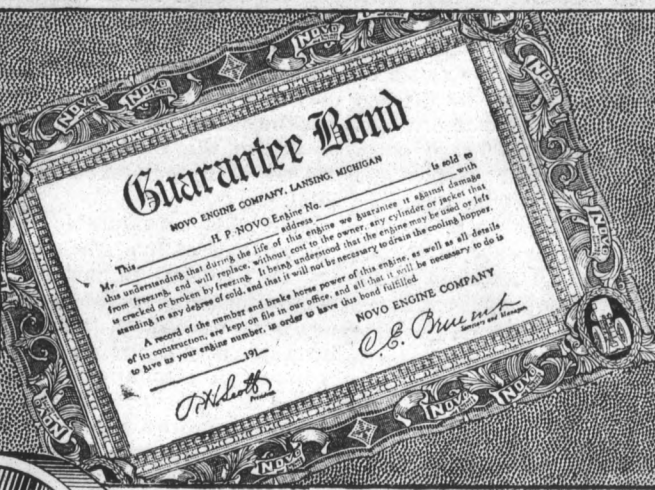


Fig. 15137—Farmers' Handy Hoist—This outfit is built to meet a rapidly increasing demand for a small inexpensive hoist on the farm. This hoist will pay for itself in one season. For unloading hay it is far better than a team. Well worth investigating.



THE GREATEST
ENDORSEMENT
EVER GIVEN ANY
GASOLINE ENGINE

Novo has been thoroughly tested by concrete mixer manufacturers. So have other makes of gasoline engines. The result is that 80% of all concrete mixers are now run by Novo Engines. Think of the shaking and jarring an engine gets when mounted on a truck with a concrete mixer.

The racking strains to which contractors have put Novo Engines prove their ability to deliver reliable power under fearful handicaps.

You may not handle your engine as roughly as contractors handle their pumping outfits, concrete mixers, etc., but you do want **Reliable Power**.

You want an engine that is ready to run anything, at any time under any condition. You want Novo reliability and Novo convenience.

You want Novo simplicity, Novo lightness, Novo easy portability, Novo compactness. You want Novo freedom from freezing trouble. You can get these only in

NOVO
REG. U.S. PAT. OFF.
ENGINES and OUTFITS

To those who have used gasoline engines, we do not need to impress the importance of buying a good reliable engine.

To those who are about to buy their first engine, we wish to say most emphatically that you will find a cheap, unreliable engine a worse investment than a cheap, unsound horse.

You owe it to yourself and those who work with you to investigate Novo.

Let Us Explain Novo Fully

We don't ask you to struggle through a catalog and to buy with only pictures to guide you. We offer to show you the engine itself. To explain every detail of it. All you need to do is to let us know that you are interested in doing your heavy work—pumping, sawing, grinding, hoisting, lighting—for less money than it now costs you. Send us your name and address to-day.

Novo Engines can be furnished for operating
on gasoline, kerosene, alcohol
or distillate.

NOVO ENGINE CO.

CLARENCE E. BEMENT, Sec'y and Manager
562 Willow Street, LANSING, MICHIGAN

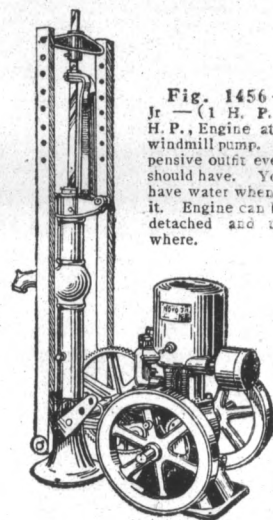


Fig. 1456—Novo Jr.—(1 H. P.) or 1 1/2 H. P., Engine attached to windmill pump. An inexpensive outfit every farmer should have. You always have water when you want it. Engine can be readily detached and used elsewhere.

MF

Novo Engine Company,
Lansing, Michigan

Gentlemen:—Without any obligation, please tell me why Novo is the best engine for my requirements.

I use an engine for the following purposes:

and require about _____ H. P.

Name _____

Address _____

The Michigan Farmer

Established 1843.

Copyright 1914.

The Lawrence Publishing Co.

Editors and Proprietors.

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

NEW YORK OFFICE—41 Park Row.

CHICAGO OFFICE—604 Advertising Building.

CLEVELAND OFFICE—1011-1015 Oregon Ave., N. E.

PHILADELPHIA OFFICE—214-218 Twelfth St.

M. J. LAWRENCE.....President
M. L. LAWRENCE.....Vice-President
E. H. HOUGHTON.....Sec.-Treas.I. R. WATERBURY.....Associate
BURT WERMUTH.....Editors
F. A. WILKEN.....Editors
ALTA LAWSON LITTELL.....Editors

E. H. HOUGHTON.....Business Manager

TERMS OF SUBSCRIPTION:

One year, 52 issues.....\$5.00
Two years, 104 issues.....\$9.00
Three years, 156 issues.....\$12.50
Five years, 260 issues.....\$20.00

All sent postpaid.

Canadian subscriptions 50c a year extra for postage.
Always send money by draft, postoffice money order, registered letter or by express. We will not be responsible for money sent in letters. Address all communications to, and make all drafts checks and postoffice orders payable to, The Lawrence Publishing Co.

We never, unless through error, send The Michigan Farmer beyond the date subscribed to—our subscription price being always due in advance, and sample copies always free. No bills will ever be sent should a subscription through error be continued after expiration.

RATES OF ADVERTISING:

40 cents per line (agate type measurement, or \$5.60 per inch (14 agate lines per inch) per insertion. No adv't in series for less than \$1.20 each insertion. No objectionable advertisements inserted at any price.

Entered as second class matter at the Detroit, Michigan, postoffice.

DETROIT, MARCH 13, 1915.

CURRENT COMMENT.

In an address delivered before the U. S. Live Stock Sanitary Association at its recent meeting in Chicago, Dr. A. D. Melvin, of the Bureau of Animal Industry, U. S. Department of Agriculture, commented upon the possible origin of the present epidemic of foot-and-mouth disease so far as the Bureau has been able to trace it. Dr. Melvin's comments on this phase of the epidemic are of interest particularly because they well illustrate the extremely contagious or infectious nature of the disease and the necessity for the use of stringent methods in its eradication.

In his address Dr. Melvin stated that as a result of the investigation made, three possibilities as to the method of infection have been developed. The first of these possibilities is in connection with the return from a visit to New Orleans of the wife of the farmer in whose herd of hogs the disease first developed. The lady's grand-daughter had recently been vaccinated against smallpox in New Orleans. This possibility is rather remote but nevertheless is under investigation. The second possibility is in connection with the purchase by the farmer of merchandise from a Chicago firm, including two pairs of gloves imported from Germany. The paper used in wrapping these goods was thrown into the hog lot about ten days before the hogs developed the disease which subsequently proved to be the foot-and-mouth disease, and the possibility exists that the infection was derived from this source. The third possibility is in connection with the stealing of chickens from the farm a short time before the appearance of infection among the hogs. The farmer supposed that the chickens were stolen by foreigners employed in a local tannery and that possibly the disease may have been brought to his farm by one of these suspected men who might have become contaminated with the virus from imported material used in the tannery. It has been learned from diligent inquiry that no importations of hides had been made by this tannery for more than eighteen months before the outbreak. Certain tanning materials, however, were imported in large quantities, mainly from Argentina and Japan, in both of which countries foot-and-mouth disease continually prevails. These products were brought into the tannery in packages covered with matting or in small bur-

lap bags, which material is frequently taken home by the employes for their own use.

This investigation into the cause of the outbreak of foot-and-mouth disease is still being conducted but without definite results as yet. These clues which are thought to point toward the only possible causes of the outbreak show conclusively that it is an exceedingly infectious disease, and that stringent methods are required in its control and eradication.

The Round-up Institute.

There was a very good attendance of farmers at the Round-up Institute, or Farmers' Week, which was held at M. A. C. March 1-6. The attendance of ladies was especially good, showing that the strong features of the program for the women's congress were a drawing card for that section of the meeting. It is impracticable to give anything like a general report of the Round-up, since its character has been changed into what is now practically a one-week course in agriculture, with several sections of the meeting in continuous session, and with lectures in progress on various subjects related to different lines of agriculture, so that the person attending can choose such subjects as he desires to hear discussed from the general program. There were, however, many features of special interest brought out which will suggest ideas for discussion through the columns of the Michigan Farmer during the coming year, and thus the beneficial influence of the Round-up or Farmers' Week will be indirectly extended to a large number of Michigan farmers who did not find it possible to attend this meeting.

According to the preliminary census of the birds in the United States which has just been concluded by the government biologists, there are sixty pairs of English sparrows per square mile, a larger number than of any other birds except the robin, there having been found to be an average of six pairs of robins to each farm of fifty-eight acres, while there were five pairs of sparrows per farm. No other bird closely approached these numbers, although some are sufficiently numerous to make their total run well into the millions for the country. This preliminary census and estimate is made for the purpose of getting more exact knowledge of our bird population and as well to impress upon the people of the country, and particularly upon the farmers the fact that if birds were given more co-operation and encouragement there would be a corresponding decrease in the number of insect pests which the birds are the greatest single factor in keeping in check.

That birds prefer thickly inhabited centers of population to forests is one of the definite conclusions reached through this bird census. In this fact lies hope that as the human population becomes more dense, our bird population will increase in similar ratio. The birds can be encouraged by providing suitable nesting places and also by discouraging the depredations of thoughtless hunters and small boys who are often instrumental in killing the parent birds or breaking up the nests containing eggs or fledglings.

U. S. Live Stock Increasing.

Data recently released by the U. S. Department of Agriculture indicates that the live stock on the farms of the country is increasing for the first time in a number of years. The estimate of the live stock on farms January 1 showed that beef cattle had increased 3.4 per cent over the number of the year previous, or a total increase of 1,212,000 head. Milch cows showed an increase of 2.5 per cent, or a numerical increase of 525,000. Swine showed by far the greatest increase of any class of live stock, 9.6

per cent, or a numerical increase of 5,675,000. The total numerical increase of all farm animals shown on January 1 totaled 7,712,000 head. Not only was the number of animals larger but the value was also greater, the increase in the total value being \$78,024,000, or 1.3 per cent over last year's total.

That this considerable increase in the number of live stock in the country on January 1, however, has not been a factor in recent declines in values is evidenced by the fact that the increase in population, which is estimated at approximately two per cent. There is no occasion for Michigan farmers to become alarmed at the prospect of an accumulation of any surplus live stock since the present high value of grains of all kinds will not tend to promote an increase in live stock maintained upon the farms which will be proportionate with increased demands.

HAPPENINGS OF THE WEEK.

Greece is anxious for war in order to participate in the probable spoils of the recent Turkish activities. Both the Allies and Germany desire her to remain neutral. The Allies fear that if she assists in the activities against Turkey the reward she will ask will be too large, while Germany has made most solemn guarantees that if Greece remains neutral she will be given concessions denied her at the close of the Balkan war. King Constantine is also exerting every influence to keep his country neutral.

LaTouraine, the French liner which was carrying a large amount of ammunition, caught fire while on her way to Havre. After a desperate fight the fire was confined to one part of the boat. French papers express the belief that the fire was started by German spies who might have concealed themselves on board.

The Allied fleets continue to bombard the Turkish forts in the Dardanelles. They have advanced to the narrows where they succeeded in severely damaging two of the forts and caused an explosion in one of the most important there. These defenses are considered the strongest and the greatest obstacle to the Allies in their progress toward Constantinople. A new development in this campaign is the bombardment of the Turkish defenses on the Gulf of Saros, including those of Smyrna, in order to cut off possible reinforcements from the Turkish capital.

In the eastern and western theaters nothing of importance has developed. Russia recaptured Stanislaw and caused a retreat of the Austrian army, which amounted virtually to a rout. The right wing of the Austro-German army in eastern Galicia and Bukovina is said to be seriously menaced. In northern Poland the Russians have taken the offensive everywhere except at Ossowety where the Germans continue a bombardment of the forts. In the western theater there is some activity in Champagne and Vosges, but without material effect.

The food problem has become a serious one in Mexico City and General Obregon has refused to allow any relief work to be done. President Wilson has sent sharp notes to General Carranza, warning him that foreigners must not be injured in rioting in the capital or through the inability to get food. There is friction between Generals Obregon and Carranza as a result of these conditions, Carranza desires to alleviate the conditions in Mexico City.

At Sing Sing, where a corrective and uplifting method of caring for prisoners has been put into effect recently, a training school is being organized in which the rudiments of business is taught. Among the subjects to be taken up will be stenography, book-keeping, mathematics, literature, law and languages. A class of 200 convicts has been knitting mufflers and scarfs for the sufferers in Poland. One of the most hardened criminals recently finished a complete outfit for a baby.

An explosion at the Layland mines near Hinton, W. Va., March 2, entombed over 160 miners. Forty-seven have been rescued and will survive after being buried four days. Ninety-six bodies have been recovered and 20 are still missing.

FORD CAR OWNERS

Can learn of an easy way to make money by writing Dadco, Detroit, Mich. Mention the Michigan Farmer. —Adv.



SHOOT For Fun

NO sport equals shooting for pleasure and health, and shooting practice is mighty useful to a farmer.

Clay target shooting is the school for crack shots.

All you need to form a farmer's trapshooting club is a barrel of clay targets and a

DU PONT

HAND TRAP

Price \$4.00 at your dealers, or sent prepaid by us. Meet on your farm one week, Smith's next, Brown's next, etc. Write for free illustrated Hand Trap Booklet No. S-473, which shows how to throw 40-yd. to 75-yd. targets that fly just like ducks, quail, etc.

DU PONT POWDER CO.

Established 1802 Wilmington, Del.

Delivered TO FREE on Approval and 30 days Trial



SEND NO MONEY but write today for our big 1915 catalog of "Ranger" Bicycles, Tires and Sundries at prices so low they will astonish you. Also particulars of our great new offer trial without a cent expense to you. **BOYS** you can make money taking orders for bicycles, tires, lamps, sundries, etc. from our big handsome catalog. It's free. It contains "combination offers" for re-fitting your old bicycle like new at very low cost. Also much useful bicycle information. Send for it. **LOW FACTORY PRICES** direct to you. No one else can offer such values and such terms. You cannot afford to buy a bicycle, tires or sundries without first learning what we can offer you. Write now. **MEAD CYCLE CO., Dept. M-77, CHICAGO, ILL.**

GRIND 150 BU. PER HOUR LESS THAN 1¢ PER BUSHEL!



Bowsher Mills often reduce the cost of grinding one-half. That's because they are light running with perfect conical shape grinders, different from all others.

BOWSHER FEED MILLS

(Sold with or without elevator)

Crush ear corn (with or without shucks) and grind all kinds of small grains. Handy to operate. 10 sizes—2 to 25 H.P. Also sweep grinders.

FREE Send for folder on values of feeds and manures. D. N. P. Bowsher Co. South-Bend, Ind.

Red Head

(Reg. U. S. Pat. Office)

Spark Plugs

75c

All you need to know about a spark plug is that it's a Red Head. Red Heads are guaranteed a lifetime. Sizes for all motors. Ask your dealer or direct. Address Dept. A.

Emil Grossman Mfg. Co., Inc.

Bush Terminal—Model Factory 28, Brooklyn, N.Y., U.S.A. Makers of Everlastingly Good Motor Necessities.

SEALED JOINT CEMENT STAVE SILO

New and positive method of sealing the joint. New catalog.

SEALED-JOINT SILO CO., PORTLAND, IND. AGENTS WANTED.

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

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

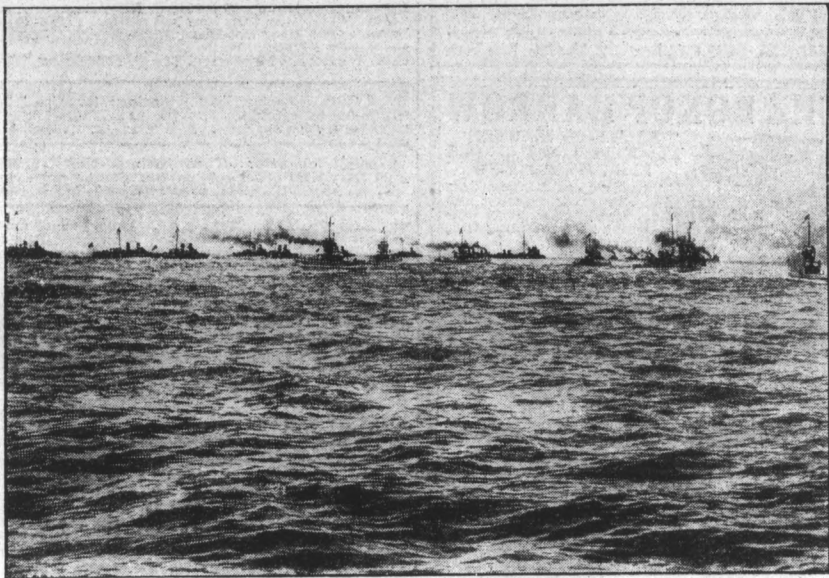


Copyright by Underwood & Underwood, N. Y.

Col. Roosevelt Investigates Efforts to Aid Poor.

Audrey Munson, Poses for Exposition Statuary.

Earl Kitchener, Directs England's War Operations.



Copyright by Underwood & Underwood, N. Y.

Emperor William, Prince Henry and Admiral Von Tirpitz Direct Arrangements from Kiel for Blockading England.



Copyright by Underwood & Underwood, N. Y.

Mrs. Ernest Thompson Seton Proves the Montessori System of Education is Practical for Poor Children.



Copyright by Underwood & Underwood, N. Y.

Street Scene in Funes, Flanders, where British, French and Belgians Meet.



Copyright by Underwood & Underwood, N. Y.

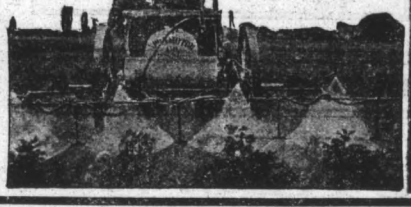
German Field Battery on Eastern Frontier, in Action Against the Russians.

FREE: Write us giving some idea of your spraying needs and we will forward absolutely free, a copy of our valuable illustrated work on Crop Diseases, also full particulars of a

SPRAMOTOR

best suited to your requirements. We make SPRAMOTORS from \$6 up. Write us to-day.

Made in U. S. A. **SPRAMOTOR CO.**
No Duty to pay. 2315 Erie St.,
BUFFALO, N. Y.



Equipped with all Accessories



WE PAY THE FREIGHT. THE GUARANTEE

Lime and Fertilizer Spreader
The Spreader that Spreads Evenly under all conditions

THE GUARANTEE SPREADER has shifting clutch that can be thrown in and out of gear. Regulations can be made from seat. Accurate acre mark, indicator, screen and lid. Write for LOW PRICE and Catalog B. 50.

The Guarantee Mfg. Co., Baltimore, Md.

POTATO

Michigan's Standard, Sir Walter Raleigh. Pure and well grown 90 cents bushel.

OAT SEED

Worthy—Our own seed, \$1 bu. Member Michigan Experiment Asso.

H. E. SAIER, Lansing, Michigan.

KOMONO APRONS 59¢

Made of the best quality heavy percale, checks, stripes and figured goods, in either light or dark shades, in all sizes up to 44, full length. Guaranteed satisfactory or money refunded. State color and size desired. Mailed Parcel Post prepaid.

ECONOMY SALES CO.,
Box 839, Detroit, Michigan

WE PAY THE FREIGHT

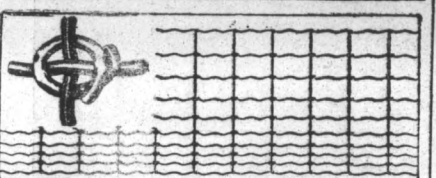
Brown Fence

Strongest, most durable made. Basic open hearth wire. DOUBLE GALVANIZED. Compare our quality and price with others.

Bargain Prices—Direct From Factory
150 Styles—13 Cents Per Rod Up

WE PAY FREIGHT ANYWHERE. Write now for free fence book and sample to test. **WRITE NOW**

THE BROWN FENCE & WIRE CO.
Dept. 40 CLEVELAND, OHIO



WRITE FOR OUR FREE BOOK "Secret of Bigger Farm Profits"
We guarantee every rod of fence. Will ship direct, prepaid, where we have no dealer.

MICHIGAN WIRE FENCE CO.,
10 Logan Street, Adrian, Michigan

DON'T BUY until you get our factory guaranteed heavy galvanized, open hearth Bessemer steel wire fence. 28-inch hog fence, 16 per rod. 41-inch farm fence 21¢ per rod. 48-inch poultry fence 22¢ per rod. NOTE: All wires are galvanized before woven. Write for free catalog.

THE TIGER FENCE COMPANY,
Box 85, Waukesha, Wis.

GET UNITED PRICES

BEFORE YOU BUY FENCING
See how the United Factories plan of selling direct from their 20 factories saves you a lot of money. **UNITO FENCING** has double grip, non-slip lock, one-piece stay wires, heavy strand wires, best heavily galvanized wire. Shipped on 30 days' trial without pay in advance. Get free catalog.

THE UNITED FACTORIES CO.,
205 Factories Bldg., Cleveland, O.

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. Ideal Galv. BARBED WIRE \$1.45 28-rod spool. Catalog free.

HITSELMAN BROS. Box 276 Muncie, Ind.

A Young, Sober, Industrious Single Man wants a yearly position on a farm. Address Box 14, Michigan Farmer, Detroit, Mich.

How to Work.

By H. A. BEREMAN.

A MAN prominent in agricultural affairs stated that "mankind are lazy mortals after all." He was talking to farmers about farmers and possibly he imagines he said something very clever.

The truth won't hurt any of us, but in this accusation the facts indicate that it is just the other way around—many farmers are not "lazy" enough. For example, a man walks ten miles in plowing an acre of land with a 12-inch bottom, and his two acres a day compel him to "hoof it" nearly twenty miles between daylight and dark.

Not so very many years ago a farmer seen riding a plow was regarded by his neighbors with mild contempt. They called him "lazy" and a "sissy" and kept on walking, as their fathers had done before them.

It is no longer a disgrace to ride a corn cultivator, and high-pressure machinery is gradually making a different proposition of farming from what it was in earlier days. Still, there is a tendency on most farms to work too hard with the muscles and to neglect the cultivation of that most valuable property, the "upper forty." This is one reason why many farmers fail to realize big success. With mistaken economy or through excessive zeal they labor early and late at severe tasks and save no energy to think or to plan with.

Human energy may be expressed in different ways—it is all out of the same storage battery—it may be used to propel the body or it may be used to create ideas.

We grow by exercise. An arm tied up in a sling for a year shrivels and becomes useless. Used constantly it develops muscles capable of performing heavy tasks. When the mind is exercised it grows also, but when it is neglected, it weakens the reason and warps the judgment. A nervous system does not produce clear thinking.

By watching the average farmer one is led to believe that he is the opposite of being "lazy" and that he might better save some of his precious life current with which to run the dynamo of his mind.

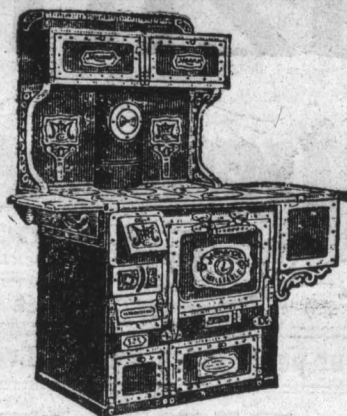
Muscle is necessary on the farm—somebody's muscle—but it is not the element which alone wins the big prizes; it is the quality of brains a man puts into his business that makes him rich or poor.

The man who works with his hands alone, reaps the reward of the laborer. All the men in the world who ever rose to distinction in any calling were capable of wisely directing the work of their own hands, and the fortunes have been made by men who knew how to direct the labor of other men's hands.

It is a matter of choice. If you are satisfied to make a bare living by farming it can be done under favorable conditions by long and hard plugging. If you are not satisfied with a mere subsistence and desire larger results, you must use your thinkery, first in learning all you can about your own trade, and then to employ such wise judgment that every lick which you and your helpers make will count.

Brains and brawn are both needed on the farm but not muscle that steals from the mind. Exhausted bodies bring dull minds. Success is built on wise management and wise management is not supplied from listless bodies and discouraged minds, but by equanimity and by working deliberately without lost motions.

The simplest utterances are worthiest to be written, yet they are so cheap and so things of course, that in the infinite riches of the soul it is like gathering a few pebbles off the ground, or bottling a little air in a phial, when the whole earth and the whole atmosphere are ours.—Emerson.



Less Work Less Fuel, Better Cooking

Banish kitchen drudgery. Do your work in half the time with half the effort. Give your cooking skill the best opportunity to prove itself. The

Monarch Malleable Range

is the housewife's best helper. In construction, workmanship and design, it is years ahead of all other ranges. The Monarch is made of malleable iron and steel. It has complete triple walls— asbestos and steel. The top and oven heat quickly, saving fuel. Every seam is riveted tight—no bolts or stove putty to loosen and fall out. The Duplex Draft and Hot Blast Fire Box insure even heat and full use of all the fuel. The polished top never needs blacking.

Many more Monarch advantages are fully explained in our two free books. Mail us postal note! Address

Malleable Iron Range Co.,
731 Lake Street, Beaver Dam, Wis.



A First Aid to Prosperity

are the two 14x30 Unadilla Silos on this fine New Jersey farm; and you can just believe they wouldn't have been erected had not the owner investigated their merits and verified all claims of quality, durability, greater convenience and ability to cure and keep silage prime. New catalog shows construction in detail. Send for a copy today and learn how a Unadilla will bring greater prosperity to your farm. Discount on early orders. Agents wanted everywhere.

UNADILLA SILO CO., Box Z, Unadilla, New York

THE BOKOP HARROW

THIS IS THE TOOTH THAT DOES THE BUSINESS

It actually cuts. Makes a finer cut than any other harrow, and 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.

PRATT'S HAND-BOOK FOR FRUIT GROWERS

There will NEVER be enough money for one apple—ALWAYS too many cider apples. Don't waste your time and your trees growing inferior grades. Use "Scalecide" the one sure spray for San Jose scale, and produce number one fruit. "Scalecide" is 100% efficient against scale and has marked fungicidal properties. Used by best orchardists the world over. Endorsed by Experiment Stations. Our SERVICE DEPARTMENT furnishes everything for the orchard. Write today to Dept. 22 for new booklet—"Pratt's Handbook for Fruit Growers" and "Scalecide the Tree Saver." Both free.

B. G. PRATT COMPANY
60 Church Street New York City

Government Farmers Wanted:—Age 21 to 60 monthly. Write, OZMENT, 17 F. St. Louis, Mo.

WE OFFER MUNICIPAL BONDS, 6%

MANY ISSUES TAX FREE, YIELDING 4% TO 6%
All paid from taxes—by coupons collectable through any bank.

We absolutely own every bond we offer and have spared no time and expense to make sure of their security and legality. They are

FAR SAFER THAN HIDING PLACES AND BANK VAULTS

in addition to yielding an excellent and certain income. The U. S. Government accepts them as security for Postal Savings Deposits, why not avail yourself of this security and income. They are in \$100, \$500 and \$1,000 bonds and can be bought either for cash or partial payments.

Write TODAY for lists and booklet, "Bonds of Our Country" FREE.

BOND DEPARTMENT, THE NEW FIRST NATIONAL BANK, COLUMBUS, O.

SUDAN GRASS SEED

H-I Quality

MONEY! MONEY! MONEY! Big money was made last year by hundreds of farmers on Sudan Grass, put hundreds on easy street, farmers making \$20 to \$100 an acre on hay and from \$300 to \$700 an acre on seed. Biggest tonnage to acre of any high class hay known. Sweet and juicy. Everybody wants it. Big opportunity growing it for seed next 2 or 3 years. Also great forage, grows easy, easy on land, either dry or wet season, 2 or 3 cuttings. We tried it on our own farm last year. It grew 7 1/2 ft. tall. Full particulars how to grow and free samples, or send 10 cts. for large pack, or 53 cts. for 1 lb. postpaid. We also sell Feterita, 1 lb. for 20 cts. or 1 lb. each for 70 cts. WRITE US.

GALLOWAY BROS. & CO., Box 188 Waterloo, Iowa

Hodges Potato SORTER

will pay for itself in a few days work. Furnished with three screens of different size meshes. It folds up and can easily be carried in a top buggy. Every farmer and dealer should have one. Guaranteed to give perfect satisfaction or money refunded. Write for particulars.

W. B. HODGES,
New Hudson, Mich.

MALONEY TREES

IDEAL GARDEN COLLECTION
12 TREES, VALUE \$1.75 FOR 98¢

1 Delicious, 1 McIntosh, 1 Fall Pippin, 1 Red Astrachan Apple, 1 Burbank, 1 Abundance Plum, 1 Early Richmond, 1 Yellow Spanish Cherry, 1 Yellow St. John, 1 Carmon Peach, 1 Rea's Mammoth Quince, 1 Clapp's Pear.

All first class year trees, 4 to 6 feet high. Buy better trees for less. Write today for our big free wholesale catalogue.

MALONEY BROS. & WELLS CO., Box 100, Danville, N.Y.

CLOVER SEED

We can save you money on June mammoth, alsike & alfalfa, clover seed, unless you live in a community where there is a large surplus of seed to ship. Write today for samples and prices.

W. L. Ireland & Co.,
Grand Lodge, Mich.

PEDIGREED OATS

Worthy, Alexander, and other varieties. Bred and tested by the Agricultural College. Best of hundreds of varieties tested. Grown in Michigan and adapted to Michigan conditions. Also improved varieties of Barley, Corn, Soy Beans and other crops. Michigan Grown Sweet Clover Seed. Write to

SECRETARY MICHIGAN EXPT ASS'N,
East Lansing, Michigan.

"Strawberry Plants That Grow"

All the best June and Fall-bearing varieties. Also best Raspberry, Blackberry, Currant and Grape Plants; Asparagus and Rhubarb Roots in association. Our 1915 Catalog tells how you can get plants of our Wonderful New Seedling Strawberry, "Collins" absolutely FREE. Write for it.

C. E. Whitten's Nurseries, Box 14, Bridgman, Mich.

Seed Oats, Siberian, Imp. American, Swedish Select & 60-day. Big yields. Also Clover and Timothy seed. Write for samples and prices. R. O. Evans, R. 1, Venedocia, O.

A small quantity of white unhulled SWEET CLOVER SEED at \$4 per bu. Sample on request.

T. G. McCULLAGH, Meauwatake, Michigan.

Strawberry Plants and all small fruits, Raspberries, Ornamentals, etc. Red, Black, Purple, Ever-bearing. Large stock. We guarantee all our plants. Large rooted and healthy. Rhode Island Eggs for hatching, catalog free.

Bridgman Nursery Co., Box 9, Bridgman, Mich.

SWEET CLOVER Seed direct from Grower; price and circular how to grow it.

"Free." JOHN A. SHEEHAN, R. 4, Falmouth, Ky.

Large Carman No. 3, Potatoes—Hill selected, 60¢ per bu. sack included.

NATHAN CASE, Harbor Beach, Michigan.

SEED OATS—Garton's No. 5—"The Great Corn Belt Oats." Has yielded 120 bu. per acre. Straw very stiff and will not lodge. Large berry, thin hull. Recleaned, free from smut. Sample, etc.

E. S. CHRISTIANSEN, Coral, Michigan.

FOR SALE—Choice Dahlia Tubers, 75 varieties to select from.

LUCY O'HARROW, Clarksville, Michigan.

Seed Potatoes—Carman No. 3, a round, white, Choice, select, northern grown under improved conditions, thoroughly sprayed and free from disease. Shipped in sack, 60¢ per bu. F. O. B. Beulah. Special price on large lots. Jay Rothman, Beulah, Mich.

SEED CORN—Mich Yellow Dent, home grown, fire dried, tested. Golden Fleece and Reg. Swedish Select Oats. Send for sample and circular. F. A. Bywater, Memphis, Mich.

Pedigreed Oats—Great Dane yielded over 200 bushels per acre. Price \$1.20 per bushel. Golden Fleece or Regenerated Swedish selected 90 cents. Recleaned and bags free.

W. J. MERRIAM, Almont, Mich.

Seed Oats—Regenerated Swedish select also Garton No. 5, 80 cents per bu. Bag FREE. Samples FREE.

O. M. YORK, Millington, Mich.

Winston of the Prairie

BY HAROLD BINDLOSS.

Copyrighted by Frederick A. Stokes Company.

CHAPTER XXIII.

Then Winston recognized them, and made a sign to one of the men behind him as he hauled his binder clear of the wheat. He had dismounted in another minute, and came towards them, with the jacket he had not wholly succeeded in struggling into, loose about his shoulders.

"It is almost time I gave my team a rest," he said. "Will you come with me to the house?"

"No," said Colonel Barrington. "We only stopped in passing. The crop will harvest well."

"Yes," said Winston, turning with a little smile to Miss Barrington. "Better than I expected, and prices are still moving up. You will remember, madam, who it was wished me good fortune. It has undeniably come!"

"Then," said the white-haired lady, "next year I will do as much again, though it will be a little unnecessary, because you have my good wishes all the time. Still, you are too prosaic to fancy they can have anything to do with—this."

She pointed to the wheat, but, though Winston smiled again, there was a curious expression in his face as he glanced at her niece.

"I certainly do, and your good-will has made a greater difference than you realize to me," he said.

Miss Barrington looked at him steadily. "Lance," she said, "there is something about your speeches that occasionally puzzles me. Now, of course, that was the only rejoinder you could make, but I fancied you meant it."

"I did," said Winston, with a trace of grimness in his smile. "Still, isn't it better to tell anyone too little rather than too much?"

"Well," said Miss Barrington, "you are going to be franker with me by and by. Now, my brother has been endeavoring to convince us that you owe your success to qualities inherited from bygone Courthornes."

Winston did not answer for a moment, and then he laughed. "I fancy Colonel Barrington is wrong," he said. "Don't you think there are latent capabilities in every man, though only one here and there gets an opportunity of using them? In any case, would it not be pleasanter for anyone to feel that his virtues were his own and not those of his family?"

Miss Barrington's eyes twinkled, but she shook her head. "That," she said, "would be distinctly wrong of him, but I fancy it is time we were getting on."

In another few minutes Colonel Barrington took up the reins, and as they drove slowly past the wheat, his niece had another view of the toiling teams. They were moving tirelessly with their leader in front of them, and the rasp

of the knives, trample of hoofs, and leash of the binders' wooden arms once more stirred her. She had heard these sounds often before, and attached no significance to them, but now she knew a little of the stress and effort that preceded them, she could hear through the turmoil the exultant note of victory.

Then the wagon rolled more slowly up the rise, and had passed from view behind it, when a mounted man rode up to Winston with an envelope in his hand.

"Mr. MacDonald was in at the settlement and the telegraph clerk gave it to him," he said. "He told me to come along with it."

Winston opened the message, and his face grew grim as he read, "Send me five hundred dollars. Urgent."

Then he thrust it into his pocket, and went on with his harvesting when he had thanked the man. He also worked until dusk was creeping up across the prairie before he concerned himself further about the affair, and then the note he wrote was laconic.

"Enclosed you will find fifty dollars, sent only because you may be ill. In case of necessity you can forward your doctor's or hotel bills," it can.

It was with a wry smile he watched a man ride off towards the settlement with it. "I shall not be sorry when the climax comes," he said. "The strain is telling."

In the meanwhile Sergeant Stimson had been quietly renewing his acquaintance with certain ranchers and herders of sheep scattered across the Albertan prairie some six hundred miles away. They found him more communicative and cordial than he used to be, and with one or two he unbent so far as, in the face of regulations, to refresh himself with whiskey which had contributed nothing to the Canadian revenue. Now the lonely ranchers have as a rule few opportunities of friendly talk with anybody, and as they responded to the sergeant's geniality, he became acquainted with a good many facts, some of which confirmed certain vague suspicions of his, though others astonished him. In consequence of this he rode out one night with two or three troopers of a Western squadron.

His apparent business was somewhat prosaic. Musquash, the Blackfeet, in place of remaining quietly on his reserve, had in a state of inebriation reverted to the primitive customs of his race, and taking the trail, not only annexed some of his white neighbors' ponies and badly frightened their wives, but drove off a steer with which he feasted his people. The owner following came upon the hide, and Musquash, seeing it was too late to remove the brand from it, expressed his contrition, and pleaded in extenuation that he was rather worthy of sympathy than blame, because he would never have laid hands on what was not his had not a white man sold him deleterious liquor. As no white man is allowed to supply an Indian with alcohol in any form, the wardens of the prairie took a somewhat similar view of the case, and Stimson was, from motives which he did not mention especially anxious to get his grip upon the other offender.

The night when they rode out was very dark, and they spent half of it beneath a birch bluff, seeing nothing whatever, only hearing a coyote howl. It almost appeared there was something wrong with the information supplied them respecting the probable running of another load of prohibited whisky, and towards morning Stimson rode up to the young commissioned officer.



Taking a Private Lesson.

Fabric is as important as rubber in tires

EQUALLY important with the quality of rubber, is the strength and endurance required in the fabric binding the rubber into an enduring tire. The fabric used in Ajax Tires is made of Sea Island long staple yarn, the finest yarn obtainable. It is one of the factors which makes possible the Ajax written guarantee of 5000 miles.

Your own interests are best served by deciding now upon Ajax Tires. The implied life of other standard make tires is

**AJAX
TIRES**
Guaranteed
in writing

**5000
MILES**
"While others are claiming
Quality we are guaranteeing it."

3500 miles, and Ajax are therefore better tires by 1500 miles, or 43%. Why buy short mileage and pile up further tire expense for yourself, when you can save from \$4 to \$20, according to the wheel size you use, in exercising your right to have Ajax Tires?

Investigate Ajax Tires! Know for yourself how much better they are. See the Ajax dealer who is close at hand. Write for "The Story of Ajax Tires."

AJAX-GRIEB RUBBER COMPANY
1796 Broadway, New York

BRANCHES: Atlanta, Boston, Brooklyn, Chicago, Cleveland, Dallas, Denver, Des Moines, Detroit, Indianapolis, Kansas City, Mo., Minneapolis, Philadelphia, Seattle, Portland, Ore., Los Angeles, San Francisco.

Factories: Trenton, N. J.

Ask for "HIPRESS"

Tougher than any black rubber footwear ever built—these great brown boots and shoes

Goodrich "HIPRESS"
Rubber Footwear

with the "Red-Line" round the top

Built like a Goodrich Tire—of the same tough rubber—and by the same unit construction, "HIPRESS" process.

Longest, strongest wear, perfect foot comfort—and the finest looking rubber footwear you ever owned.

Ask your dealer for the rubber footwear with the "Red-Line." If he hasn't it yet, send his name when you write for the booklet of many styles.

The B. F. Goodrich Company, Factories: Akron, Ohio

Dealers: Get complete particulars today from the nearest of these Goodrich "Hipress" Service Stations—Boston, New York, Detroit, Chicago, Minneapolis, Kansas City, Seattle, Akron.

Makers of Goodrich Tires and Everything that's Best in Rubber

Look for
the "Red-Line"



The Most Serviceable and Economical Dresses You Could Buy

Can be obtained from your local dealer by asking him to show you

**THE Electric BRAND
HOUSE DRESSES**

For your kitchen, your parlor or street wear there is nothing more dainty or dutiful, and their cost of \$1 to \$3 places them within reach of all.

Demand them by name and insist upon seeing the label to insure yourself of securing dresses of guaranteed quality, latest style and perfect fit.

If your dealer does not handle them, drop us a postal and we will give you the name of the nearest Merchant.

BARMON BROTHERS COMPANY Inc.
BUFFALO, N. Y.



Quality. Compare Prices

THE old Olympic Game promoters were great for what we call "form."

Symmetry, proportion, soundness and proper balance out-bid bulging muscles for favor—yes, and out-won, too, just as they will today.

Mere bulk never was synonymous with endurance—and the truth of this statement drives home with a bang, when you apply it to tires.

IF thick, heavy tires were the last word in tire construction, we could wipe out of existence a Goodrich Research and Test Department employing seventy people. We would take off the road a battalion of ten automobiles, that run twenty-four hours a day and every day in the year, grinding tires of all makes to pieces, just for the sake of information to us and eventual economy to the user of Goodrich Tires.

There is where we learn to cut out of a tire the material which gets the user nothing.

Of course, when we stripped tire price lists of their padding—fictitious values—we expected rivals to say we had stripped our tires.

Note the following table of comparative prices on non-skid tires. Columns headed "A," "B," "C" and "D" represent four highly-advertised tires:

Size	Goodrich Safety Tread	OTHER MAKES			
		"A"	"B"	"C"	"D"
30x3	\$ 9.45	\$10.55	\$10.95	\$16.35	\$18.10
30x3½	12.20	13.35	14.20	21.70	23.60
32x3½	14.00	15.40	16.30	22.85	25.30
34x4	20.35	22.30	23.80	31.15	33.55
36x4½	28.70	32.15	33.60	41.85	41.40
37x5	33.90	39.80	41.80	49.85	52.05

If you are charged less for any other make than Goodrich, they are taking it out of the tire; if you are charged more, they are taking it out of you.

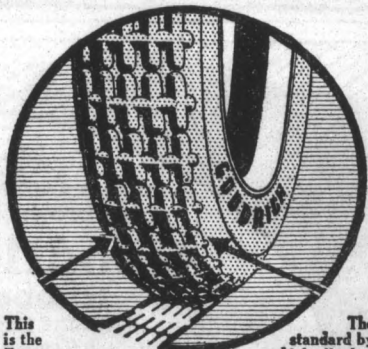
GOODRICH Fair-Listed TIRES

The Goodrich Tire, like the trained athlete, is all brawn and muscle —no fat

IT was their only "come-back." They had to say that, in stripping down prices to the point where they were fair to dealer and consumer and left no room for injurious price-cutting tactics, we had stripped our tires of some quality, too.

THE Goodrich Tire, like the trained athlete, is all brawn and muscle—no fat. It represents an achievement—the ability to cut out the extra costs of manufacture, the extra costs of labor, of extra, needless material, and to give you the best, long-mileage, high-standard tire in the world.

There are padded tires as well as padded price lists.
Don't pay for padding.
Now don't forget this—we are talking in the main about Goodrich Safety Tread Tires, for they represent ninety per cent of our factory output for resale. Furthermore, while we have put the padded prices on smooth tread tires on the run, the evil of padded prices on non-skid tires still is in evidence, as shown in table below:



This is the Famous Goodrich Safety Tread which all other non-skids are judged

The B. F. Goodrich Co., Akron, O.

"The man who brought us word has either played their usual trick and sent us here while his friends take the other trail, or somebody saw us ride out and went south to tell the boys," he said. "Now, you might consider it advisable that I and one of the troopers should head for the ford at Willow Hollow, sir."

"Yes," said the young officer, who was quite aware that there were as yet many things connected with his duties he did not know. "Now I come to think of it, Sergeant, I do. We'll give you two hours, and then, if you don't turn up, ride over after you; it's condemnably shivery waiting for nothing here."

Stimson saluted and shook his bridle, and rather less than an hour later faintly discerned a rattle of wheels that rose from a long way across the prairie. Then he used the spur, and by and by it became evident that the drumming of their horses' feet had carried far, for, though the rattle grew a little louder, there was no doubt that whoever drove the wagon had no desire to be overtaken. Still, two horses cannot haul a vehicle over a rutted trail as fast as one can carry a man, and when the wardens of the prairie raced towards the black wall of birches that rose higher in front of them, the sound of wheels seemed very near. It, however, ceased suddenly, and was followed by a drumming that could have been made by a galloping horse.

"One beast," said the Sergeant. "Well, they'd have two men, anyway, in that wagon. Get down and picket. We'll find the other fellow somewhere in the bluff."

They came upon him within five minutes endeavoring to cut loose the remaining horse from the entangled harness in such desperate haste that he did not hear them until Stimson grasped his shoulder.

"Hold out your hands," he said. "You have your carbine ready, trooper?"

The man made no resistance, and Stimson laughed when the handcuffs were on.

"Now," he said, "where's your partner?"

"I don't know that I mind telling you," said the prisoner. "It was a low down trick he played on me. We got down to take out the horses when we saw we couldn't get away from you, and I'd a blanket girthed round the best of them, when he said he'd hold the other. Well, I let him, and the first thing I knew he was off at a gallop, leaving me with the other kicking devil two men couldn't handle. You'll find him rustling south over the Montana trail."

"Mount and ride!" said Stimson, and when his companion galloped off, turned once more to his prisoner.

"You'll have a lantern somewhere, and I'd like a look at you," he said. "If you're the man I expect, I'm glad I found you."

"It's in the wagon," said the other dejectedly.

Stimson got a light, and when he had released and picketed the plunging horse, held it so that he could see his prisoner. Then he nodded with evident contentment.

"You may as well sit down. We've got to have a talk."

"Well," said the other, "I'd help you catch Harmon if I could, but I can prove he hired me to drive him over to Kemp's in the wagon, and you'd find it difficult to show I knew what there was in the packages he took along."

Stimson smiled dryly. "Still," he said, "I think it could be done, and I've another count against you. You had one or two deals with the boys some little while ago."

"I'm not afraid of your fixing up against me anything I did then," said the other man.

"No?" said Stimson. "Now, I guess you're wrong, and it might be a great

deal more serious than whisky-running. One night a man crawled up to your homestead through the snow, and you took him in."

He saw the sudden fear in his companion's face before he turned it from the lantern.

"It has happened quite a few times," said the latter. "We don't turn any stranger out in this country."

"Of course," said the Sergeant gravely, though he felt a little thrill of content as he saw the shot he had been by no means sure of, had told. "That man, however, had lost his horse in the river, and it was the one he got from you that took him out of the country. Now if we could show you knew what he had done, it might go as far as hanging somebody."

The man was evidently not a confirmed law breaker, but merely one of the small farmers who were willing to pick up a few dollars by assisting the whisky-runners now and then, and he abandoned all resistance.

"Sergeant," he said, "it was 'most a week before I knew, and if anybody had told me at the time, I'd have turned him out to freeze before I'd have let him have a horse of mine."

"That wouldn't go very far if we brought the charge against you," said Stimson grimly. "If you'd sent us word when you did know, we'd have had him."

"Well," said the man, "he was across the frontier by that time, and I don't know that most folks would have done it, if they'd had the warning the boys sent me."

Stimson appeared to consider for almost a minute, and then gracefully rapped his companion's arm.

"It seems to me that the sooner you and I have an understanding, the better it will be for you," he said.

They were some time arriving at it, and the Sergeant's superiors might not have been pleased with all he promised during the discussion. Still, he was flying at higher game, and had to sacrifice a little, while he knew his man.

"We'll fix it up without you, as far as we can, but if we want you to give evidence that the man who lost his horse in the river was not farmer Winston, we'll know where to find you," he said. "You'll have to take your chance of being tried with him if we find you're trying to get out of the country."

It was half an hour later when the rest of the troopers arrived and Stimson had some talk with their officer aside.

"A little out of the usual course, isn't it?" said the latter. "I don't know that I'd have countenanced it, so to speak, off my own bat at all, but I had a tolerably plain hint that you were to use your own discretion over this affair. After all, one has to stretch a point or two occasionally."

"Yes, sir," said Stimson. "A good many now and then."

The officer smiled a little and went back to the rest. "Two of you will ride after the other rascal," he said. "Now, look here, my man, the first time my troopers, who'll call round quite frequently, don't find you about your homestead, you'll land yourself in a tolerably serious difficulty. In the meanwhile, I'm sorry we can't bring a charge of whisky-running against you, but another time be careful who you hire your wagon to."

Then there was a rapid drumming of hoofs as two troopers went off at a gallop, while, when the rest turned back towards the outpost Stimson rode with them quietly content.

CHAPTER XXIV.

The Revelation.

WINSTON'S harvesting prospered as his sowing had done, for by day the bright sun shine shone down on standing wheat and lengthening rows of sheaves. It was in the bracing cold of sunrise the work began, and the first pale stars were out before the tired men and



The "Berlin Quart"

The White Basket

That secures highest prices for your fruit. Write for 1915 catalog showing our complete line and secure your baskets and crates at WINTER DISCOUNTS.

The Berlin Fruit Box Co.
Berlin Heights, Ohio.

Hastings, Mich., Feb. 23rd, 1915.

NOTICE.

TO THE MEMBERS AND POLICY HOLDERS OF THE MICHIGAN MUTUAL TORNADO, CYCLONE & WINDSTORM INSURANCE COMPANY, OF HASTINGS, MICHIGAN.
Notice is hereby given that there will be a special meeting of the members of said company held at City Hall, in the City of Hastings, Michigan, on the 30th day of March, A. D. 1915, at 1 o'clock, P. M., for the purpose of voting upon a resolution to extend the corporate existence of said company for a period of thirty years from the 7th day of April, A. D. 1915, and if said corporate existence is extended, then also for the purpose of passing upon proposed amendments to the Articles of Association of said company. By order of Board of Directors, D. W. ROGERS, Sec.



We Custom Tan

Horse Hides or Cattle Hides for Robes at \$3.50 each

W. W. WEAVER,
Reading, Mich.



A rainy day

need not be dull and forlorn. You can make it just chock full of cheerful work if you wear the

FISH BRAND REFLEX SLICKER

Dressy? Not a bit. Just a coat for good hard service, easy fitting, light, and waterproof—absolutely. Reflex Edges stop every drop from running in at the front.

\$3.00 EVERYWHERE

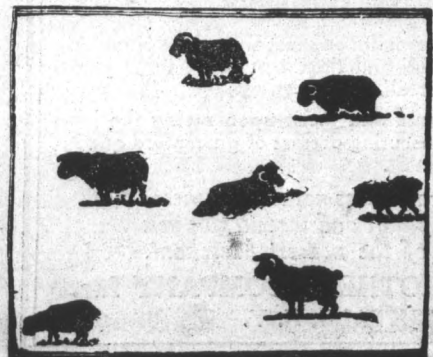
Black, Yellow or Olive Khaki. Protector Hat 75 cts.

Satisfaction Guaranteed Send for free booklet

A. J. TOWER CO. BOSTON

WHITE CEDAR FENCE POSTS—Michigan Cedar Fence Posts, 7 ft., 8 ft., and 10 ft. lengths. Special attention given to farmer club orders. Write for prices and terms. F. G. COWLEY, Oscoda, Mich.

Solve This Puzzle and Win a Prize



Here are seven sheep in a pen. By drawing three straight lines you can put each one in a pen by himself. If you can do this we will send you as a prize, a packet of five beautifully embossed postcards lithographed in rich colors, and also a certificate of entry in our grand contest for a \$395 Saxon Automobile. All you have to do is to enclose two pennies in your letter to pay postage and cost of mailing.

Saxon Car Given Away

Remember the Saxon car will absolutely be given away at the close of this grand contest. In case of a tie a Saxon car will be given to each person so tied. Send your answer at once so you can be entered in this great contest. Full particulars by return mail.

POPULAR CO., 250 Popular Bldg., Des Moines, Iowa

jaded horses dragged themselves home again. Not infrequently it happened that the men wore out the teams and machines, but there was no stoppage then, for fresh horses were led out from the corral or a new binder was ready. Every minute was worth a dollar, and Winston, who had apparently foreseen and provided for everything, wasted none.

Then, for wheat is seldom stacked in that country, as the days grew shorter and the evenings cool, the smoke of the big thresher streaked the harvest field, and the wagons went jolting between humming separator and granary, until the latter was gorged to repletion and the wheat was stored within a willow framing beneath the chaff and straw that streamed from the chute of the great machine. Winston had around him the best men that dollars could hire, and toiled tirelessly with the grimy host in the whirling dust of the thresher and amid the sheaves, wherever another pair of hands, or the quick decision that would save an hour's delay, was needed most.

As compared with the practice of insular Britain, there were not half enough of them, but wages are high in that country, and the crew of the thresher paid by the bushel, while the rest had long worked for their own hand on the level of Manitoba and in the bush of Ontario, and knew that the sooner their toil was over the sooner they would go home again with well-lined pockets. So, generously fed, splendid human muscle kept pace with clinking steel under a stress that is seldom borne outside the sun-bleached prairie at harvest time, and Winston forgot everything save the constant need for the utmost effort of body and brain. It was even of little import to him that prices moved steadily upward as he toiled.

At last it was finished, and only knee-high stubble covered his land and that of Maud Barrington, while, for he was one who could venture fearlessly and still know when he had risked enough, soon after it was threshed out the wheat was sold. The harvesters went home with enough to maintain them through the winter, and Winston, who spent two days counting his gain, wrote asking Graham to send him an accountant from Winnipeg. With him he spent a couple more days, and then, with an effort he was never to forget, prepared himself for the reckoning. It was time to fling off the mask before the eyes of all who had trusted him.

He had thought it over carefully, and his first decision had been to make the revelation to Colonel Barrington alone. That, however, would, he felt, be too simple, and his pride rebelled against anything that would stamp him as one who dare not face the men he had deceived. One by one they had tacitly offered him their friendship and then their esteem, until he knew that he was virtually leader at Silverdale, and it seemed fitting that he should admit the wrong he had done them, and bear the obloquy, before them all. For a while the thought of Maud Barrington restrained him, and then he brushed that aside. He had fancied with masculine blindness that what he felt for her had been well concealed, and that her attitude to him could be no more than kindly sympathy with one who was endeavoring to atone for a discreditable past. Her anger and astonishment would be hard to bear, but once more his pride prompted him, and he decided that she should at least see he had the courage to face the results of his wrong-doing. As it happened, he was given an opportunity when he was invited to the harvest celebration that was held each year at Silverdale. (Continued next week).

It is only through labor and prayerful effort, by grim energy and resolute courage, that we move on to better things.—Theodore Roosevelt.



ONE Firm Service Guarantee

back of every J-M Automobile Accessory

AS an automobile owner and as a user of automobile accessories you will surely be interested in this announcement.

Now, for the first time, you are able to buy your accessories of one firm, with one service and one guarantee. The benefits of buying in this way are threefold:

First, you have the reputation and financial stability of the H. W. Johns-Manville Company as an assurance that the accessory you buy is a product of proven excellence.

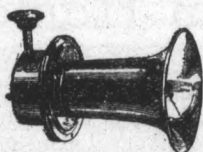
Second, you have their guarantee that should any J-M Accessory prove unsatisfactory, they will make good.

Third, you enjoy the advantage of buying from one of the largest distributors of automobile accessories in the world; therefore you get in extra value what they save in selling cost.



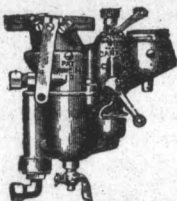
Jones Speedometer

Controlled by Centrifugal Force which is as absolute as the law of gravitation. Not affected by age, use, changes in temperature, altitude, vibration or electrical influences. Absolutely accurate at all times and under all conditions. Large clock-faced dial with widely spaced figures makes it easy to read from any part of the car. Ford model \$12. Other models \$12 to \$125.



Model "J" Long Horn

A real warning signal with a powerful, compelling warning note that is always heard and invariably obeyed. Strongly built to stand up under the hardest service and to give maximum reliability. Handsome in finish and in design. The horn that insures safety and economy. Made in models for electric as well as hand operation. Model "J" (illustrated), \$5.00. Other Models, \$5 to \$12.50.



Carter Carburetor

Obedient to every change in engine speed, insuring the utmost flexibility. Vaporizes every atom of fuel completely, insuring the utmost power and economy. Purchase price will be immediately refunded if after thirty days' use you find you are not getting the results represented. The Carter must make good. Sizes for all cars. Special outfit for Ford cars at \$17.00 complete.



J-M Non-Burn Brake Lining

With your brake drums lined with J-M Non-Burn you are prepared for the immediate stop that is sometimes the only means of avoiding disaster. You have the satisfaction of knowing that your brakes will work—*instantly*. This thorough dependability is built into every inch of real J-M Non-Burn Brake Lining. Costs no more than other linings and lasts longer.



J-M Dry Batteries

The most efficient and lasting batteries for all ignition purposes. Sold with the guarantee that should they not prove entirely satisfactory, we will replace same with new batteries without cost, or refund purchase price, including transportation charges. Made in three capacities, 20, 30 and 55 amperes, 1 1/2 volts per cell. Choice of round or square shape, 25c.

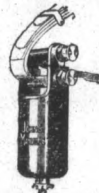
J-M Non-Blinding Headlight Lens

Makes night driving safe. Enables you to see the road clearly ahead and prevents driver of approaching car from misjudging your position. Effect produced by semi-spherical lens with entire surface frosted except for small oval area through which central ray is seen against a surrounding area of non-glaring light. For all standard makes of lamps. Price, \$3.25 per pair.



Johns-Manville Shock Absorber

Extreme simplicity of construction makes it possible to offer this highly efficient absorber at almost half the cost of other makes. Single cylinder, utilizing specially designed spring, gives greatly increased flexibility and riding comfort with less added weight. Easily attached to any car in one hour. Per pair \$15.



J-M Auto Clock

A high-grade timepiece, built to withstand the jolts and jars of car service. Eight-day movement, enclosed in dust-proof case. Winding and setting knobs out of the way of meddling fingers; attaching screws concealed. Dial 3 1/2 in. diameter. Finish, black-and-brass, black-and-nickel or all black; choice of dashboard or flush mounting. Price \$5.00.



J-M Narco Tire and Top Repair Materials

This line includes an efficient and lasting repair for every tire trouble, as well as an excellent preservative for automobile tops —J-M Tirenew, J-M Narco Tire Cut Filler, J-M Narco Rubber Reviver and Refinisher, J-M Narco Vulcanizing Cements, J-M Narco Cementless Patches, each the best product for its purpose. With one of the J-M Narco Tire Repair Outfits you are enabled to make home and roadside repairs that will stand, and at a very slight cost.



J-M (Mezger) Soot-Proof Spark Plug

Gives the biggest, fattest, hottest spark your current can deliver and will not short-circuit. Gas-tight construction positively prevents compression leakage. Specially tempered porcelain stands extreme temperature changes without cracking. We guarantee the performance of every genuine J-M (Mezger) Soot-Proof Spark Plug. Sizes for all cars and motorcycles. Price 75 cents.



OTHER J-M AUTOMOBILE ACCESSORIES

J-M Automobile Tape J-M Fire Extinguisher "Noark" Enclosed Fuses G-P Muffler Cut-Out J-M Packing

Sold direct on receipt of price if not at your hardware or accessory dealer's. Write for booklets. 3003.

H. W. JOHNS-MANVILLE CO.

302 Madison Avenue, New York City

47 Branches

Service Stations in all Large Cities

The Kirstin Free For A Month

One Man Pulls Big STUMPS with Ease



A. J. KIRSTIN CO., 5903 Ludington St., Escanaba, Mich.

3 Garden Tools in 1

The BARKER Weeder, Mulcher and Cultivator

The only garden tool that successfully, in one operation, kills weeds, and forms a complete soil mulch to hold moisture. "Best Weed Killer Ever Used." A boy with a Barker beats ten men with hoes. Has shovels for deeper cultivation. Self adjusting. Costs little. Write for illustrated folder and special Factory-to-User offer.

Barker Mfg. Co. Box 105, David City, Nebr.



Woman and Her Needs

At Home and Elsewhere



What's the Matter With Father?

During the past few years a custom seems to have sprung up of children calling their fathers "dad" or "daddy." The old familiar "mamma" has given place, properly enough, to the more dignified name of mother; but why should the correspondingly dignified name of father be changed to ignominious "dad"? It would be amusing, if it were not deplorable, to hear self-respecting matrons teaching their little ones to master mother, but in the next minute saying daddy. A few years ago a young lady using that expression would not have been considered a desirable member of polite society. The name of dad may have its place in the comic songs of the variety stage, but not in our best homes.

We must look to the mothers of the land to restore father to his proper place, in order that we may go down in history as a nation of fathers and not "dads." We can not let George Washington be known to posterity as the "dad of his country."—Reader.

HEAR, ye mothers. One more job for you. Somehow, somewhere in the day's routine, father has got shunted from his proper place and it is up to you to restore him to the pedestal from which he has fallen. Again the "mothers of the land are looked to" to do what the fathers seem unable to perform.

If the rest of the mothers are as sick of being "looked to" as the particular mother who edits this column, father will remain in his present low state for "a time and times and half a time." We are "looked to" to keep the children in perfect health, mentally, physically and spiritually; to select and make their clothes; direct their reading; pick out their friends; decide upon their amusements; to bathe them and curl them; inspect their teeth and their eyes; get up with them nights when they are babies; wait upon them when they are sick; correct them when they are naughty, and act as a compendium of universal knowledge when they have questions to propound. They are turned over to us completely for their upbringing, especially when there is anything unpleasant or hard to do, and the most we get for it is criticism because we do not do a better job.

In addition to the light task of caring for them in the home, what are we not "looked to" for outside? The mothers of the country are looked to to reform labor laws, to get justice for women and children, to wipe out the liquor traffic, to abolish the white slave trade, to secure higher wages for working women, to run the church and the Sunday school, in short to clean up conditions at home and abroad. Whatever is right and just, but hard to be done, the mothers of the country are looked to to perform.

Isn't it about time the fathers of the country were looked to for something beside the meal ticket? The American father is not in his proper place, no one knows that better than the American mother. But the fault is the father's. For father to keep in his proper place requires more sacrifice and hard work than the average man is willing to give. To keep his proper place he must be on the job every minute, he can not delegate his duties to mother and then expect to occupy the throne. He must have a voice and a hand in the child's upbringing from the hour it utters its first cry if he expects to be revered when it is old enough to understand. To the average American father the baby is but a plaything. So long as it is hap-

py and playful he is willing enough to be amused by it, but if it cries, he drops it like a hot coal into mother's arms.

As it grows older and begins to ask questions he answers it by saying, "Go ask your mother." If it comes to him to have its face washed, a sliver taken out, or a hard knot untied, does he help it out? Nay, nay. That is mother's work. If sickness comes mother sits up nights while father snores, for he has to work next day. He pays no attention to the child's friends except to order them home if they bother him. He absolutely refuses to take any of the responsibility, and hard work, of caring for the family other than bringing in the money. Why, then, should he complain if he is not consulted when the child is grown and has problems, or if his children fail to think to give him the respect he thinks is his due?

It is a hard job to be a father entitled to respect; a job calling for constant sacrifice and eternal vigilance. So hard is it that the average American father has not sufficient courage

and ambition to tackle it. To be more plain and less polite, the average American man is too lazy and selfish to be a father, and he has no one but himself to blame that he does not occupy the exalted place in the family once held by the man of the house. He delegates all his powers and duties to his wife and then complains bitterly because the children do not fall down before his shrine and do him homage.

Father can be restored to his proper place any time he wants to work to get there. Nothing that mother can do or say is going to get him back. Mother has been doing her share in the family, doing her share and father's, too, and the children are quick to see where credit is due. If father wants to share with her in the love and respect of his offspring, he must share with her in the work. When he does it will not matter what he is called. "Father" or "Dad" will be equally good if filial respect is back of the name.

The whole thing is up to father. If he can not command the respect of his family, the fault is his, not mother's. And one mother at least intends to let him work out his own salvation.

DEBORAH.

At last the work was all done. Myrtle Vaughn had always held to the habit of dressing carefully for these short evenings together and tonight she took extra pains. This, with the light of the great hope that had come to her, shining through her eyes, made the marks of the last two years less noticeable.

Baby, after the evening playtime with her father, had gone to sleep. Mrs. Vaughn knew that the time which she had both dreaded and hoped for had come, and she must try and win her husband to her way of thinking. So taking a foot-rest she came and sat down by him, and gently pulling his paper from his hands said, "Dan, do you think we had better buy that forty?"

"Yes, puss, don't you?"

"I'm not sure, Dan, dear. I've been hoping for the past two years that when the tools and stock were paid for we might have some conveniences for the house."

"What did you want?" he asked.

The "puss" was absent now and no pet name came to take its place. He was just plain business man being stingy with his wife.

Not in the least daunted she said: "I want, oh, lots of things. I want water inside the house, both cistern and well water so that I will not have to carry thousands of pails full each year up those steps. I want a washing machine with an engine or a man to run it. I want a bathroom, a furnace, a fireless cooker, a bread-mixer, etc., etc., my liege lord. Not all at once, of course, but all of them as soon as we can afford them. I've been thinking of this all the afternoon, and I have concluded that I am of almost as much importance as the forty. I am not going to grow into an unattractive old woman, while you keep so handsome."

Dan smiled but grew sober in a moment and asked: "But what will it cost, pet?" His good nature had returned even more quickly than she had hoped, but the reason was deeper than she realized. Her husband loved her very much indeed, but he had not lived with her two whole years without knowing that when she had really made up her mind about a thing, he had to let her have her way. Too, he knew her to be a splendid housewife and helpmeet. He had often acknowledged to himself that their success was due as much to her efforts as to his.

Myrtle Vaughn hurried for her letter and literature from the domestic science teacher and field worker, and together they studied over the contents.

At last Dan said: "We cannot do it all at once but we will do what we can. What had we better tackle first?"

Then his wife put her arms about his neck, buried her face in his shoulder and cried with relief.

"Why, Myrtle, dear, what is the matter? Did you want these things as badly as that?"

"No, no," she replied, "but I feared you would not be willing, and I so wanted you to love me well enough to help me when I needed it, and you do. I studied it all out this morning," she went on, "and decided that for our sake and baby's, we must make the housework more simple. Then this letter came in the morning mail," and she took from the folds of her dress the precious offer for her place. "Read it and I'll tell you what I thought we might do if it meets your approval."

City Helps in the Farm Home.

(Continued from last week.)

NO quicker did the question present itself than she hastened to find the answer. Among their legal papers she found those pertaining to her little place, the place where her father and mother had lived, where she was born, and where her parents had died. Tears came to her eyes as she thought how glad they would be if they could see what this money would help her to do now. Then she found the deed of the farm. It was to Daniel Lewis Vaughn, with no mention of his wife. No joint deed here. Mrs. Vaughn smiled to herself as she said, "This must be changed."

But the afternoon work was to be done before baby should awaken. She studied as she worked and only did the necessary things. When Doris awakened, she took her out as she always did in the afternoon. Whatever else had to be neglected, the child should be taken care of. Her own

hard life must not spoil the baby's chance of healthy growth.

The evening demands came early, but before these Mrs. Vaughn managed to look over the letter and literature from the experiment station. The helps were so plain and so practical, that she began to see light for her plans.

Then, in with these were many poultry bulletins. She smiled when she looked through these, and said to herself, "I've been so busy working that I could not find time to learn how to do things in the best way."

She seemed possessed of a new and more interesting viewpoint as she fed the chickens that evening. The hens looked up from their over-generous feeding, as though wondering what had come over their mistress, and Baby Doris crowed in concert with the big Plymouth Rock rooster. She also felt something about her mother altogether different from ordinary.

Two of Michigan's Happy Babies



Maurine Sisson.



Glenn Smith.

FREE Bohon's Big Book of Buggy Bargains

Real bargains on every page. Classy buggies, easy riding and sound as a dollar. All going at prices the dealer can't touch because he has his profit and expenses to make and can't meet my

From-Factory-To-You Prices

My price is just the cost of making the buggy plus my small legitimate manufacturer's profit. You get a high-class buggy at a price that saves you \$25 to \$50.

My famous "Blue Grass" buggies are sold with an

Unlimited Guarantee

Backed by a \$30,000 Bond

Try it for 30 days on your own roads. Test it for easy riding, durability, style. If it doesn't come up to scratch—send it back.

My guarantee on workmanship and material has no time limit. If you ever find anything defective in a Bohon buggy just let me know. I will make it right. Save \$25 to \$50 and get a square deal.

Write for My Buggy Bargain Book Now

Have it on hand when you're ready to buy. It will save you money. Write now—Today

D. T. BOHON, 2051 Main St., Harrodsburg, Ky.

DON'T Pay Two PRICES HOOSIER Stoves & Ranges FREE

To try in your own home for 30 days. Show your friends. Freight paid by us. Send it back at our expense if you do not want to keep it. You can buy the best at Actual Factory Prices. Our new improvements absolutely surpass anything ever produced. Save enough on a single stove to buy your winter's fuel. All HOOSIER STOVES Guaranteed for Years. Send postal today for large FREE Catalogue, showing large assortment to select from. No Obligations.

HOOSIER STOVE CO.
131 State St., Marion, Ind.

Farm Lighting Solved.

Light your house and barn with the

MICHIGAN PIT Lighting System.

Installed outside, safe and economical.

Write for Particulars.

Night Commander Lighting Co.

Dept. E, Jackson, Michigan.

MONITOR SELF HEATING IRON

Makes Ironing a Pleasure. Pronounced the "World's Best" by over 650,000 satisfied customers. No hot stove—heat regulated instantly, clothes ironed better, easier, in half the time.

AGENTS MEN AND WOMEN \$30 to \$50 Weekly. No experience necessary. Absolutely lowest priced and fastest selling iron made. Every home a prospect. New terms. Exclusive territory. Sample free to workers. Write today.

The Monitor Sd Iron Co. 657 Wayne St., Big Prairie, O.

The BEST Light

The problems of adequate illumination vanish when you install a "Best" Light system. More than 200 styles are pictured in our catalog—every one of them guaranteed to give a clear, radiant white light at lower cost than any other illumination you can use. Agents wanted. THE BEST LIGHT CO. 230 East 5th St., Canton, O.

Beacon Burner FREE

FITS YOUR OLD LAMP. 100 Candle Power Incandescent pure white light from (kerosene) coal oil. Burns either gas or electricity. COSTS ONLY 1 CENT FOR 6 HOURS. We want one person in each locality to whom we can refer new customers. Take advantage of our Special Offer to secure a Beacon Burner FREE. Write today. AGENTS WANTED.

HOME SUPPLY CO., 28 Home Bldg., Kansas City, Mo.

PARK'S FLORAL GUIDE—all about flowers, a 16-page Mixed Flower Seed Pkg., 100 seeds, a 16c Seed Coupon, and copy Park's Floral Magazine. The oldest and most popular floral magazine in the world, all for stamp. Don't miss it. Geo. W. Park, LaPark, Pa.

Dan read the letter through and then said: "Do you think you had better sell?"

"Yes, don't you?"

"I presume it would be better. It does not give you much pin money as it is now. You could put this amount at interest and do better."

"Now I want to be very plain, dear," said Mrs. Vaughn. "We are man and wife and what is yours is mine, and what is mine is yours. Is not that the way it should be?"

"Yes, yes, of course, my dear, but what are you driving at?"

"Just this. I want to be joint owner of the farm with you, and I want to help buy the forty by paying \$500 as the first payment. Then I want to make the house on the forty a convenient place for a tenant, and I want to make this house what it ought to be for our home. Are you willing and will you help do it?"

"I think we can work this out together," Dan said. "But what do you mean by owning the farm jointly? Do we not do that now?"

"No, indeed. It is deeded to you alone. Of course, you could not sell it without I, as your wife, signed the deed, but otherwise than that I would have no voice in it. If you should die I would simply hold the use of one-third of it, and my money if used in improvements would all belong to you. Of course, I have only a little but I think that we both would feel much better to know that if anything happened to either, our property would belong to the other without process of law. Do you not feel that way?"

"Yes, I do," replied Mr. Vaughn. "I was only wondering what father would say?"

"I thought of that, too. I do not believe he would object, though, and anyway, it is not for him to decide."

"I guess that is right, too. Well, little girl, I think we had better sleep fore we come to any more decisions over these revolutionary things," he said, with a laugh. "Tomorrow we will see how much farther we can go."

The next day a letter was despatched to Mr. Jones accepting his offer, and the papers, properly executed, were placed in the nearest bank for collection.

Night after night they poured over bulletins, advertisements and plans. Stoves had been their cross during the past two winters, and how Myrtle had longed for a furnace! Now she could have it, and the only question was just how was the best way.

The result of their spending the fifteen hundred dollars was interesting. Five hundred dollars Mrs. Vaughn insisted should go as first payment on the desired forty. The small five room house on this piece of land was equipped with cistern, force pump, hot water tank and range, kitchen sink, properly drained, and all at a cost of \$100. Another \$100 put in a small heating furnace and made a partition separating the furnace and vegetable cellars.

This left \$800 to spend on the improvements in the home. The rush of fall and summer work was over and much of the labor could be done by Mr. Vaughn and the man he had hired by the year, who had moved into the tenant house.

There had been a long consideration of the heating system. The final decision was for the hot water, which would cost more in the beginning but in the end would prove more economical. By doing much of the work themselves the cost of this complete was only \$300.

Before frosts had come a drain was put in to care for all drainage from the house, including sewerage. The wells were all deep rock wells, so that there was no danger of contamination, and only the manner of disposing had to be considered. A four-inch tile was laid from the bottom of the cellar to about six feet from the cellar wall where it emptied into a two-foot tile, three lengths of which

were set upright, one half above the inlet and one half below, these being closed at top. Opposite the inlet was an outlet, also of four-inch tile, and these in turn emptied into another set of two-foot tile, set upright, about ten feet from the first. Underneath these a large excavation had been made down into the sandy soil, and this was filled with fine stone and gravel to the bottom of the tile. The tile was then covered and the location properly indicated so that if any trouble arose it might be easily located. The whole cost above the labor, which had been all done by the regular help, was less than \$20.

A small gasoline engine was installed for pumping both well and cistern water, the former into the kitchen and to a small tank in the attic which furnished the water for the flush tank of the closet, and the latter to a pneumatic tank in the cellar from which would come the supply of soft water for bathroom, kitchen and washroom, the engine and washing machine being located in the woodshed. The engine and the pneumatic tank connected with the range and gasoline heater and with bathroom, sink and washroom, cost complete, \$275.

To make room for a bathroom had been something of a puzzle. It was finally decided to take one of the small bedrooms upstairs, cut off a good-sized clothes closet and use the rest of the room for this purpose. It was located directly over the kitchen which greatly simplified the plumbing arrangements. Then the bedroom, or or parlor, down stairs with the addition of a wardrobe and bed davenport made a splendid den and sewing room. These changes and additions cost about \$50.

With the balance of the money a washing machine, lighting plant, fireless cooker and a bread mixer were bought, and there still remained a very small sum to be used at some future time for labor saving.

Christmas Eve found everything complete, and as the young mother went from room to room, enjoying the even temperature and the home-like comfort, as she glanced into the den where her husband was busily engaged in arranging the first Christmas tree for his child, and caught the look of perfect happiness on his face, as she put Baby Doris in the bathtub and heard her cries of delight as she splashed the water to her heart's content, she thought:

"I wish that every family in the land could know that the most important things in the home furnishing are those that lessen labor and that bring to the family physical health and comfort. These are the best material foundation for ideal home life."

Ingham Co. IDA L. CHITTENDEN.

THE INDIAN PAN.

BY L. M. THORNTON.

Seat all the players but one in a circle. This one, the leader, then gives each of the players a number, whispering it in his ear so that the others shall not hear. He then takes a new pan and placing it on edge in the middle of the circle sets it spinning. The one having the number called, must leave his place and catch the pan before it stops spinning. If he fails he pays a forfeit.

HOME QUERIES.

Mrs. P. L. Tekonsa.—Every baby should be weaned at from nine months old to 11 months. As your baby would be 11 months old in the summer I would advise you to wean her at nine months so she can be used to the change before hot weather. I would advise you to secure milk from some other cow, or better yet, from a herd. There is no satisfactory substitute for milk. If, when you make the change, she does not get along I would be glad to advise you at that time.

FREE Write for Kresge's Katalog of the World's Best 5 & 10c Bargains

CONTAINING OVER 3,000 BARGAINS



10c For This New Spring Style Boudoir CAP

AX45. This beautiful New Spring Style Boudoir Cap is made of fine quality soft finish fancy figured lawn in light colors. Made full head size with wide turn back, trimmed with scalloped edge heavily embroidered. Adjustable elastic band in the back. This is a special value and a new design for Spring and Summer wear. Send us your order today for one of these charming Boudoir Caps. You are certain to be more than pleased with this bargain. Our special price only 10c, postage to extra—11c in all.

Be sure to write today for FREE copy of Kresge's Katalog containing over 3,000 bargains in useful and practical 5 and 10c merchandise. We guarantee to please you or return your money. All orders shipped promptly.

Our References: Any Bank in the World and millions of customers.

Address: Office Box A-8

Parcel Post 5 & 10c Stores

S. S. KRESGE COMPANY

1100-1108 Wabash Ave., Chicago

Write For Low Wholesale Factory Price!

See what a big saving you can make by buying your range direct—what a fine range you can get for a little money. Write us. We'll send you Factory Catalog showing hundreds of styles and sizes, wholesale prices, freight prepaid. Book tells about



FREE TRIAL

Money Back Guarantee and Approval Test for whole year. Nearly 300,000 delighted users. Write for Catalog 113

Write for Book

Kalamazoo Stove Co. Kalamazoo, Mich.

A Kalamazoo Direct to You



For burns, cuts, insect bites and all irritations of the skin, use

Vaseline

Reg. U. S. Pat. Off.

Keeps wounds clean; soothes and heals. Specially valuable in the nursery.

Put up in handy metal capped glass bottles. At drug and general stores everywhere. Illustrated booklet describing all the "Vaseline" preparations mailed free on request.

CHESEBROUGH MFG. CO.

(Consolidated)

33 State Street. New York City

HOME COMFORT FOR WINTER DAYS

Think of the comfort an indoor closet would bring to you and your family these stormy days.

The Wolverine Chemical Closet

makes it possible for you to have a toilet in your home. No Water or Sewer Connection Required.

The outside closet means exposure, sickness and doctor's bills. The Indoor Closet means health, comfort and convenience.

Send us the name of your Hardware or Implement Dealer and we will send you our Catalog giving complete description of the Wolverine Chemical Closet System.

Guaranteed Odorless and Sanitary.

DALL STEEL PRODUCTS CO. 710 E. Main St., Lansing Mich.

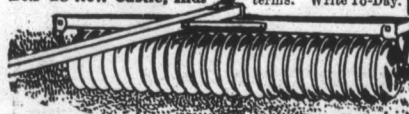
Mention the Michigan Farmer when writing to advertisers.



The Farm's Cash Register
That's the most fitting name for a scale. It registers the value of your hay, grain or livestock. Shows if you get your money's worth of what you buy. Get the easily built, accurate

Allen Pitless Steel Scale
Guaranteed for ten years. Works without friction. Absolutely accurate according to U. S. Standard.

Allen Improved Land Rollers
We guarantee satisfaction or money is refunded. Catalog Free. **Allen Pitless Scale Co.,** Box 40 New Castle, Ind.



CLOVER \$5.00
AND TIMOTHY
INVESTIGATE—Best and Cheapest Seeding Known. Alsike Clover and Timothy mixed. Fully 1-3 alsike, a big bargain. Greatest hay and pasture combination grown. Write for Free Sample and 92-page catalog and circulars describing this wonderful grass mixture. Beats anything you can sow and ridiculously cheap. We handle only best tested seed and guarantee. Write before advance. **A. A. BERRY SEED CO.,** Box 531 Clarinda, Iowa

SAVE 50 per cent. ON TREES
Buy direct from our Nurseries and get best, reliable, hardy nursery stock at a saving of fully one half. Write today for free copy of 1915 catalogue

CELERY CITY NURSERIES, Box 112, Kalamazoo, Michigan.

CARMAN PEACH TREES

The Hardest and Best Peach of its season. 20 first-class trees of this Variety by EXPRESS PREPAID for \$2. Satisfaction Guaranteed. Your money back if not pleased. Write at once for our Price List on full line of high-grade Nursery Stock. Varieties true. No agents.

NEW HAVEN NURSERIES Box 57, New Haven, - - Missouri

LIME

Pulverized lime rock for "sour" soils. Write for LOW PRICES DIRECT TO YOU and we will send sample and full particulars. Write to office nearest you

LAKE SHORE STONE CO., Muskegon, Mich., and Benton Harbor, Mich.

LIMESTONE

For General Farm Use.

Finely pulverized, made from highest high calcium stone. Quick shipments in closed cars. Let us send sample and price.

Northern Lime Co., Petoskey, Mich.

LIME

—You should get the highest grade of limestone manufactured. Buy it upon the basis of analysis. We manufacture the highest grade pulverized limestone sold in Michigan.

Let us prove it. Ask for sample and analysis.

CAMPBELL STONE CO., Indian River, Mich.

PULVERIZED LIMESTONE

For HIGH GRADE MATERIAL and PROMPT SERVICE place your orders with

D. O. MARKLEY, 862 Division Ave. South, Grand Rapids, Mich.

LILLIE'S SPECIAL BRANDS

BUFFALO FERTILIZER

Made from best material. Always reliable. Lime, Potash, Acid Phosphate, Nitrate of Soda.

Agents wanted in unoccupied territory. Ship direct to farmers in carlots. Fertilizer questions answered and farm soil surveys made on request.

Colon C. Lillie, Sales Agt., Coopersville, Mich.

SPORICIDE SURE CURE FOR SMUT

Simple to treat. Sent direct on trial where we have no agents. Free Booklet. Agents Wanted **Sporicide Chemical Co.,** ATLANTA, N. Y.

PURE FIELD SEEDS

Clover, Timothy, Alsike, Alfalfa and all kinds of Pure Field Seeds direct from producer to consumer. Free from noxious weeds. ASK FOR SAMPLES.

A. C. HOYT & CO., Box M, Fostoria, Ohio

Our Trees and Vines Grow

Apple, Peach, Pear, Plums, Vines, etc. Catalog free. **W. A. ALLEN & SONS,** Geneva, O.

SWEET CLOVER

SEED.—White and large bluish yellow. Prices and circular on request. **EVERETT BARTON,** Box 129, Falmouth, Kentucky.

SWEET CLOVER SEED or sell, **YOUNG-RANDOLPH SEED CO.,** Owosso, Michigan.

Garden Seeds

Wholesale price to you 50 per oz. for vegetable seeds, etc. Write for Catalog today. **ALLEN'S SEED HOUSE,** Dsk. M. Geneva, Ohio

SEED POTATOES

CATALOGUE SENT ON REQUEST **NORTHERN SEED COMPANY**

Box 26 -:- Grand Rapids, Michigan.

STRAWBERRY PLANTS—35 Varieties, \$1.65 per 1000, valuable catalog free. **MAYERS PLANT NURSERY,** Merrill, Mich.

New Developements in Spraying.

WHEN the destruction of the forests—the home of the birds—caused the rapid increase of insect life injurious to fruits and edible plants, the farmer was compelled to resort to artificial insecticides and fungicides. The first standard combined insecticide and fungicide given to the farmer was Bordeaux mixture with some form of arsenate. Later it was found that the lime-sulphur wash had advantages over Bordeaux mixture. It was a better scaleicide in controlling San Jose scale, and combined with arsenate of lead it had superior properties in destroying insects and fungi. The application of these spraying solutions has been expensive because of the labor involved in their preparation and application. The extensive orchardist, to insure his crop, has found several sprayings during the season necessary, and his investment in modern machinery and necessary outfit, added to cost of labor and material, has been a large item in the expense of fruit growing.

Advancement in Spraying.
Like the history of other improvements, there has been an evolution in spraying methods, and some recent discoveries promise such rapid progress that revolution would seem to be the best term to describe it.

These discoveries are of late inception and were first given to the public at the recent convention of fruit growers held at Rochester. The dust spray for orchards is one of the new discov-

secticide is known as the "Babcock-Lasher formula," discovered by Prof. Babcock and H. W. Lasher.

Up to the present time the method of insect and fungus control has been on the line of smothering and poisoning, and protecting the foliage by an impervious coating of spray material. The new formula strikes out on a new line of destruction, not waiting for the insect to eat the poison, or taking chances in smothering it. It kills instantly by contact, and the powerful agent found to do this effectively is carbolic acid combined with fish oil soap. The statement is made that this insecticide will kill any insect by contact, and will not injure the foliage of any plant. The Babcock-Lasher formula is as follows: 100 gallons of water, 15 pounds of fish oil soap, and one pint of crude carbolic acid. The soap is dissolved by boiling.

It may be well to say that Mr. Lasher is a responsible business man, having a business in Rochester, and extensive orchards in the vicinity of that city. He has no desire to make money out of it by retaining proprietary rights, but wishes all to be benefited by the discovery.

An Effective Insecticide for Rose-bugs.

According to the paper read at the fruit growers' convention Mr. Lasher's orchard was badly infested with rose-bugs, an insect which is very hard to control with an insecticide. Mr. Lasher called the plant and tree doctors from the state institutions to his aid



Spraying is the Greatest Factor in Getting Good Fruit.

eries mentioned. Prof. Reddick, of Cornell University, is a pioneer in dusting orchards. The process he is working out, is the use of lime-sulphur and other materials in powder form, and applying the combined pulverized materials to the trees, letting nature supply sufficient water in the form of dew to harden or set them on the trees. The making and applying of the lime-sulphur solution, which requires costly equipment and much time, has been one of the burdens of the orchardist. It is claimed that leaving out the water from the lime-sulphur mixture reduces the labor of spraying one-fourth that of using the water solution. The dust spray has been found to be especially effective, according to Prof. Reddick, in destroying apple scab, and he hopes to control about all orchard pests with it. Dusting of trees instead of spraying with solutions is in its experimental stage, but results obtained so far promise to eliminate much of the cost and labor of spraying orchards. Special equipment is needed, also protection for the eyes of the operator, and a knowledge of meteorology, that will enable one to apply the spray at a time that will be followed by a dew the next night.

A New Insecticide.
Another newly discovered insecticide has been presented to the public which its discoverers claim marks an epoch in insect control. This new in-

secticide has been presented to the public which its discoverers claim marks an epoch in insect control. This new in-

secticide has been presented to the public which its discoverers claim marks an epoch in insect control. This new in-

secticide has been presented to the public which its discoverers claim marks an epoch in insect control. This new in-

secticide has been presented to the public which its discoverers claim marks an epoch in insect control. This new in-

Planet Jr. Wheel Hoe: Horse Hoe

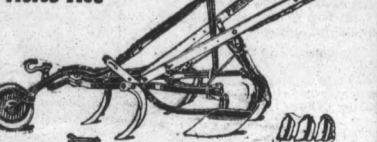
Planet Jrs. are the most economical farm and garden tools you can buy. They are made the best, last the longest, and give the biggest results. Fully guaranteed.

No. 11 Planet Jr. Double Wheel Hoe, Cultivator, Plow and Rake



A single and double wheel-hoe in one. The plow open furrows and cover them. The cultivator teeth work deep or shallow. The hoe is a wonderful weed killer. The rake does fine cultivation. Unbreakable steel frame. The greatest land-cultivating tool in the world.

No. 8 Planet Jr. Horse Hoe



Stronger, better made, and capable of a greater variety of work than any other cultivator made. Non-clogging steel wheel. Depth-regulator and extra-long frame make it run steady. Adjustable for both depth and width.

72-page Catalog (168 illustrations) free

Describes 55 tools, including Seeders, Wheel-hoes, Harrows, Orchard and Beet-Cultivators. Write postal for it.

S. L. ALLEN & CO Box 1107M Phila Pa

Hill's Evergreens Grow

All hardy stock—twice transplanted—root pruned. Protect buildings, stock, crops. Hill's Evergreen Book, illustrated in colors, Free. Write today. **Hill Nursery Co., Inc.,** 2303 Cedar St., Dundee, Ill. Evergreen Specialists

Galloway's 1915 Strawberry Sensation

The famous Everbearing variety. Has long fruiting season and large, highly flavored berry. Had my friends try a few last season. Wonderful results. Want you to try some. Special price, also free offer whereby I give my new customers some of these plants free. Write for proposition and handsome colored catalog filled with new and standard varieties of garden and flower seeds, etc. Address **Galloway Bros. & Co.,** 183 Galloway St., Waterloo, Iowa

WEEDLESS FIELD SEEDS

We are trying with all our might to furnish absolutely pure, Red, Alsike, Mammoth, Alfalfa, Timothy, Sweet Clover, and all other field seeds, with all blasted and immature grains removed. Write today for free samples and instructions **"How to Know Good Seed."**

O. M. SCOTT & SON, 26 Main St., Marysville, Ohio

BANKER'S TRIAL COLLECTION. Let's Get

100 Fruit Trees, Berry Bushes & Grape Vines, \$5 Money back if not satisfied when you see the trees. 20 Apple trees—5 to 7 ft. 2 years—4 Baldwin, 2 Bannan, 2 McIntosh, 2 R. I. Greening, 2 Red Astrachan, 2 Stayman, 2 York Imperial, 2 Black Bee Davis, 2 Stark, 10 Pear trees No. 1—2 year—2 Bartlett, 3 D'Anjo, 5 Kieffer, 1 Elberta Peach, 1 Ea. Crawford, 1 Montmorency Cherry 3 to 5 ft., 1 Crab Apple, 1 Burbank plum 5 to 7 ft., 10 Grape Vines, 5 Concord, 5 Niagara, 1 yr., 25 Blackberry large size, 25 St. Regis Red Raspberry, 1 year. Get my big Catalog, it's Free. I sell only trees I grow. **D. G. BANKER, DANVILLE, N. Y.**

STRAWBERRY PLANTS,

Seed Potatoes, Seed Corn. Catalog Free.

FLANSBURGH & POTTER Box 360, Leslie, Mich.

Strawberry Plants

Guaranteed as good as grows at \$1.00 per 1000 and up. Catalogue FREE.

ALLEN BROTHERS, R. 9, Paw Paw, Mich.

NEW STRAWBERRIES CATALOG

Reliable, interesting and instructive—All about the New Everbearers and other important varieties. Address **C. N. FLANSBURGH & SON, JACKSON, MICH.**

WHOLESALE PRICES

on Strawberry Plants. Many other varieties and garden roots at reasonable prices. Catalogue FREE. Write today to **A. A. WESTON & COMPANY, BRIDGMAN, MICHIGAN**

MEDIUM RED CLOVER SEED

99% purity, 97% germination, \$9.25 per bu., bags included. **DADMUM BROS.,** Whitewater, Wisc.

Seed Corn and Oats—Satisfaction

guaranteed. **JESSE W. PICKETT, Caledonia, Michigan.**

120 BU. PER ACRE—The Corn Belt Oat.

Description, prices and sample free. **MUNGY TOWN STOCK FARM, Flat Rock, Michigan.**

For Sale—400 Bushels of Senator Oats.

Ready to sow. Price \$1 per bushel. Sacks free. Yielded 70 bushels to the acre. Address **J. E. SKEOCH, Maple Valley Farm, Coral, Mich.**

STRAWBERRY PLANTS.

1000 for \$1 as per new offer in free catalogue. 100 varieties and Everbearers listed. Seed corn, potatoes, raspberries, vines, shrubs, fruit trees and everything. **ALLEGAN NURSERY, Allegan, Michigan.**

Just Say— Saw your ad. in the Michigan Farmer when writing advertisers.

and more susceptible. This orchard subsequently developed the worst attack of pink aphid I ever saw, every tree having thousands upon thousands of curled leaves."

To Control Aphid.

"While fighting these aphid Prof. Hotchkiss, of Geneva Experiment Station, kindly paid the farm several visits. We counted the curled leaves on the eleven trees and, as I recall it, the maximum was 120 on a tree, the minimum thirty, such a negligible amount that in a year pronounced free from aphid one would have more than that amount."

"I believe that this formula has fungicidal properties. A neighbor has an orchard near mine. We both have Greenings and we both sprayed at the same time with the same material we have always used. I made an additional application of this formula and my apples were absolutely without scab while he had a great many scabby apples."

"Should anyone spray after the tree is in foliage I would cut the soap down to ten pounds, and the carbolic acid to one-half pint to each 100 gallons of water, or even less. To save time have one kettle boiling the soap while you are spraying. We slice our soap with a spade to have more surfaces exposed to the hot water, and thus aid in its speedy reduction. The advice may be thought to be out of place but all these must be done thoroughly. This is a contact spray and all surfaces must be hit. Rough-barked trees for a good job, should be scraped, although I don't believe in scraping trees as a general proposition."

An Economical Spray Material.

And now I pass to the saving in cost of application, and this is a most important matter in view of the low selling price of fruit the past year. One application of this formula, using a team and three men, and applying 1600 gallons daily, will average \$2.10 a hundred gallons, labor and all. The three applications of any combined fungicide and insecticide necessary for thorough work will aggregate at least \$4.80 against the aforesaid \$2.10.

Within the range of reason one can picture this formula controlling all insect life on fruit, the codling moth, bud moth, leaf roller, pear psylla, thrips, etc. The gypsy moth, brown tail and tussock moth, caterpillars, except in a cocoon form, the boll weevil on cotton, the Hessian fly in wheat, and aphid on nursery stock. Animals can be washed with it and poultry houses disinfected, vegetable and fruit gardening, greenhouses, white fly and black aphid on oranges, in fact, the field is unlimited.

New York. W. H. JENKINS.

SAVING TIME DURING SPRAYING.

Spraying is always a busy and pressing job, and any hints which enable one to push the work are valuable. It is only when the spray does is going onto the trees that work counts. The least possible time that can be consumed in the preparatory work—preparing the mixtures, filling the spray tank with water, driving back and forth between the orchards and the water supply, etc., facilitates the actual work of applying the spray.

We have made a considerable study of rapid and economical spraying, and the quantity of spray material that can be put on in a given time without waste. It is not economical of time to have such a fine nozzle outfit that a man must stand with the nozzle pointed at a given space any considerable length of time in order to wet it sufficiently. Nor is it economical of the spray material to have such coarse nozzles that the liquid goes on too rapidly and is wasted. We have about concluded that about the proper medium is reached when large trees are being sprayed in full leaf when two men put on a 200-gallon tank full in 40 to 45 minutes. When trees are bare of foliage, or with

smaller trees where more time is spent in driving from tree to tree, so that the nozzles are not kept so constantly employed, more time is required in emptying the tank. I had to invest in a new spray rig last spring and I did not buy a rig already assembled, but I procured such an outfit as met my ideas in all respects, and I aimed to get one of about this capacity. In spraying large apple trees about 50 years old we put a tank full onto about 15 or 16 trees and the nozzles were kept busy almost constantly, and it took about 38 to 40 minutes to empty the tank.

A Convenient Water Supply.

The water supply is an important factor in doing rapid work. In our case we met this particular difficulty in a 60-acre orchard by driving a well in the middle of it. We had been getting water from a lake and had to haul it about 40 rods to get it into the orchard. There was quite a hard hill to haul it up, and the best the men had been able to do was to put on seven to eight tanks per day, and often if there was any delay not over six tanks were put on. With two men and a team spending time hauling water so much of the time it appeared that it would pay to have the water supply handier, so we put down a well and put up an elevated tank for water in the middle of this orchard. We had an old gas engine that had served on a spray rig six or eight years and had become uncertain for that purpose, but we set it to pumping water into this elevated tank and it did good service there and kept up a good supply of water. We put in a two-inch pipe to draw the water into the spray tank, and with this we could fill the spray tank in three minutes. In four minutes from the time we drove up to the water tank we were loaded and ready to start back to the spraying. It was necessary, though, occasionally to tap a barrel of lime sulphur or prepare some arsenate of lead, and we found that we could just about average a tank an hour. Ten tanks a day was 25 to 30 per cent better than we had been doing where we had to go farther for water, and it justified the expense of the new well.

The Spray Rig.

The rig I got up has a metal base securely riveted together so that the machinery is rigidly held in place. The pump is a duplex with two upright cylinders two and a half inches in diameter. It has solid plungers with the packing around the outside so that any leak can readily be seen, and it is easy to keep the packing tight so that a full pressure can be maintained at all times. The engine is three horsepower and hopper cooled. I have used a three-horse engine that was air-cooled and frequently in the summer time it became so hot that it bothered a good deal, and I have at times turned the nozzle onto it to cool it so that the work could proceed. This was probably not an ideal way of cooling the engine, but we preferred it to delaying the work. So we put on a water-cooled engine this time. The tank is provided with an agitator with two small propeller paddles on a single shaft and driven with a belt from a pulley on the pump. This keeps the entire mixture in the tank thoroughly agitated.

Allegan Co. EDW. HUTCHINS.

CATALOG NOTICES.

The Maple Bend Nursery catalog of fruit and ornamental trees, shrubs, grape vines, small fruit plants, etc., is sent upon request by T. B. West, proprietor of Maple Bend Nursery, Perry, Ohio. This catalog lists a complete line of the specialties above noted.

German Nurseries and Seed House, Beatrice, Nebraska, send a 1915 garden book of 130 pages describing and illustrating their line of garden seeds and plants, flower seeds, etc.

Strawberries and other fruit plants are listed in the 1915 catalog of L. J. Farmer, Pulaski, N. Y. A full line of fruit plants and trees is listed in this catalog.

Maurice Costello

Famous Moving Picture Actor, says:

"The great thing about Tuxedo is the fact that it gives full fragrance and flavor together with extreme mildness. I find Tuxedo not only the height of pipe enjoyment but a distinct benefit because it gives just the proper degree of relaxation. Tuxedo is undoubtedly an exceptional tobacco."

Maurice Costello



"As Popular As The Movies"—TUXEDO

Tuxedo answers every smoke desire—every little palate craving, every longing for the one Perfect Pipe tobacco. No matter when or how you smoke Tuxedo it sends right into your heart a glimmer of Gladsome Sunshine. And you can just about hear the honeybees buzz in the far-off gardens.

Tuxedo

The Perfect Pipe Tobacco.

Sings into your system a song of keen delight. It spreads real happiness and cheer because it's smokable, lovable, all day, all night—no matter how the weather fits. Tuxedo's flavor is so enticingly mild and delicately fragrant it will not irritate the most sensitive throat.

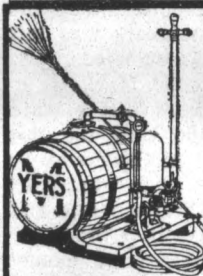
Simply the choicest mild leaves of grand old Kentucky Burley—ripe, rich, fragrant and mellow—made into delicious tobacco that smokes as smooth as cream. That's Tuxedo.

YOU CAN BUY TUXEDO EVERYWHERE

Convenient, glassine-wrapped, Famous green tin, with gold
moisture-proof pouch. . . . 5c lettering, curved to fit pocket 10c

In Tin Humidors 40c and 80c In Glass Humidors 50c and 90c

THE AMERICAN TOBACCO COMPANY



"LOOK FOR THE NAME" MYERS

ON SPRAY PUMPS

For Spraying, Painting and Disinfecting.

If you grow fruit or vegetables, raise poultry or care for stock, you can't get along without a spray pump. You might just as well have a good one as any other kind. Get a MYERS—Bucket, Barrel or Power—according to your needs—a guaranteed pump that you can depend on or a fully equipped outfit with tank, truck, etc., that is handy to use about buildings for whitewashing or disinfecting, and also adapted for spraying trees, shrubbery, etc.

Write today for late Catalog showing all styles of Myers Spray Pumps, Nozzles and Accessories and giving complete spray Calendar and Instructions—How and When to Spray. A Postal brings the catalog with name of your dealer.

F. E. MYERS & BRO. 406 Orange St. ASHLAND, OHIO
ASHLAND PUMP AND TOOL WORKS

GOOD SEEDS

BEST IN THE WORLD

Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables, and flowers. Send yours and your neighbors' addresses.

R. H. SHUMWAY, Rockford, Illinois

ALFALFA

PURE TESTED SEED

Don't Buy Alfalfa until you get our Price and Samples. We specialize on Pure Tested Alfalfa Seed. No second or third grades. Drop us a postal and get our New, Different and Original complete 1915 Pure Seed book and Planting Guide, an eye-opener, work of art, six colors, 300 pictures, also wholesale list. Or send 10 cts. and get in addition our 62 page, 25 ct. book "How to Grow Alfalfa, the Wonder Crop"—a mine of information. Tells how to get a sure "catch," prepare ground, inoculate, protect, harvest and many other new facts and important discoveries.

GALLOWAY BROS. & CO., Box 186 WATERLOO, IOWA

MILLIONS of TREES

PLANTS, VINES, ROSES, ETC.

The oldest, largest and most complete nursery in Michigan. Send for catalog. Prices reasonable.

I. E. ILGENFRITZ' SONS CO.

THE MONROE NURSERY, MONROE, MICH.

SEED OATS Regenerated Swedish Select.

SEED POTATOES—Green Mountain and Late

Potatoes or Rural Russets. Write for sample and Prices.

COLON C. LILLIE, Coopersville, Michigan.

Champion Beardless Barley—\$2.30 per 100. Great

Sacks inc. ALFADALE FARM, St. Johns, Mich.

LARGE WHITE UNHULLED SWEET CLOVER SEED

\$16 per 100 lbs. in heavy bags. Sample on request.

C. D. DOANE, Otisville, Michigan.

KANT-KLOG SPRAYER—

9 sizes of sprays from one nozzle. Starts or stops instantly—saves solution and work. Send for catalog. Agents wanted.

Rochester Spray Pump Co.

189 Broadway Rochester, N. Y.

Seed Corn 5,000 Extra selected

Bushels sure to grow 20

Leading varieties. Highest yielders. Best show corn. Also seed oats, barley, alfalfa and potatoes. 1200 acres. Sample on request. Write today for catalog. W. N. SCARFF, New Carlisle, Ohio

STAHL

Protect your trees, vines and plants by spraying in time. Stahl's "How, When and Why of Spraying" illustrates

and describes outfits for every need. It's FREE. Write at once for FREE 10-DAY TRIAL OFFER and Special Introductory Offer. Address WM. STAHL SPRAYER CO., Box 528, Quincy, Illinois

SPRAYERS

Light Weight Cushman Engines For All Farm Work

This Light Weight Cushman Truck is so handy for all power work. So light a boy can pull it around from job to job, yet it easily handles all work up to 4 or 4½ H. P.

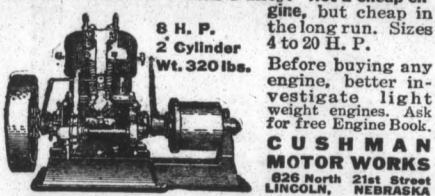


4 H. P. Truck
Engine weighs only 190 lbs.

Runs at any speed desired, speed changed while running. Pump circulation to water tank prevents overheating, even on all-day run. All Cushman Engines are

Throttle Governed—Steady and Quiet

No jerky, explosive hit-and-miss running. They are the most useful engines for farm work, as they do everything the big fellows do and so many jobs big engines cannot do. May be attached to binders and other machines as power drive. Equipped with Schebler Carburetor and Friction Clutch Pulley. Not a cheap engine, but cheap in the long run. Sizes 4 to 20 H. P.



8 H. P. 2 Cylinder
Wt. 320 lbs.

Before buying any engine, better investigate light weight engines. Ask for free Engine Book. CUSHMAN MOTOR WORKS 626 North 21st Street LINCOLN, NEBRASKA



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.
Huntington, Ind. Philadelphia, Pa. Lansing, Mich.



KRAUS PIVOT Cultivators

Read This!

The KRAUS brings better crops, with less time, labor and expense, BECAUSE—Slight foot pressure shifts wheels and gangs to right or left; horses furnish the power, the driver only steers. Cultivates hillsides, uneven land and crooked rows and brings more land under cultivation. Dodges obstructions; leaves no end hills. Fully adjustable. Light draft, perfect balance, least wear and tear. Your boy can run it.

Get Good Crops During Backward Seasons by equipping the KRAUS with Akron Fertilizer Distributor and apply fertilizer while cultivating. Strengthens the plants and hastens their development. Write today and let us explain other features.

The Akron Cultivator Company,
Dept. 63 Akron, Ohio

6 H. P. \$96⁷⁵

1½ H.P.	\$24.75
2 H.P.	28.75
3 H.P.	33.90
4 H.P.	38.90
5 H.P.	43.50
6 H.P.	47.50
8 H.P.	57.50
10 H.P.	67.50
12½ H.P.	82.50

Many other sizes—all sold direct and fully guaranteed. BIG 32-PAGE CATALOG FREE. Write today. OTTAWA MFG. CO., 216 King St., Ottawa, Kans.



DO YOU NEED FARM HELP? We always have able bodied young men, experienced and inexperienced, who want farm work. Our object is to encourage farming among Jews; no charges to employer or employee. If you need good, steady, sober men, write to Jewish Agricultural Society, 714 W. 12th Street, Chicago, Illinois.

Farm Commerce.

The "Co-op" Membership Problem.

Address given before recent Country Life Congress at East Lansing by Jas. Nicol, Secretary of South Haven Fruit Exchange.

THE membership problem for us daily. Then they complain because was not a serious one. We had the manager gives them abrupt answers. With such members it is the duty of the board of directors to take a firm stand that, unless a contract is signed, the members cannot deliver fruit to the packing house. This prevents bad feeling between such members and the manager.

Buying Outside the Membership.

Ten growers got interested and decided if necessary they would take enough stock to insure the starting of the exchange.

No Expensive Soliciting Done.

But to give all growers a chance to join if they desired it was also agreed that no member would take more than one share unless necessary. The list was then signed and left at local bank and general invitation was given to growers to unite in starting. We decided that any grower who was not willing to risk \$100 in the selling of his products was not ready for co-operation.

While \$100 is a good deal of money yet it would only pay for two months rent of a store in a city of moderate size, or about half the cost of a power sprayer, and when they signed the list guaranteeing the \$100 it was good evidence that they meant business.

One share of stock entitles owner to all rights and privileges. Not one cent was ever paid for soliciting stock subscriptions. All money paid for stock went into association and all the soliciting that was ever done was just friendly invitation or advice to join the association.

Forty dollars per share was paid when the exchange was started. Second year \$20 premium was required and at last annual meeting stockholders voted to call in balance due on the stock and not sell any more.

August, 1914, the capital stock was increased to \$10,000. We finished the second year with 60 members, and the admittance of new members was left to the discretion of the directors.

Members with Special Markets.

Some of our members had private customers which trade they did not want to discontinue. So the members sign a yearly contract as to what they expect to deliver to the exchange and I will say that 95 per cent of the members sign for all their fruit except what they reserve for help and home use.

Several members have turned over their private orders to the exchange, saying they are more trouble than they are worth. They generally find that selling fruit to private consumers is a very much over-rated proposition and does not pay except in a small way locally. We have had no trouble with members selling fruit outside of exchange after signing the agreement.

In fact, should a buyer offer extra prices to individual growers, we say figure in your five per cent commission and sell them. Then offer the buyer 10 or 20 cars more and we will stand back of you and fill the sale.

Troublesome Members.

We have a few members, only a few who do not want to sign a contract but want to consult the manager on every variety as it gets ready for the market, and they want him to guarantee a higher price than they can get anywhere else. Then they bring their fruit to the packing house when they have exhausted all local and other markets. Such members are more or less a nuisance and they take up valuable time asking the same questions

When the members have not signed their contracts at the proper time, the directors can admit new members or let the manager buy fruit so that the packing house can be run to its full capacity, for this cheapens the cost of packing and tends to giving better financial returns.

We really have got to a point where we do not worry as to what the members are going to do. If they want their farms to pay a higher return they had better do business through the association. Repeatedly last season, we were offered fruit by growers saying, "Take it and pay us what you can." Just think of such a condition when an investment of \$120 would have entitled them to all the privileges. One grower I heard say: "I cannot afford to join the association." We bought one car of fruit of him that paid the association a profit of \$75.00.

At East Casco Grange one day during our first season, one of the older members asked how many members have you? We answered that there were about 30 in the fruit exchange. "Well," he said, "I believe it must be a good thing, for if it were a fake the farmers would be taking stock in bunches." One cannot blame the farmers for going slow in a new proposition as they have not had the business training.

Reduces Cost of Harvesting.

One of the strongest arguments in getting members for the exchange is the central packing house. Under the Michigan packing law, a grower is at the mercy of his help. Any careless or malicious employe can damage a fruit grower beyond measure by having the grower fined for snide packing of which he was entirely ignorant, but the general public will say, "Farmers are all alike. They cannot pack honestly." In the central packing house, should a mistake be made, it would not injure the grower, because the public knows that the packing is all done by hired help.

Another good feature is that it greatly reduces the amount of help needed on the farm at time the crop is harvested. We have never refused an applicant for membership and it has been our good fortune that they have not come any faster than we could accommodate them.

THE REFRIGERATOR CAR AND HOW TO USE IT.

Now that farmers are beginning to market their products in a wholesale way, either as individuals or through co-operative associations, it is essential to understand the nature and use of refrigerator cars. Samuel Fraser, a veteran New York state fruit grower, gives some sensible advice as to their selection and care.

There is just as much difference in refrigerator cars as in folks. Avoid, if possible, cars that are becoming worn and old. Sometimes in handling perishable products it will be necessary to accept a car of doubtful character. In that case accept under pro-

Pay Me 5% Profit I'll Make You A Split Hickory Buggy

Get This Offer

It marks a new departure in low prices on the highest grade vehicles that can be made. Remember that these buggies are made from selected second growth hickory, split, not sawed, and they are the nicest, classiest buggies that roll over the road.

Get the Big Book

Read Phelps' big story to buggy users this year. Let me tell you how I have worked out a manufacturing and sales plan that will save you more money than ever.

30 Days' Road Test Free Two Years' Guarantee

All explained in the book, where I tell you my new money saving story.

Write for the Book Now

It contains 150 new and beautiful styles and 200 illustrations. Also I'll send you at the same time my 70 page Harness Catalog free. Address H. C. Phelps, President

The Ohio Carriage Mfg. Co.
Station 59 Columbus, Ohio



\$39²⁵

Make Money Growing Potatoes



O. K. Champion Line

Cutters
Planters
Sprayers

Diggers, Sorters
Descriptive matter
free. Write for it.

Our No. 22 Planter

Is automatic; one man and team plant five acres or more a day; Our No. 25 Planter plants absolutely 100 per cent correct, a seed piece to every hill.

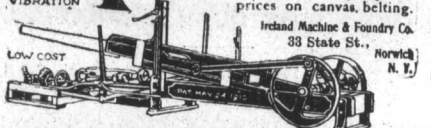
CHAMPION POTATO MACHINERY CO.
145 CHICAGO AVENUE HAMMOND, INDIANA.

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.

STRAIGHT LINE
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.

Harvey Bolster Springs

make any wagon a spring wagon. Prevent damage to eggs, fruit, etc., on road to market. Soon 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.

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



GUARANTEED



KEEP THE TOLL YOURSELF

Use the time for the drive to mill in grinding feed and corn meal. One horse can do it. We guarantee capacity, material and workmanship in Star Sweep Feed Grinders. Big returns from little investment. Eat corn and small grains ground. Saves you money. Free catalog. Write Star Mfg. Co., 11 Depot St., New Lexington, Ohio.

Steel Wheels

will make your old farm wagon as good as new. Save money because they never need repairs. Write for our big free book telling all about them and how they pay. Empire Mfg. Co., Box 789 Quincy, Ill.

test and write your protest plainly across the bill of lading.

Meat refrigerator cars are not fit for the shipping of peaches or any other food product the flavor of which is easily tainted.

Slat bottoms are most desirable when shipping fruit.

It is often necessary to cool quickly a cargo of peaches or other highly perishable produce which has been placed in the car while still warm. This can be easily done by throwing salt upon the ice. Be sure, though, to test the car with a thermometer to see that you have not overdone it. Take no chances of frosting the fruit.

In the late fall refrigerators are also used to protect produce from cold. If shipping potatoes, examine the bottom of the car for salt. Your own tongue is perhaps the most reliable detector. Many a car of sound potatoes has been ruined by the action of salt. The ends of the car should be papered, and it is a safe practice to paper the bottoms also.

Examine the refrigerator cars and remove any unmelted ice. Go over the top of the car. See that the cushions are securely in place, then clasp down the lids. Have them sealed by the station-master.

A carload of fruit gets some terrific jolting before reaching the final siding. Be sure there are no loose barrels to rattle around.

One of the greatest dangers in shipping fruit during cold weather is that the car may be held indefinitely upon a siding and arrive long after it is expected.

The writer accompanied a carload of apples to Chicago during the first cold snap last fall. This car was side-tracked at the Muskegon yards and labeled "Out of Order," by the car inspector.

Examination showed that the trouble was merely in the roof and could not possibly cause an accident. So I got busy and persuaded the night inspector to set the car rolling upon the next train. Otherwise the car would have been held for at least 24 hours and that, too, while the mercury was hugging close to the zero point and a gale was blowing from off the lake.

Kalamazoo Co. C. A. ROWLAND.

Crop and Market Notes.

Michigan.

Berrien Co., Feb. 23.—Snow is all gone, frost out of the ground, and the roads are in bad condition. Wheat, rye and clover seeding in fine condition. There is no surplus hay. Wheat and potatoes are being held; oats are scarce; corn is being shipped in at 80¢@85¢. Wheat \$1.45; potatoes 30¢@35¢. Farmers are busy preparing for spring work. An unusually large acreage of oats will be sown to supply early feed.

Eaton Co., Feb. 23.—No snow and frost is nearly all out of the ground. Wheat and meadows look fine. Live stock looking excellent, though there is not a very large amount of feed on hand for home use. There is still a small amount of surplus wheat and beans. Wheat \$1.50; oats 55¢; corn 70¢@75¢; beans \$2.75; potatoes 25¢; butter 20¢@25¢; eggs 20¢; steers 6¢@7¢; hogs, live \$6.50; sheep \$2@4.

Kansas.

Cowley Co., Feb. 23.—Very little snow but a good deal of rain has made roads bad, and will keep farmers out of the fields for some time. Wheat and rye are improving. There is little live stock in the country, and there will be a surplus of rough feed. This county is quarantined for foot-and-mouth disease, so there is very little live stock moving. The only outbreak of the disease is in a bunch of cows brought here from Wisconsin.

Franklin Co., Feb. 23.—We had a heavy fall of very wet snow this week, which clung to trees, breaking limbs of many fruit trees. Roads have been in very bad condition. Meadows are fair. Wheat and rye look fine. Very little live stock being fed, but there is enough feed on hand for home use with a few exceptions. Few farmers were able to hold their wheat and potatoes, but those doing so received good prices. Wheat \$1.50; potatoes 60¢; cream 26¢; eggs 18¢; hens 10¢.

CASE "25"

Complete \$1350—5% Discount If Cash

If We Equipped and Priced as Others Do

\$1239⁷⁵

Of the 30 medium-priced cars—from \$1250 to \$1500—the CASE costs the least.

This is the only car that comes *completely* equipped with Extra Casing, Tire Cover and Extra Inner Tube On Rim, Weed Non-Skid Tire Chains, and Eight-Day Clock.

On any other car, men have to pay extra for all these necessary features.

The farmer requires them even more than the man in town. Because you drive in the country six days to his one. You are much more remote from garages and service stations.

These features, with 5% discount that we give if cash, amount to precisely \$110.25.

Add this to the price of any other car in this class, and it costs you more than the CASE "25" complete at \$1350.

Or deduct it from the \$1350 price of the CASE, and this car costs but \$1239.75, on their basis of price and equipment.

a car. And you must rely upon a maker's *ability* to build them *right*. Also his *reputation* for embodying them.

Your Safeguard

In both of these respects CASE stands, as you know, without a peer.

We have won, through more than 70 years, acknowledged leadership as makers of farm power machinery. And motive power is the basis of an automobile. So—when it comes to you, as it must, to rely on the name behind some car—

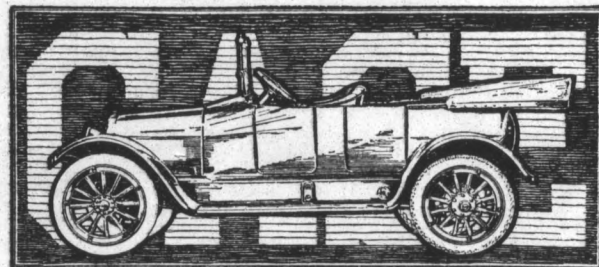
Remember that CASE means utmost *security*.

And remember that CASE cars are sold by our own organization. All over America, and beyond, it handles this car in connection with our other products.

Hence we *save thousands* where other makers *must* spend—in selling. And so we spend in many ways for better materials and workmanship. *These are ways where others must save.*

Our new illustrated catalog tells you of many of the places where we spend to your advantage.

Before you buy a car, write for this book and learn the facts that save your repair bills.



The Name Behind the Goods

Hidden Values

CASE buyers count this low cost an extreme advantage. Yet these cars have never been sold on price. They are winning men everywhere because of the way they are made and the stuff that's in them.

These are the "unseen values" in the *vitals* of



NOTE:—Ask us also for our 1915 catalog picturing and describing CASE Threshing Machinery, Tractors, CASE-Racine Tractor Gang Plows, Corn Shellers, Hay Balers and Road Machinery. Sent free, postpaid.

CASE

The Car With the Famous Engine

J. I. Case T. M. Company, Inc.
Founded in 1842
Dept. 536
Racine, Wis.



(231)



WHIRLWIND
SIZE "G"

SUCCESS PLANS AHEAD!

GET THESE
FREE BOOKS NOW

THESE long winter evenings afford the best possible opportunity for that careful thought which is ever the basis of complete success.

Just as you plan ahead the spring crops, plan now the winter supplies for man and beast. You of the South are today planning how best to diversify crops. You of the North how to get the most from diversified farming. You are both thinking Silo—but don't overlook the true economy that lies in the best machine.

Write for our Whirlwind Silo-Filler Catalogue

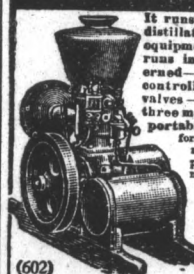
Are you thoroughly posted on Silo Filler values? Do you know what we offer—what the other fellow offers you for your money? We want you to know why the Whirlwind is the best. Get our free books—get other makers' catalogues. Compare the machines point by point. Learn about the material we use and our exclusive patented features. Then decide—for yourself.

Write for "The Why and How of Silo Filling"

Both books are yours for the asking—and by the way, brother, this offer isn't made for the purpose of sowing on a salesman. We want you yourself to figure out this important matter now, instead of making a hasty, ill-considered choice next summer.

WILDER-STRONG IMPLEMENT CO., Monroe, Mich., Box 13
Silo-Fillers Feed-Cutters Land Rollers and Pulverizers Cattle-Stanchions

20 Reasons Why You Should Investigate the SANDOW Kerosene Stationary Engine



(602)

It runs on kerosene (coal oil), gasoline, distillate and alcohol without change in equipment—starts without cranking—runs in either direction—throttle governed—hopper and tank-cooled—speed controlled while running—no cams—no valves—no gears—no sprockets—only three moving parts—light weight—easily portable—great power—starts easily at forty degrees below zero—complete ready to run—children operate them—low factory prices—based on enormous output—30 day money-back trial—10 years iron-clad guarantee. Size, 1 1/2 to 18 horsepower. Send a postal today for free catalog which tells how Sandow will be useful to you. No go-between. Pocket agents' and middlemen's commissions by dealing direct with factory. (602)
Detroit Motor Car Supply Co.
164 Canton Ave., Detroit, Mich.

The First Rule For Making Money

Is to get in the money-making class. There are thousands of farmers in America who have made *real* money farming—not merely a living, but a fortune of from \$25,000 to \$100,000. Week by week The Breeder's Gazette tells how to make more money on the farm and to make it easier. \$1.00 per year. Ask for a free copy.
The Breeder's Gazette
542 So. Dearborn St.
Room 1125 Chicago

Markets.

GRAINS AND SEEDS.

March 9, 1915.
Wheat.—Wheat values have fluctuated between wide margins during the past ten days. On Saturday, Monday and Tuesday an advance of 18½¢ was recorded on the Detroit Board of Trade. This sudden upturn of prices is due to domestic as well as foreign influences. It is believed that the opening of the Dardanelles will not only be a more difficult proposition than was at first anticipated, but will also offer the bears in the grain market less relief than they hoped for, as Russia has comparatively little wheat to send out of the country at the present time. The U. S. government report shows 152,903,000 bushels of wheat on the farms in this country. This is a smaller amount than dealers had figured on. Then, too, the farmers are not selling wheat liberally even where prices rule high, and in many cases where they are inclined to let go, the roads are so poor that they cannot deliver the grain. The growing crop has suffered in some sections of the country. Argentine cables are also bullish, and the general demand from every quarter is becoming more urgent. One year ago the local quotation for No. 2 red wheat was 98¢ per bushel. Quotations are as follows:

	No. 2	No. 1	May
Wednesday	1.44	1.39	1.46½
Thursday	1.37	1.32	1.38½
Friday	1.36½	1.31½	1.38½
Saturday	1.41	1.36	1.43
Monday	1.49½	1.43½	1.51
Tuesday	1.55	1.50	1.56

Chicago, (March 8).—May wheat \$1.55; July \$1.22 per bushel.

Corn.—Corn values have advanced. The amount of this grain in the hands of farmers is estimated by the government at 910,894,000 bushels. This is less than dealers had calculated the amount to be. Farmers are not selling liberally and the visible supply shows a decrease of over a million bushels for the week. A year ago No. 3 corn was quoted at 62½¢ per bushel. Quotations are as follows:

	No. 3	No. 3	Yellow
Wednesday	72	73	
Thursday	72	73	
Friday	71½	72½	
Saturday	72½	73½	
Monday	73	74	
Tuesday	73	74	

Chicago, (March 9).—May corn 73c; July 74c per bushel.

Oats.—A large decrease in the visible supply and the small amount of this grain reported upon farms by the government were factors that made higher oat prices. Another influence was the advance in wheat. The federal crop report gives the quantity of oats on farms at 379,369,000 bushels. One year ago standard oats were quoted at 41½¢ per bushel. Quotations are as follows:

	Standard	White	No. 3
Wednesday	56½	56	
Thursday	57	56½	
Friday	57	56½	
Saturday	57½	57	
Monday	58	57½	
Tuesday	59	58½	

Chicago, (March 9).—May oats 57½¢; July 53c.

Rye.—Values show further decline. Market dull. Supplies are small. No. 2 spot is quoted at \$1.14 per bushel, which is 5c below last week's price.

Beans.—Business is lifeless, with prices off 10c from last week. Detroit quotations are: Immediate, prompt and February shipment \$2.95; May \$3.15. Chicago trade is tame with lower prices ruling for white beans. Red kidneys steady. Pea beans, hand-picked, choice, quoted at \$3.20; common \$3@3.15; red kidneys, choice, at \$3.25 @3.50; at Greenville and other primary points beans are quoted at \$2.70.

Clover Seed.—Market is easy and lower. Prime spot \$8.50 per bushel; March \$8.50; prime alsike \$8.50.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$7.60; seconds \$7.20; straight \$7.00; spring patent \$7.80; rye flour \$7.10 per barrel.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$28; standard middlings \$28; fine middlings \$32; coarse corn meal \$30; corn and oat chop \$29 per ton.

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

Chicago.—Demand good for choice. Prices steady. Choice timothy \$17@18; No. 1, \$15@16; No. 2, \$13.50@14.

New York.—Higher. Prime \$22; No. 1, \$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@7.50; wheat straw \$7@7.50.

DAIRY AND POULTRY PRODUCTS.

Butter.—Market is dull but prices rule a half cent lower. Extra creamery 28½¢; firsts 26½¢; dairy 21c; packing stock 17c per lb.

Chicago.—Demand is light and the supply good. Prices are unchanged. Extra creamery 29c; extra firsts 28@28½¢; firsts 25@26c; seconds 23@24c; packing stock 17½¢.

Eggs.—Unsettled market conditions prevail and values are uncertain. A fair expression of the market feeling would be 28½¢ per pound.

Poultry.—Market is firm with demand good and supply light. Prices are higher. Live—Springers 15½@16c; hens 16@17c; ducks 16@17c; geese 14@15c; turkeys 20c.

Chicago.—Light receipts and a good demand make market firm. Prices on fowls and springs are higher. Turkeys 14c; fowls 11@16½¢; springs 14@16c; ducks 16c; geese 8@9c.

Eggs.—Market is active with supply large. Prices are slightly lower. Fresh stock sells at 18c per dozen.

Chicago.—Due to increased supply an easy feeling prevails. Prices are 1c lower than last week. Miscellaneous lots, cases included, 17½@18½¢; ordinary firsts 17½@18c; firsts 18½¢.

Veal.—Quoted steady at 12½@13c for fancy, and 10@11c for common.

Pork.—Market is steady for dressed hogs, light weights selling at \$8 per cwt; heavy \$7@7.50.

FRUITS AND VEGETABLES.

Apples.—Market is active and well supplied. Baldwins \$2.25@2.50 per bbl; Greenings \$2.75@3; Spy \$3.25@3.50; Steele Red \$3.50; No. 2, 40@50c per bushel.

Chicago.—A steady feeling prevails but there is no change in prices as the supply is large. The prices as here quoted are for refrigerator stock. Baldwins \$2.25@2.50; Kings \$2.75@3; Wageners \$2.25@2.50; Jonathans \$3.25@3.75; Greenings \$2.75@3; Northern Spy \$2.50@3.50; eWestern box apples are selling for 90c@92.25 per box.

Potatoes.—Offerings are liberal and demand fair. Carlots 35@37c per bu. At Chicago the market is weak with prices lower. Michigan white, in bulk, are quoted at 30@36c per bushel. At Greenville potatoes are quoted at 20@23c per bushel.

WOOL.

The wool trade has been quiet the past couple of weeks, and the aggregate of sales has been comparatively small. Prices, however, are firm and nobody seems to think that they will decline for some time to come. Fleeces are in limited supply with Michigan delaines at 33@34c; ½-blood combing, unwashed 34@35c; ¾-blood do. 36@37c; ¼-blood 34@36c. Fine unwashed clothing 26@27c; ½-blood do. 30@31c; ¾-blood do. 31@32c at Boston.

GRAND RAPIDS.

The egg market is off to 16 and 17c, with outlook for continued weakness until buying for storage begins. Buying for storage will start at about 15c. The butter market is also off, with dairy quoted at 19c. Potatoes are still lifeless, with quotations between 20 and 25c at loading points. Beans have slipped off to \$2.75, and even lower than that at some stations. Wheat has also been making sensational losses, with \$1.30 as top price at present here. Oats continue at 55c; corn 75c; rye \$1. Poultry is scarce, with dealers unable to secure stock at 13c live weight.

LIVE STOCK MARKETS.

March 8, 1915.

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

Receipts here today as follows: Cattle 100 cars; hogs 60 d. d.; sheep and lambs 45 d. d.; calves 1000 head.

With 100 cars of cattle on our market here today and Chicago reporting 15,000 and not able to send any live stock out of that market to any other market, our market was active from start to finish and from 15@25c per cwt. higher on nearly all grades, except extreme heavy grades which sold fully 40@50c per cwt. higher, owing to good demand and there being only two or three cars of that kind on the market. The market closed steady with the opening and we think the turning point has now arrived when these cattle will sell decidedly better from this time on than they have sold in the past six weeks. Our advice to shippers is to buy cattle that are fat as there is no call for feeders or

stockers here and anything in that line has to go to butchers at a very mean price.

We had about 60 cars of hogs here today and a higher market on everything. Extreme heavies sold at \$7.25; pigs and lights \$7.40@7.60; mixed grades \$7.40@7.50; strictly yorkers generally \$7.60; roughs \$6.25@6.50 and stags \$5@6. Market active and the close was strong with a good clearance.

The market was active today on lambs and sheep, with prices steady with the close of last week; most of the choice handy lambs selling at \$9.90. Look for steady to shade higher prices the balance of the week.

We quote: Handy lambs \$9.90@10; 100 to 120-lb. lambs \$8.50@9; cull to fair \$7@9.50; yearlings \$8@9; bucks \$5.25@5.75; handy ewes \$7.25@7.50; heavy do \$7.25@7.40; wethers \$7.75@8; cull sheep \$5@6.50; veals, choice to extra \$11.50@11.75; fair to good \$7.50@11.25; heavy calves \$6@8.

Chicago.

March 8, 1915.

Cattle. Hogs. Sheep.
Receipts today..16,000 25,000 16,000
Same day 1914..24,765 29,007 31,727
Last week39,461 165,101 58,812
Same wk 1914..41,782 118,531 107,586
Shipments from here last week amounted to 8,657 cattle, 32,018 hogs and 7,172 sheep, comparing with 18,934 cattle, 30,286 hogs and 31,468 sheep for the same time last year.

With a fresh rigid quarantine by the state of Pennsylvania announced today, forbidding any live stock shipments through that state, there were few eastern points in a position to receive stock, and despite the small cattle receipts, early buying was restricted to butcher stock, which was in fair local demand at steady prices. Lower prices were bid for steers, with prospects that late sales would show a small decline. Hogs started off a dime higher, with sales at \$6.50@7.05, but later the improvement largely disappeared. Hogs received last week averaged 223 lbs., comparing with 227 lbs. a year ago and 235 lbs. two years ago. Sheep and lambs sold fairly early at nearly steady prices, some nice yearling wethers bringing \$8.90.

Cattle have been in larger demand from shippers recently, and much higher prices have been paid than a fortnight ago, when steers sold at \$5@8.50, the low time of the season. Naturally, prices were much lower than a year ago, when trade was unhampered by quarantines, at that time steers selling at an extreme range of \$7@9.75, largely at \$7.90@9.25. Last week steers brought \$5.85@9.15, going mainly at \$7.25@8.75, with the choice to fancy class of heavy steers taken at \$8.95@9.15, while good steers sold at \$8.25 and upward, medium grade steers at \$7.65@8.20, plain to fair warmed-up lots at \$7.25@7.60 and light weight inferior steers at \$5.85@7.20. Ordinary to prime yearlings were purchased at \$7.40@9.10, while butchering cows and heifers brought \$5.10@8.10, the best cows going at \$7.25. Cutters brought \$4.45@5, canners \$3.40@4.40 and bulls \$5@7. Calves had a good sale at \$9@10.50 per 100 lbs. for light-weight vealers, with sales all the way down to \$5@8 for common to good heavy offerings. With no shipping outlet for inferior lots of thin steers, local slaughterers bought them at low prices, although they sold much higher than at the low time a fortnight earlier. The demand for heavy beefs showed improvement, although fewer of the high-priced cattle of long feeding were wanted than of the fat medium-priced offerings, with especial activity in attractive looking consignments of cows and heifers. Even ordinary to medium grade bulls sold much better, and it was evident that the packers had disposed of the greater part of their former accumulations of beef of all descriptions and were forced to replenish their coolers with beef to meet current requirements. General conditions have not changed much, however, and the new restrictions placed on eastern shipments of cattle from Chicago prohibited shipments through Pennsylvania, thereby cutting off shipments for the New York market.

Hogs underwent much narrower fluctuations in prices during the past week than of late, and the packers operated quite freely, being disposed to leave values about stationary. Eastern shippers purchased more liberally than usual, and this was quite a help to the market, their demand running mainly on the better class of light-weight hogs, which sold at a good premium over all the heavier hogs. Hogs received averaged well in quality, and the bulk of the offerings sold daily within a range of 15c that was close to top quotations. Recent receipts averaged 221 lbs. in weight, comparing with 226 lbs. a year ago and 232 lbs. two years ago. The unusually large marketing of hogs everywhere this season has resulted in heavy accumulations of provisions, and Chicago warehouses held on March 1 stocks

aggregating 186,225,788 lbs., comparing with 162,152,178 lbs. a month ago and 125,124,987 lbs. a year ago. Since the first of last November slaughtering at western packing points show an increase of 1,701,000 hogs over the corresponding period a year ago. Provisions have declined materially in prices under the generous supplies, and hogs have sold around \$2 per 100 lbs. lower than a year ago. At the week's close hogs sold at \$6.35@6.95, comparing with \$6.30@6.75 a week earlier, with most of the pigs selling at \$6.50@6.95. Prime light hogs sold highest, being about 20c above prime heavy.

Lambs, yearlings, wethers and ewes have been booming widely in prices during the past week, with reactions after extreme figures had been reached. Lambs formed the bulk of the receipts, with the greater part at times from Colorado feeding districts, and they were largely of superior quality. There was also a large showing of fed western lambs, although the total receipts of everything in the sheep and lamb line were very moderate in volume, falling below the demand. At the week's best time top prices were \$10.10 for lambs, with closing prices ruling at \$8@9.75, while yearlings sold at \$7.85@8.75, wethers at \$7.25@8, ewes at \$4.75@7.90 and bucks and stags at \$5@6.50. Lambs that weighed 90 to 100 lbs. brought \$8.60@9.50.

Horses adapted for army uses were as active as ever last week, with sales of good to prime animals at \$175@200, but otherwise trade fell off materially, with undesirable horses selling lower. Farm horses sold usually at \$100@150, with the better class of farm mares taken at \$185@215. Commercial chunks sold moderately at \$215@245, a pair that weighed 3200 lbs. bringing \$380.

CATALOG NOTICE.

The Bates Steel Mule, manufactured and guaranteed by the Joliet Oil Tractor Co., Joliet, Ill., is a new principle farm tractor fully described and illustrated in literature sent upon request by this company. Illustrations show the machine at various kinds of farm work.

Roof Insurance

FREE

With
**Edwards
STEEL
Shingles**

Special offer by acting now. Free roof insurance against lightning under our \$10,000 bond. And Edwards Steel Shingles cost less than wood shingles. Last five times longer. Patent "Tightcote" Process and interlocking device prevent rot, rust, fire, leaks. Shingles dipped in molten zinc after being cut—no exposed edges. Easy to lay with hammer and nails. Come in handy sheets of 100 or more. Run for any roof anywhere.

ACT NOW Get this money saving, factory-direct-to-you offer. We pay shipping charges. Big book of bargains. No 967 gives all facts. Write today—NOW.

THE EDWARDS MFG. CO.
317-367 Lock Street, - Cincinnati, Ohio



Sale of Pure Bred Horses

Thirty head of pure bred registered
Percheron, Belgian and Clydesdale,

From weanlings to aged Horses, Mares and Stallions;
Also fifty head good grade stock will be sold at auction

Friday, March 26,

at one o'clock sharp at Caro Racing Park, Caro, Mich. One year's time on good bankable paper at seven per cent, or special terms may be arranged on day of sale. For further information write

ERNEST E. JONES

Sect. Tuscola County Horse Breeders Association, Caro, Mich.

The Grand Rapids VETERINARY COLLEGE

Offers a three years Course in Veterinary Science. Complying with all the requirements of the U. S. Bureau of Animal Industry. Established 1897. Incorporated under State law. Governed by Board of Trustees. Write for Free Catalog.

152 and 154 Louis St., Grand Rapids, Michigan.

MOVE TO MARYLAND

The State for Thrifty Farmers. Delightful, healthy climate. Good Land, Reasonable prices. Close to big markets of large cities of the East. Send for free descriptive booklet & map.

STATE BUREAU OF IMMIGRATION,
65 Hoffman Building, Baltimore, Md.

HAY

Ship your Hay to Pittsburgh and to
Daniel McCaffrey Sons Company
Pittsburgh, Pa.
Ref.—any bank or Mercantile Agency.

FARMERS

We will pay you the highest official Detroit Market quotation for your eggs shipped direct to us by express. Write us for information. It will pay you. AMERICAN BUTTER & CHEESE CO., Detroit, Michigan.

POTATOES—HAY

—More Money If you Consign to THE L. RICHMOND CO.
Detroit. 21 years in business. Reference your Banker

DETROIT MARKET CONDITIONS.

Thursday, March 4, 1915.

The local stock yards here were closed a week ago, and are being thoroughly cleaned under the supervision of Dr. P. B. Scott, United States Inspector, who had charge of disinfecting in the Chicago yards. Every packing and butchering plant in the city is also being disinfected under his supervision. The work here is not being done as rapidly as was expected and it looks as though it would be ten days at least before the yards would again be open for business but when they are opened it will be possible to handle interstate shipments as before the first quarantine was placed last November. At this writing only a few of the cattle yards have been completed. There is only about a hundred men on the job, when there should be at least twice that number. Chicago was cleaned in seven days and why the work here is allowed to drag along so slowly is a mystery.

On Wednesday there was over 100 cars arrived for the packers, all of which went to their various plants to be weighed off the cars without feed or water and prices at their plants averaged as follows for cattle, and few are wanted, the dressed beef trade being very slow.

Cattle.

Best heavy steers \$7@7.50; best handy weight butcher steers \$6@6.50; mixed steers and heifers \$5.50@6.25; handy light butchers \$5.50@6; light butchers \$5@5.50; best cows \$5@5.75; butcher cows \$4.50@4.75; common cows \$4@4.50; canners \$3@4; best heavy bulls \$5@5.75; bologna bulls \$4.50@5.25.

Veal Calves.

Veal calves sold fairly well at about the same prices they had been bringing at the yards before the tie up. Best grades \$10@10.50; medium and common \$7@9.50.

Sheep and Lambs.

The best grades of lambs weighed off the car brought \$9.25 on Wednesday and the prices shown below will prevail for the balance of the week. Best lambs \$9.25; fair do \$8.25@8.75; light to common lambs \$7@8; fair to good sheep \$5.50@6.50; culls and common \$3.50@4.50.

Hogs.

Hogs are not arriving as freely as during the last tie up and prices have been \$6.85 all the week weighed off the cars at packing plants without feed or water, and these prices are guaranteed for Wednesday and Thursday's shipments, and there will be but little change if any during the week.

Monday's Market.

March 8, 1915.

Cattle.

Market very dull; prices shown below are at packing plants, weighed off cars, without feed or waetr.

Best heavy steers \$7.50; best handy weight butcher steers \$6.50@7; mixed steers and heifers \$5.50@6.25; handy light butchers \$5.50@6; light butchers \$5@5.50; best cows \$5@5.75; butcher cows \$4.50@4.75; common cows \$4@4.50; canners \$3@4; best heavy bulls \$5@5.75; bologna bulls \$4.50@5.

Veal Calves.

Market steady. Best \$9.50@10; others \$7@9.

Sheep and Lambs.

Market steady to 25c lower. Best lambs \$9@9.25; fair lambs \$8.25@8.75; light to common lambs \$7@8; fair to good sheep \$5.50@6.50; culls and common \$3@4.50.

Hogs.

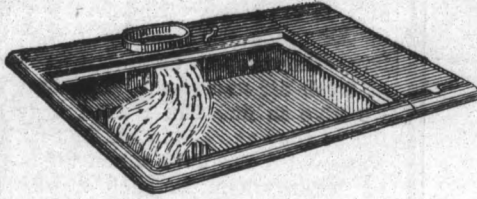
Good grades \$7 for Monday's and Tuesday's shipments, off cars at packing plants.

CHANGE OF SALE DATE.

As the last issue was going to press Opholt Bros. of Glenwood Stock Farm, Zeeland, Mich., advised us of a change in the date of their sale of O. I. C. swine, to March 16 instead of March 12, which date appeared in their announcement. Note the change of sale date to March 16 and improve this opportunity of getting good foundation stock at sale ring values.

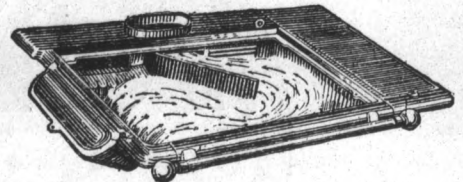
Corn is still bringing high prices in the markets of the country, although it has declined in value materially in recent weeks, and the average stockman is unable to see much benefit to himself from feeding corn to hogs, with hog prices weak most of the time and averaging about \$2 per 100 lbs. lower than a year ago. The unusual popularity of fresh pork chops and roasts with meat-eaters everywhere accounts for the good premium for choice light-weight hogs and the heavier pigs, with heavy hogs selling at a marked discount most of the time. The early marketing of hogs points to correspondingly smaller marketings later on, and after the quarantines can be declared off, there will be a better show for sellers.

The Whole Top Hot and the Oven Cool

**Ordinary Range—Half Hot**

See how the heat scoots up the chimney; catty-corner across the top; doing only half the work; wasting fuel and time.

**Built
Right—
Built
Tight**

**"Eclipse" Range—ALL Hot**

No shirking the Eclipse Way; all the heat under all the covers, using every unit of fuel. A saving in money and labor.

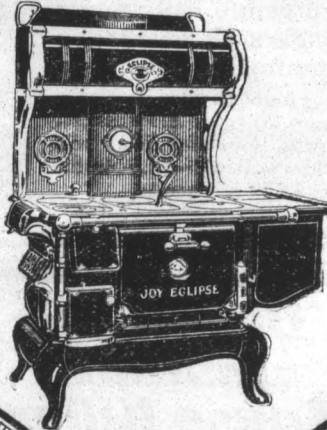
**The
Stove
Behind
the Cook**

ECLIPSE

STOVES AND RANGES

Eclipse Adjustable Damper insures that your baking shall be right with least possible fuel. The cast iron of which this Joy Eclipse is made is your best wear-insurance.

Looks fine, and is easily kept in condition. For comfort and economy with long life, convenience and good appearance order an Eclipse.



No heating of the oven unless desired. Whole top of Eclipse can be hot without a big fire. The Diagonal Plate Control is an exclusive Eclipse feature which regulates the use of heat as well as its quantity.

Eclipse Stove Company
Mansfield, Ohio

**Get
This****Book
FREE**

It will tell you about the Eclipse line. Ask for the name of our nearest dealer.

Name
Address
Dealer's Name
Dealer's Address



Look for the Red Steer on every sack. It is your guarantee of highest possible quality.

President Wilson Says "Grow Bigger Crops"

"THERE is a shortage of food in the world now. 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 this country if the world is to be fed."—President Wilson.

To secure the highest corn yields in official State Corn Contests is something to be proud of. The men and boys who secured the highest corn yields in Ohio and Indiana during 1914 used Swift's Fertilizers.

Prize Winners Use Swift's Fertilizers Blood, Bone and Tankage Always Win

What Swift's Fertilizers have done in increasing corn yields they will do in increasing the yields of all crops. Get the full benefit of war time grain prices—make every acre produce its maximum by using Swift's Fertilizers (Available Plant Food.)

Men's Five Acre Contest.**Average per Acre Shelled Corn**

Norris McHenry, Elizabethtown, Ind.	112.13 bus.
G. W. Thompson, Letts, Ind.	104.22 bus.
Paul Patram, Columbus, Ind.	100.2 bus.
David Dunn, Columbus, Ind.	98.03 bus.

Boys' One Acre Contest.**Yield per Acre Shelled Corn**

Arnett Rose, Alger, Ohio, (Ohio Champion)	153.90 bus.
Harold Doster, Mayfield, O. (Champion Cuyahoga Co.)	92.6 bus.
Roy N. Friedersdorf, Elizabethtown, Ind.	128.8 bus.
Sherman Magaw, Edinburg, Ind.	103.45 bus.
Russell Corya, Hope, Ind.	99.66 bus.
Gorden Reap, Elizabethtown, Ind.	97.45 bus.

How You Can Make a Record Profit This Season

Proper Tillage, Good Seed, Crop Rotation, (which includes a legume) Barn Manure and Swift's Fertilizers (Available Plant Food) enables you to increase your yields from year to year and add to the fertility content of your soil.

Small increases will pay for Swift's Fertilizers (Available Plant Food) at present grain prices. 4 to 7 bus. of corn pays for 200 to 400 lbs.; 2 to 3 bus. of wheat or 5 to 8 bus. of oats pays for 200 to 300 lbs. The extra yield is all clear profit.

Ask the farmers who have used Swift's Fertilizers (Available Plant Food). They will tell you they are obtaining regularly increased yields of 20 to 40 bushels of corn, 10 to 16 bushels of wheat, 20 to 40 bushels of oats per acre.

Profit by the experience of others—use Swift's Fertilizers (Available Plant Food) and greatly increase your profits.

If you cannot buy Swift's Fertilizer's from your local agent, write us direct. PLACE YOUR ORDER NOW.

SWIFT & COMPANY,

Dept. C U. S. Yards

CHICAGO, ILL.

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

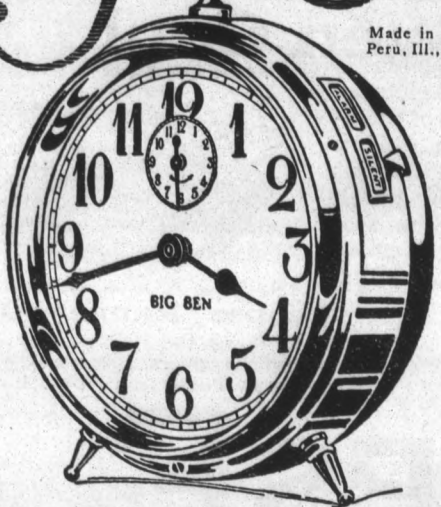
LEARN AUCTIONEERING at World's Original and Greatest School and become independent with no capital invested. Every branch of the business taught in five weeks. Write today for free catalog. Jones Nat'l. School of Auctioneering 28 N. Sacramento Blvd., Chicago, Ill. Carey M. Jones, Pres

Wanted—Position as farm superintendent on fruit, stock or dairy farm, good references. Nine years experience. Am married, have 2 children. I have taken a course at M. A. C. Wm. Benedict, R. No. 5, Pontiac, Mich.

Mention Mich. Farmer when writing to advertisers.

Big Ben

Made in La Salle and
Peru, Ill., by Westclox



A Self-Starter for the Farm

For an early call that fills the fields on time—for early yields that fill the bins—

For a business-like farm system that gets things done on time and according to plans—Big Ben.

He has two calls—a straight five-minute ring or ten gentle half-minute reminders to bring you out gradually.

If not found at your jeweler's, a money order to his makers, "Westclox, La Salle, Ill.," will bring him postpaid—\$2.50 in the States; \$3.00 in Canada.

Ironclad WINS
In 2 Biggest HATCHING CONTESTS Ever Held

140 Egg Incubator BOTH FOR \$10
140 Chick Brooder

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

Made of Redwood covered with galvanized iron. Ironclad Incubator Co. Box 107, Racine, Wis. (3)

Tells why chicks die

E. J. Reefer, the poultry expert of 643 Main St., Kansas City, Mo., is giving away free a valuable book entitled "White Diarrhea and How to Cure It." This book contains scientific facts on white diarrhea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

Prairie State Portable Hover

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 \$8.50. Write for Catalog.

Prairie State Incubator Co.
123 MAIN STREET, HOMER CITY, PA.

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.

Wisconsin Wins In Big Hatching Contests

Why Pay More?

For only \$10 you can get these two prize-winners complete, ready to run—guaranteed 10 years—on 30 days' trial—money back if not satisfied, delivered, freight paid (East of Rockies) from a firm which has been building incubators and brooders for 12 years. Think of it. These two fine machines—

Both \$10
FREIGHT PAID
EAST OF ROCKIES

Wisconsins 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.

WISCONSIN INCUBATOR COMPANY, Box 112 Racine, Wis.

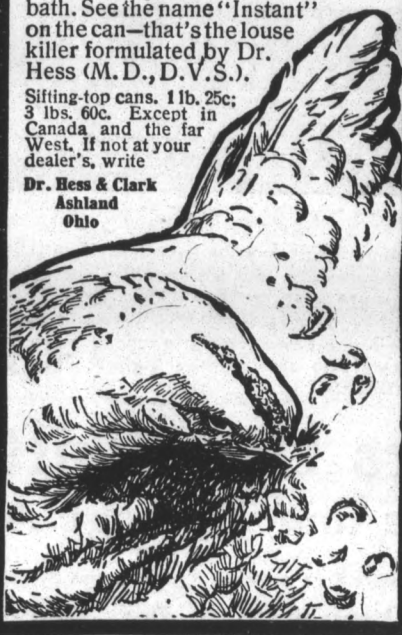
DR. HESS Instant Louse Killer

Kills Lice on Poultry and Farm Stock

It kills them as soon as it gets to them—that's why it's called **Instant**. Sprinkle it on the hens, roosts and in cracks—put it in the dust bath. See the name "Instant" on the can—that's the louse killer formulated by Dr. Hess (M.D., D.V.S.).

Sifting-top cans, 1 lb. 25c; 3 lbs. 60c. Except in Canada and the far West. If not at your dealer's, write

Dr. Hess & Clark
Ashland
Ohio



Care and Feeding of Early Chicks.

LEAVE the chicks in the incubator until they are 48 hours old. Supply plenty of fresh air during this time. Remove to brooders thoroughly warmed and dry, with a hover temperature of 98 degrees near the outside of hover. The first few days in the brooder we see to it that they have the proper temperature, plenty of fresh air and sleep. The first feed we give is fine No. 1 mica spar grit, fed so they can't help but find it. Then water with the chill taken off is placed before them in such a way that they can not get wet. We keep a dish of grit, charcoal and oyster shell before them from the start.

The First Feeding.

For the first five days we feed the following mixture, slightly moistened with sour skim-milk, five times a day: Eight pounds of rolled oats, eight pounds of bread crumbs, two pounds of sifted beef scrap, and one pound of bone meal. In addition we keep the following mixture in shallow trays always before them: Three pounds of cracked wheat, two pounds of fine cracked corn, and one pound pinhead oatmeal. We scatter a little green food over the cracked grain mixtures.

Between the ages of five days and two weeks we feed the above dry cracked grain mixture in the litter twice a day instead of keeping it before them in dishes. The mash mixture we continue feeding in the same manner with the exception that at this time we cut it down to three feedings a day, and in addition keep the same mixture dry always before them in self-feeding hoppers. When they are two weeks old, in order to economize in labor we cut down the wet mash feedings to two a day, continue feeding the same grain mixture in the litter and the dry mash in the hopper. The above is a very popular method of feeding chicks, and has given universal satisfaction.

Essentials of Raising Chicks.

In the rearing of early chicks the following factors should be remembered: Proper temperature, careful watching, fresh air and sunshine, exercise, green feed, cleanliness and animal food.

When we first place them under the hovers we watch them carefully, the first few days, so they do not wander away from the hover and become chilled. We teach them to find their way back to the source of heat, and do not allow them any great distance from the hover.

In the winter we aim to keep the temperature, if anything, a little higher than in warm weather. A temperature of 100 degrees in the warmest place of the hover is about right. We watch the chicks more than we do the thermometer. We aim to heat it up high enough so that when we look at them the last thing at night, the chicks will all be near the edge of the hover curtain, and the majority of them sticking their little heads out from underneath the same. The temperature should not be so high as to drive the chicks entirely from under the hover.

Fresh Air Essential.

We believe in giving our chicks all the fresh air possible. We have a little opening in practically all the brooders, covered with a hinged muslin covered frame which we use as the weather dictates. We believe in having the exercising room too cold and sweet smelling, rather than warm and ill-smelling. After the chicks are three or four days old we allow them to get in the sunshine; previous to this time we deny them this privilege because, until they know their way back to the source of heat, they are apt to huddle in the sunlight trying to get warm. We never allow this because at this age they are very apt to get chilled.

We make our chicks work from the

start, and after the fifth day all the grains are fed in a deep, loose and dry litter. We use oat or wheat straw cut into three or four-inch lengths and about three inches deep, the first week, six inches deep the second week, nine inches the third, and after this 12 inches is not any too deep. We see to it that the grain food gets well down into the same in order to make them work for every particle. On pleasant days around about noon, we shovel away the snow, throw down some straw in front of the exit and allow them to run outside for a short while, watching them for the first few days so as to get them back into the hover as soon as they begin to huddle.

Green Food for Chicks.

We feed a little green food every day from the start. For this we like cabbage and a little onion cut up very fine, and scattered on the litter. This is fed sparingly at first and increased as the chicks grow older. Sprouted oats free from mold is excellent.

We feed a little animal food from the start in the form of sifted beef scrap, mixed with the dry mash mixture. We do not believe in allowing the chicks to have access to a dish of beef scrap all the time, because some of them appear to have an unnatural liking for it, eat too much and contract bowel trouble and diarrhea as a result. We test all of our beef scraps before feeding to our chicks by pouring boiling water over them and noting the odor. After the second week, if we can get it, we keep a dish of sweet skim-milk before them in addition to the drinking water.

In the rearing of early chicks we lay great stress on the factor of cleanliness. We clean under the hovers every other day, and the exercising pens are cleaned out once a week. We disinfect thoroughly after each cleaning. The feeding dishes and drinking fountains are cleaned regularly once a week. The milk dishes are scalded twice a week and washed out each day.

New York.

F. W. KAZMEIER.

CLEANING UP EARLY.

The fight on lice and mites should begin by giving the poultry house a good overhauling. The sooner this work is done in the spring, the better. A louse or mite killed while the weather is yet cool, means thousands less to contend with later on. On the first warm day of spring the house should be given a thorough cleaning. The perches and nest boxes should be removed, the walls and floor given a good sweeping, and the entire inside of the building treated to a good coating of whitewash. The whitewash is made more effective as a killing agent by adding from two to five per cent carbolic acid. In applying the fluid one should be careful not to get any of the wash on the face or hands.

The whitewash is best applied with a spray pump, as the pump will not only put the fluid in cracks and crevices that cannot be reached with a brush, but it does the work in one-tenth of the time that would be required in doing the job with a brush. The farmer who keeps many hens cannot afford to be without a spray pump, since the saving in time effected by the use of one will, in one season's time pay for the pump. The hand spray pump can also be used for other purposes, spraying vegetables, shrubs, small trees, etc.

Controlling the Red Mite.

The red mite, or spider louse, does not live on the fowls. It lives in the cracks and crevices on and around the perches and dropping boards. After the house has been thoroughly white-washed, the perches and dropping boards should receive especial attention. They should be thoroughly painted with kerosene. If the mites



GET the whole wonderful story of the Belle City's World's Championship Hatches in my great Free Book, "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. 327,000 in use.

Write for "Hatching Facts" Today
A Postal Brings It

It tells everything. Illustrates the Belle City Incubator and Brooder in actual colors—shows what makes the Belle City the 21 Times World's Champion—gives facts about hatching success, bigger and better than you have ever heard of before. Book gives

My \$800.00 Gold Offers

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.

Belle City Incubator Co., Box 14 Racine, Wis.

THIS KEY TO POULTRY PROFITS FREE

THIS famous Old Trusty book has started 500,000 people making poultry profits. The Johnsons offer no untried experiment in chicken raising. If the Old Trusty isn't all that's promised we trade back. An

OLD TRUSTY
is guaranteed for 10 years.
Makes big hatches in coldest weather. Shipped on 30 to 90 days trial. Order shipped day received. Write for Big Free Book.
M. M. Johnson Co., Clay Center, Neb.
Still Less Than \$10
Freight Paid East of Rockies

Roof Protection at a low cost against Fire, Storm and Lightning

The danger from lightning can be avoided, roof fires never occur, and the weather is kept out when your buildings are roofed with

Kanneberg Metal Shingles

"We Pay the Freight"
Lightning never damaged a Kanneberg shingled roof, because they are fire-resisting. Rain, snow, heat and cold stay outside. Kanneberg Shingles need no repairs, because they resist rust, don't rot, crack, buckle, curl, nor fall off. Can be laid on low-pitch roofs and always look well. Give clean cistern water.

FREE—Send for our big catalog at once and you'll SAVE BIG MONEY on roofing and you get the best protection. Take advantage of our LOW FACTORY PRICES. Catalog shows many designs and sizes.
Kanneberg Shingles come singly, 8 to a sheet, or in clusters 2 feet by any length from 5 to 10 feet. You can put them on quickly. Easy to lay.
Write for catalog and give dimensions of roof, so we can show you how little it will cost to get perfect roof protection for years.

Kanneberg Roofing & Ceiling Co., Est. 1886
1440 Douglas Street Canton, Ohio

Send catalog at once to
Name
Address

were very troublesome last season, and the perches are rough and full of cracks, affording many hiding and nesting places for the pests, it would be a good idea to touch a match to the oil-soaked perches, and let them burn until the outer wood is thoroughly charred. When this is done one may be absolutely certain that the perches are free of the pests. If the perches are made of smooth, sound pieces and application of kerosene without charring, will answer.

If the house is whitewashed early in the season, and given a fresh coating of the wash at least once a month during warm weather, lice and mites are not likely to get a foothold.

The nest material should be changed occasionally. Straw makes a poor nesting material for the reason that the hollow straws make fine hiding and breeding places for lice. Excelsior or hay are better nesting materials than straw, but in the writer's opinion, the best nesting material is tobacco stems. Lice cannot stand the odor of tobacco, and when stems are used in nests, the material will last an entire season. The stems should be lightly covered with excelsior or hay.

T. Z. RICHEY.

AN ECONOMICAL WAY OF CARING FOR CHICKENS.

Regarding the chicken coop, my experience has taught me that a very warm and expensive coop is not necessary for utility. Single boards well battened on the outside and tar paper on the inside is sufficient, a dry ground floor, and instead of a tight ceiling merely strips or poles, and a layer of straw about a foot thick on top. On ordinary days open the door or windows; but so as to avoid drafts. It is a mistake to think we must make summer conditions in our coops to have hens lay. Hens will lay if kept in an open shed, if other conditions are correct. Of course, if kept very cold it takes more feed. Don't crowd them, and keep no more than about 50 in a flock.

Give them a mixture of bran and middlings in the form of a stiff dough in the morning. Give them plenty of litter to scratch in, and keep them busy by making them work for every kernel during the day, such as wheat, buckwheat, millet or anything that they like, and that does not fill them up fast. In the evening give them corn, either on the cob or scattered in deep litter chopped in short pieces. If L. W. will follow my instructions as briefly stated, he will find eggs within eight or ten days. I tried meat scraps and found them all right, but if the meat scraps were absolutely necessary to make hens lay, and everybody who kept chickens wanted to use them, I fear we would be up against it. I do not use them, and yet my hens lay. Crushed oyster shells should be supplied. Another mistake is the idea that a fat hen won't lay. My experience is that a hen in poor condition will not lay. Plenty of feed, exercise, light and fresh air keeps them in a healthy condition and that is the laying condition.

L. V. SOLDAN.

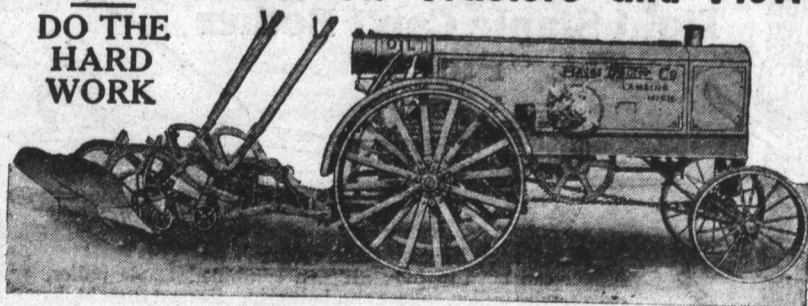
THE EGG-EATING DOG.

To break a dog from eating eggs, divide a heaping teaspoonful of tartar emetic into eight or ten doses; break off the end of an egg, empty a part of the contents and stir into the remainder left in the shell a dose of tartar emetic. Confine the dog in a room or tie him and give him the doctored egg. In an hour or two he will be trying to turn himself wrong side out. As soon as he is over nausea give him a second egg and a third if he will eat it. When he refuses to eat the egg and lets it lie by him for several hours untouched, pry open his mouth and force the egg down his throat. Afterward you may trust him in your henhouse.

Oceana Co. JENNIE WILLSON.

Bates All-Steel Oil Tractors and Plows

DO THE HARD WORK



BATES ALL-STEEL OIL TRACTORS have been on the market for five years and are not experimental. They are of **STANDARD DESIGN** with two drive wheels behind and two steering wheels in front. They have **POSITIVE STEEL GEAR TRANSMISSION** and gears are **WARRANTED NOT TO BREAK FOR A PERIOD OF FIVE YEARS**. You should consider the life of the tractor as well as the price.

We not only guarantee the horse power on the belt and draw bar but guarantee to do as good work plowing, harrowing, etc., as you have been in the habit of doing. This holds good on hilly fields and stony land.

A card for our catalog which will tell you all about our two and four plow outfits.

DON'T FORGET WE USE KEROSENE AS FUEL

BATES TRACTOR COMPANY

105 Bates St.,

LANSING, MICHIGAN



Get MORE Cream

by using a **Sample Speed Indicator**

on your Cream Separator. Fits any make of separator. Attached in two minutes; easy to adjust; control speed of machine; absolutely accurate; can't get out of order. Price \$3. Agents wanted. Splendid proposition. Box 211, Sidney, O.



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 book. Send 10c for it—today.

B. H. GREIDER :: :: Box 58, RHEIMS, PA.



\$2.50 for 25 to 50 CHICK HOVER

Made of Galvanized Steel. Can be used in any box. Safe and durable. Hot water heat. All complete. Incubator book free. We make 73 different articles.

WENDELL INCUBATOR CO., Holly, Mich.

Belgian Hares Pay—Guaranteed pedigreed stock, for sale reasonable. Write us for prices. Stalter's Rabbitry, North Lewisburg, O.

POULTRY.

30,000 Chicks For 1915

From best heavy laying strains of Poultry. Chicks only 8 cents each and up. Buy your Chicks. Its the only sure way of getting a satisfactory hatch every time. My booklet No. 2 sent to any address. Free upon request.

I. B. FRONTZ,

Route No. 2, :: McAlisterville, Pa.

Choice Barred Rock Cockerels \$1.50 Each,

Bourbon Red Turkey Hens \$3.50 each.

Toms all sold. All pure bred.

HILLCREST FARM.

KALAMAZOO, :: MICHIGAN.

BARRED PLYMOUTH ROCKS

"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.

Eggs for Hatching from prize-winning Barred and White Rocks. Winners at Battle Creek, Three Rivers, Union City and Mich. State Fair. Riverview Poultry Farm, Box 798, Union City, Mich.

Standard Bred—African geese, Turkeys, Ind. Runner ducks, Pearl guineas, R. & S. C. R. I. Reds, W. Ply. Rocks, S. L. Wyandottes, & Poland China swine. Prize winners. Best eggs any kind \$2 per setting. Write for quantities and stock. French F. & F. Farms, Ladington, Mich.

BUFF ROCKS, 3 out of 4 Firsts Chicago, 1914. Eggs \$4.15; utility pen \$2.15. \$10. 100: S. O. Buff Leghorns, heavy layers, \$1.50 to \$1.75. 100: Blue Orpingtons \$3.15. Catalogue.

BIRD LAWN FARM, Box D, Lawrence, Michigan.

EGGS for hatching, from pure Toulouse geese, ten for \$1.75. Also a few fanders for sale at \$3 each. MRS. AMY SOUTHWORTH, Allen, Michigan.

WHITE LEGHORN CHICKS—We can fill some more orders for April, May and June delivery. Order now, April \$12 per 100, May and June \$10. Eggs for hatching March and April \$6 per 100. May and June \$5. Satisfaction guaranteed. H. B. BRACKNEY & SON, Clayton, Michigan.

EGGS from one and two year old dark red, pure bred Bourbon Red Turkeys, \$3.50 for 11. NELLIE J. WHITNEY, Ionia, Michigan.

White Wyandottes—Prize winning birds, Van Buren Co. fair, 15 eggs \$1.50 postpaid. GEORGE SHEPARD, Hartford, Michigan.

Large Toulouse Ganders—for sale, thoroughbred, from prolific layers. GEORGE KOHL, Royal Oak, Mich.

S. C. R. I. REDS—Fine cockerels and eggs. A. R. GRAHAM, FLINT, MICHIGAN.

BIG Money Raising Poultry—25c brings 12 magazines showing how to be successful, invaluable to begin. ners. Michigan Poultry Breeder, Battle Creek, Mich.



BEE HIVES, SECTIONS,

Comb Foundations, Smokers, etc. Send for catalog A. Thoroughbred Italian bees and queens. Ask for catalog B. M. H. HUNT & SON, Box 525, LANSING, MICH.

RHODE ISLAND REDS. Cockerels \$2 to \$5; 15 Eggs \$2. Plymouth Rock cockerels 5 to 12 lbs., according to age \$2 to \$5; hens 5 to 8 lbs., according to age; 15 eggs \$2; Tom Turkeys 8 to 9 lbs., according to age; \$3 to \$5; 10 eggs \$4. A. E. ORAMTON, Vassar, Mich.

Mam. Bronze Turkey Eggs, \$3.00 per 10. None order or Draft, from 1 yr. hens of fine plumage. RALPH WISE NURSERIES, Plainville, Mich.

BARRED ROCKS—Pullets \$2, eggs with the kick in them 100 \$8. Baby chicks 100 \$18. W. O. COFFMAN, R. No. 6, Benton Harbor, Mich.

BARRED ROCK eggs for hatching, from full blood stock. \$1.50 per 15. \$2.50 per 30. J. A. BARNUM, Union City, Michigan.

Pine Crest White Orpingtons—Cockerels, pullets, hens, from heavy laying strain. Catalogue on request. MRS. WILLIS HUGH, Pine Crest Farm, Royal Oak, Michigan.

ROYALTON BRED POULTRY—Fine S. C. Brown Leghorns, Cockerels at \$2, \$3 and \$5; from prize winning stock. D. F. VALENTINE, Supt., Temperance, Michigan.

White Wyandotte Eggs from utility & splendid layers, \$1.50 per 15; \$2.50 per 30; \$5 per 100. per 100. A. Franklin Smith, Ann Arbor, Michigan.

Barred Plymouth Rocks—We have some very nice trios able prices. OSTRANDER BROS., Morley, Mich.

White Wyandottes—Cocks, Cockerels, Pullets and Hens, and eggs for sale. Send for 1915 Circular. David Ray, 202 Forest Ave., Ypsilanti, Mich.

White Wyandottes—Bred-To-Lay. Eggs \$2 per 15; \$3.50 per 30; \$5 per 100. EGG-A-DAY POULTRY RANCH, Marshall, Mich.

Big Beautiful hen hatched, farm raised Ringlet Barred Rock. Sold on approval, Ckls. and females \$2 to \$5 each. Breeding pen, 5 females and male \$10. Circulars, John Northon, Clare, Mich.

ORPINGTONS: Single Comb white fine pedigreed stock. Eggs and chicks cheap. Only a few pens and cockerels for sale. Order early. M. E. THOMPSON, Redford, Michigan.

FOR SALE—Rose Comb Brown Leghorns from the leading strains in America, also Mammoth Pekin Ducks. Stock and eggs in season. CLAUDIA BETTS, Hillsdale, Michigan.

Baby Chix \$10 per 100. Brown and White Leghorns, Barred Rocks, Buff Orpingtons, White Wyandottes, also Eggs. RIVER RAISIN POULTRY FARM, Dundee, Mich.

Mammoth White Holland Turkey Eggs \$5 per twelve, order early. First come first served. RIVERVIEW FARM, R. No. 8, Vassar, Michigan.

BARRED ROCKS—Parks, 200-egg strain. Also 200-egg strain Single Comb White Leghorns \$1.50 per setting. Fred Astling, Constantine, Mich.

Ringlet Barred Rock Cockerels. Birds of quality. R. Thirty years the standard. \$3 a piece \$5 for two. PLAINVIEW STOCK FARM, Romeo, Michigan.

FOR SALE—B. P. Rock Cockerels, Ringlet Strain the best all around fowl on the market, large bones, nicely barred, fine birds. Prices reasonable. MRS. EARL W. BARNARD, R. 13, Saranac, Michigan.

R. C. & S. C. Rhode Island Red Eggs, \$1.50 per 15, postpaid; \$6 per 100 by express. "Satisfy customers". JENNIE BUELL, Ann Arbor, Mich.

ROCK COCKERELS (All varieties.) Eggs for hatching. Baby chicks and Pk in Duck eggs. SHERIDAN POULTRY YARDS, R. E. Sheridan, Mich.

65 Breeds—Chickens, ducks, geese, turkeys, guineas, hares and dogs. Black and eggs reasonable. 60-page catalog free. H. A. SOUDER, Box 55, Sellersville, Pa.

Chicks: We ship thousands, different varieties, prices right. Order now for spring delivery, free booklet. Freeport Hatchery, Box 12, Freeport, 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.

S. C. White Leghorns—Farm raised, heavy laying strain. Baby chicks \$10 per 100, eggs \$4 per 100. Also White Pekin Ducks, eggs and ducklings. Sunnybrook Poultry Farm, Hillsdale, 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. Write for circular, faction to all our customers. MAPLE CITY POULTRY PLANT, Box C, Charlotte, Michigan.

DOGS.

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

FOX, COON AND RABBIT HOUNDS Broke to gun and field. Prices right. Fox and Coon hound pups \$5 each. Stamp for reply. H. C. LYTLE, Fredericksburg, Ohio.

BERRY BASKETS AND 16 QUART CRATES. Both wood and paper baskets. 200 waxlined paper baskets postpaid in lot and 2nd zones for \$1. Ask for catalog C.



A Hardwood Post and a Tight Staple Can't Bother This "Puller"



Here is the handiest little tool a farmer can have in his "kit"—a combined staple puller, driver, wire puller, splicer and bolt grip. Forged from highest grade crucible steel and oil tempered. Takes hold of a deeply driven staple with a bull dog grip, and pulls it easily. You can't imagine what a time-saver and bother-killer this

KEEN KUTTER Staple Puller

is about the farm until you try it. Like all other Keen Kutter farm tools, it is fully guaranteed. If you find a defect of temper, adjustment or balance in a Keen Kutter hoe, rake, scythe, fork, shovel, axe, spade or corn knife, your dealer is authorized to refund the purchase price. The same broad guarantee covers the Keen Kutter line of carpentry tools, pocket knives, razors, shears and table cutlery.



Send for our Home Furniture Design Booklet No. AS 976.

"The Recollection of Quality Remains Long After the Price is Forgotten."

Trade Mark Registered.

—E. C. SIMMONS.

If not at your dealer's, write us.

Simmons Hardware Company

St. Louis New York Philadelphia

Toledo Minneapolis Sioux City Wichita

Polarine

FRICITION REDUCING MOTOR OIL

You Always Have That Film of Oil

Lubrication begins the instant the motor starts if you use POLARINE.

POLARINE flows at zero, and maintains the correct lubricating body at any motor speed or temperature.

Last year (1914) American motorists used 6,926,614 gallons of POLARINE—2309 carloads! Conclusive evidence that drivers get service and save motoring trouble by using POLARINE.

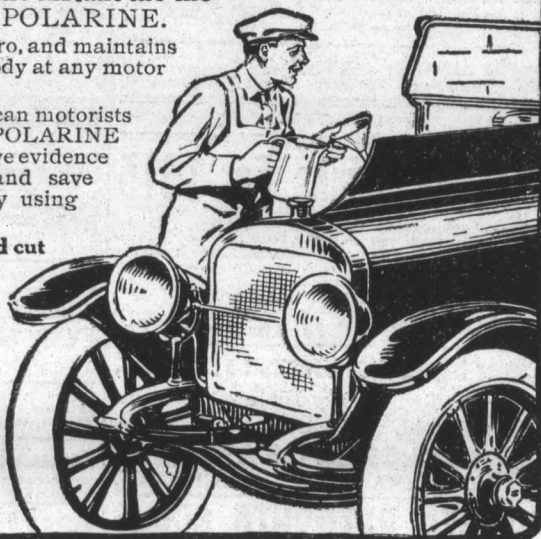
Buy it in half barrels and cut down up-keep cost. You can make a big saving.

POLARINE is made by the Standard Oil Company, the great service organization.

Sold Everywhere

Standard Oil Company
(AN INDIANA CORPORATION)
Chicago, U. S. A.

(308)



I'll Ship This "Can't-Sag"

Farm Gate on 30 Days Free Trial
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 and give better service than any gate of iron, gas pipe or wire, at half the cost. Cost you less than you can make all wood gates—last longer.

GUARANTEED FOR 5 YEARS

"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 truss 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 border. My low prices will surprise you. Send today.

Alvin V. Rowe, Pres., ROWE MANUFACTURING CO., 4107 Adams St., GALESBURG, ILL. (7)



COLUMBIA Batteries

For Your Hand Lantern

Put a Columbia Battery into your hand lamp and you're ready for the dark. Steady, dependable, convenient. Costs no more—last longer. Buy them anywhere, but insist on the name—Columbia. Maker's name on every battery guarantees the quality. Quarter century repute. Used for all battery purposes.

Made in U. S. A. by
National Carbon Company
Cleveland, Ohio
Convenient Fannestock Spring Clip Binding Posts
—no extra charge.



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

Grange.

A BIG BOOSTER.

A Big, Big Booster Meeting of Five Counties—such an event is entitled to be reported in capitals and with exclamation points!! That is what they had at Reed City, February 12, when the Pomona of Osceola, Wexford, Clare, Mecosta and Lake had a point session. Two halls, the home of Richmond Subordinate Grange, was the place of entertainment and that included all the helpfulness of Richmond's large and loyal membership. It was a great day. D. E. McClure, Deputy Secretary of State Board of Health, was the special speaker and he declared it to be the "grandest local meeting he ever attended." And why not? For weeks the Osceola people had been planning and looking forward to the success of the day. When folks do that, success is assured beforehand. Master E. D. Clark and Lecturer Mrs. Orah Tucker are workers who look out for details and lend a hand themselves—wherever needed. They provided in advance success of the sort that succeeds.

There is not room to give the full program but there were addresses by Pomona Master E. D. Clark, of Osceola, J. J. Totten, of Mecosta, Hon. Clay McNitt, of Wexford, W. J. Alley, of Clare, Ensign Griffice and S. M. Bailor of Lake, and School Commissioner Roxburgh, of Osceola. There were recitations and songs galore by young and old; there was a great dinner for more than one hundred; then more folks came, and more talks, including two by Mr. McClure, who spoke upon "Education for the Sake of Living," and "Preventable Taxation."

Altogether, 225 people enjoyed this festive day together, when not only their social and mental life was stimulated, but the local pride and loyalty of a goodly section of our state was encouraged and strengthened.

JENNIE BUELL.

AMONG THE LIVE GRANGES.

Ingham County Pomona Grange met with Wheatfield Grange, Saturday, February 20. The day was an ideal one and a good crowd was in attendance. A sumptuous dinner, arranged in keeping with the patriotic day, was enjoyed by all.

In the absence of Worthy Master Young, the meeting was called to order by Overseer Homer Murphy, Jr. Roll call of the Granges brought out many things of interest as well as need of considerable work on the part of the county officers as well as members, in order that this year may be a prosperous one. The meeting was then given over to the lecturer, who gave the following program: Song, "Stand by America," men's trio of Wheatfield Grange; paper, "Americanism," C. F. Hart, Williamston; recitation, "George Washington's Hatchet," by Master George Steadman; piano duet, Misses Frost and Sadler, of Wheatfield Grange, which was beautifully rendered, and followed by an encore; reading, "A Perfect Tribute," Mrs. Lydia Collar. Our good fortune placed on our program Mrs. Irish, who has been for years a Pomona Lecturer in the neighborhood of Traverse City. After some remarks concerning Grange work, she recited an original poem, "When Our Boy Was There," the time of which was during the Spanish-American war. It was very pleasing, although touching. A song by Miss Lois Webb, a little lady of five years, who also gave an encore. Reading, Miss Ledah Robinson, of Ingham Grange. "The Teachers' Insurance Bill," outlined by Miss Carolyn Bray, of Okemos Grange. A humorous reading in dialect was given by Mrs. Keeler, of Alacidon Grange, followed by a second selection. An interesting talk on use of commercial fertilizers, by J. J. Oakes, of Williamston Grange. Program closed by all singing "America." At close of the program a fifth degree session was called and degrees conferred on several members. Adjourned to meet with Telephone Grange in Leslie, Saturday, March 20, where an interesting program for afternoon and evening is promised.—Grace Fisher, Lecturer.

Farmers' Clubs

Address all communications relative to the organization of new Clubs to Mrs. J. S. Brown, Howell, Mich.

OFFICERS OF THE STATE ASSOCIATION OF FARMERS' CLUBS.

President—R. J. Robb, Mason.
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.

FACTORS IN SUCCESSFUL CLUB WORK.

Farmers' Clubs are quite like people in the matter of initiative toward a progressive growth. A great many people are of an inquiring mind and temperament which leads them to study the problems in hand and apply new methods where reason tells them such are needed to produce the most satisfactory results. Other people do not seem to have this faculty of initiative and plod along in the way to which they are accustomed until some object lesson is brought forcefully to their attention which illustrates the desirability of changing their methods either in principle or in detail. So it is with Farmers' Clubs; there are some Clubs which take the initiative in the variation of their work, oftentimes, of course, meeting with discouragements and failures, but generally in the end accomplishing some results that are well worth while and which remain as object lessons to guide other similar organizations toward the most attractive lines of Club work. Interest in Farmers' Club work as in any other phase of life depends not so much on the big undertakings as on the minor features which lend themselves to the instruction and entertainment of members. One Club will profit by conducting a boy and girl contest of some sort, another Club makes a neighborhood fair a feature event, still another holds a successful institute, and so on down through a long list of special features which prove an attraction to the members and the people of the community.

In recent reports from local Farmers' Clubs in Minnesota some new features are noted, one being a brass band of seventeen pieces maintained by the Farmers' Club of Stirling township, Blue Earth county. So great was the enthusiasm of the young men enlisted in this enterprise that each provided his own uniform and instrument. In commenting upon this band idea for Farmers' Clubs the report noted states that the Farmers' Clubs of Minnesota are marching forward to success so steadily that music seems a necessary accompaniment. Perhaps a little more music in our Michigan Clubs would make Club work more generally attractive to the people of more farming communities in the state.

Another idea coming from Minnesota is the use of button badges which are worn at joint meetings and other places where members assemble. The advertising value of this plan is considered well worth while, and in the case of joint meetings, a badge of this kind serves to identify the wearer with his particular organization. Many other features might be mentioned, but these will suffice to emphasize the point that the interest in Club work will everywhere be stimulated if members will but use more initiative in varying special features of Club work and when any such feature has been successful in the stimulation of interest in local Club work, it should be passed along for the benefit of other Clubs to the end that the movement may receive a maximum benefit.

Farms and Farm Lands For Sale

FOR A LIST of the best farm bargains in the best county in the state. Address: KETCHUM & MORSE, Edmore, Michigan.

GOOD FARMS around Lansing, East Lansing properties. California lands. J. D. TOWAR, East Lansing, Michigan.

IMPROVED FARM LANDS in Manitoba and Saskatchewan, close to R. R., Schools and Churches. Prices and terms reasonable. Apply to GEO. BEWELL, Walter House, Toronto, Ontario.

MICHIGAN FARMING LANDS

Near Saginaw and Bay City, in Gladwin and Midland Counties. Low prices. Easy terms. Clear title. Write for maps and particulars. STAFFELD BROTHERS, 15 Merrill Building, Saginaw, (W. S.), Michigan.

BARRY COUNTY FARMS—The most profitable section in the State. We have real bargains. Write for list A. BENHAM & TRIM, Hastings, Mich.

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

Improved Farm wanted in exchange for prosperous General Merchandising business doing \$23,000 cash business per year and located in a thriving Michigan town. Other business interests require time of present owner. Here is a real opportunity. Apply Box F, care Michigan Farmer, Detroit.

Central and Western Michigan Farms. Fertile, dark loam and clay, hardwood, clover, grain and dairy farms. Only the best. Send for literature. Want to co-operate with reliable dealers. GEORGE VAY LIEW, Cadillac, Michigan.

I NEED MONEY!

Do You Need An 80-Acre Farm? Only 4 miles from Gladwin, 6 miles from Beaverton. Fine clay loam, fine locality, 2 telephones and R. F. D. 60 acres well improved, balance fine unimproved land. This 80 acres is a part of my 230-acre farm. It has only a new 4-room cottage house, no other buildings, but you can build barn to suit, as I shall make the price on that basis. Write at once for particulars. U. G. REYNOLDS, GLADWIN, MICHIGAN.

AUCTION

Registered Holsteins Complete Dispersion Sale March 25.

30-lb. cow and 13 beautiful daughters, 25-lb. cow and daughters. Others with records up to 24.5 lbs. Between 25 and 30 head all females but three calves. Every producing animal with an A. R. O. record, nearly all out of A. R. O. dams. Nearly all granddaughters of Hengerveld DeKol and Pietertje Hengerveld's Count De Kol. An exceptional opportunity to get the best. Mason is 12 miles south of Lansing, 25 miles north of Jackson, electric cars from both cities every hour. Farm adjoining city limits, free transportation to and from farm. All animals over six months old Tuberculin tested. COL. B. V. KELLEY, Auctioneer. Liveborn sales and pedigree Co. Managers. HOBART W. FAY, Mason, Michigan.

BREEDERS' DIRECTORY.

CATTLE.

ABERDEEN-ANGUS

HERD FOUNDED IN 1900. Strains represented consist of Trojan Erions, Blackbirds and Fries, only. Black Quality No. 1, a bull of rare individuality and merit, heads the herd. WOODCOTE STOCK FARM, Ionia, Mich.

AYRSHIRES—One of the foremost dairy breeds. The most economical milk producers. Calves for sale. White Leghorn cockerels. Duroc Jersey swine. Michigan School for the Deaf, Flint, Michigan.

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

Four Registered Aberdeen Angus Bulls, from ten to seventeen months old. Priced reasonable. GEO. HATHAWAY & SON, Ovid, Michigan.

THE VILLAGE FARM,
Grass Lake, Michigan,
GUERNSEY CATTLE.

MILO D. CAMPBELL, CHAS. S. ANGEVINE.

FOR SALE

HOWARD OF BEACH FARM

Born July 9, 1914.

Sire, Horizon No. 23091, whose dam made 632 lbs. fat in one year. Dam, Belvidera of Sarnia No. 46531, now under test for Advance Register. Will make nearly 400 lbs. fat. Won first prize over Island in 1913. Howard is a perfect Guernsey in color and in fine condition. He will please you or we will return your money and pay return express.

PRICE FOR MARCH \$100.

Other Good Bulls for sale.

CAMPBELL & ANGEVINE,

COLDWATER, MICH.

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

REGISTERED GUERNSEY COWS. For sale at R. Watervliet Mich. \$250 and up. Splendid animals Address, J. K. BLATCHFORD, Auditorium Tower, Chicago, Ill.

HEREFORD: Three bull calves and one two year old. ALLEN BORS, Paw Paw, Michigan.

FOR SALE

at reasonable prices some fine young registered

Holstein Bulls

from 3 months to 15 months old, from A. R. O. Dams of high butter records.

Bigelow's Holstein Farms, Breedsville, Michigan

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

Pull Calf. 10 sisters from 22 to 34.31 lbs. Sire's sire brother to Pontiac Korndyke. Dam 22.32 lb. her dam has 2-30 lb. sister. R. L. McLAULIN, Redford, Mich.

Do You Want A Bull?

Ready For Service.

From a grand daughter of The King of the Pontiac. Sired by a bull that is more than a half brother to the Champion Holstein Cow of the World, and whose dam is a 30 lb. 6 3/4 fat daughter of Pontiac Argie Korndyke who has more 30 lb. daughters than any other living bull. If you do write for pedigree.

EDWIN S. LEWIS, Marshall, Mich.

HATCH HERD,

Ypsilanti, Michigan,

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.

\$25 DELIVERED:—Handsome bull calf, by 24 lb. butter bull, 31-32 pure bred. Pedigree furnished. Seven eighths white. ROUGEMONT FARMS, Detroit, Michigan.

HOLSTEIN BULL CALF born Oct. 25. Sire's dam a 30-lb. cow with 8 3/4-lb. sisters. Dam a first calf heifer with record 14.65 lbs. as a two-year-old. Price \$75. W. B. READER, Howell, Michigan.

HOLSTEIN BULL CALVES—Don't buy until you write us. No better breeding in Michigan. Long Beach Farm, Augusta, Kalamazoo Co., Mich.

Registered Holstein Cattle—Bull Calves for sale, out of A. R. O. cows. Also 4-year-old herd bull, out of 27 1/2 lbs. dam. FLOYD F. JONES, R. No. 3, Oak Grove, Mich.

Four Reg. Holstein Bulls—Ready for service. From advanced registry breeding. Prices \$100 and \$125. DEWEY C. FIERSON, Hadley, Michigan.

Holstein Cattle—O. I. C. Swine, ELMER E. SMITH, Redford, Michigan.

ESPANORE FARM,

LANSING, MICHIGAN.

HOLSTEIN FRIESIANS

Herd Sire—Pledge Spofford Calamity Paul. 33 A. R. O. daughters, including a 32.42 lb. Jr. 4-year-old and a 30.30 lb. 3-year-old. Two young bulls sired by him. Also a few choice females in calf to him for sale.

CHASE S. OSBORN, ADAM E. FERGUSON, Owners.

Reg. Holstein Bull calves and Herd Bull. Can supply all white bred to grandson of Colantha White swine. Ray B. Farham, Bronson, Mich.

HOLSTEIN FRIESIANS.

Herd sire Maplecrest Korndyke Hengerveld, the only sire of any breed having a dam and grand dam that each made more than 1200-lbs. of butter in a year, and he was sired by the only bull of any breed that sired three cows each making better than 1200 lbs. of butter in a year, one but four years old. Maplecrest Korndyke Hengerveld is in a class by himself.

A few fine young bulls sired by him from A. R. O. cows for sale; also a few choice females in calf to him for sale.

D. D. AITKEN, FLINT, MICH.

A "BARGAIN" "ONLY" \$50 Registered Holstein Bull Calf. Best blood and best A. R. O. breeding on both sides. 3/4 white. Perfect and handsome individual. Rougemont Farms, Detroit, Mich.

High Class HOLSTEINS My herd is headed by Smithdale Alcartra Pontiac, whose dam is the famous Alcartra Polkadot. Have few young bulls and females for sale at reasonable prices. Will buy a few heifers about 15 months, not bred, Farm 1/2 mile from court house. SETH B. RUBERT, Howell, Mich.

FOR SALE—Fine 3 year old Holstein heifer Johanna Lad. Also beautiful bull calf. GEO. D. CLARK, Vassar, Michigan.

"Top-Notch" Holsteins.

Extra large fine young bull, 3/4 white, born Oct. 4, 1913. Dam has official record 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. McPHERSON FARMS CO., Howell, Michigan.

HOLSTEINS FOR SALE

5 Good Bulls, ready for service.
10 Very Choice Bull Calves.
2 Two-year-old Heifers, bred.
1 Six-year-old grand-daughter of King Segis, due in December.

L. E. CONNELL, Fayette, Ohio.

FOR SALE Registered Holstein Bulls

ready for service, and bull calves, also females. FREEMAN J. FISBECK, Howell, Michigan.

Holstein-Friesian Breeder—The best families of the breed represented. D. D. AITKEN, Flint, Michigan.

MICHIGAN HOME AND TRAINING SCHOOL

LAPEER, MICHIGAN

Breeder of High Grade Holstein Cattle. Lists and prices upon application.

JERSEYS—For list of stock for sale and Jersey facts write. MRS. P. H. WALKER, R. R. No. 8, Kalamazoo, Mich. If a breeder and a member of M. J. C. O. send list of stock for sale to the above.

Lillie Farmstead—Jersey Cattle, Yorkshire Hogs, Oxford Sheep. Write for what you want. COLON C. LILLIE, Coopersville, Michigan.

THE WILDWOOD JERSEY HERD

Registered Jersey Cattle, rich, Majestys Wonder No. 90711, one of the best sons of Royal Majesty is at the head of herd. His sons show type and class and his daughters are producing a large flow of high testing milk. Write your wants, Alvin Balden, Capac, Mich.

MAPLE Lane Register of Merit Herd—Tuberculin tested by the U. S. Government. For sale, bulls, bull calves and heifer calves from R. M. dams and granddams, and Hood Farm sire whose dam's and granddam's records average 912 lbs. of butter. Irvin Fox, Allegan, Mich.

FISHERTON FARM JERSEYS—Three fine grandsons of Hood Farm Posie 9th. from Register of Merit dams. FISHERTON FARM, Pontiac, Michigan.

BUTTER BRED JERSEY BULLS

CRYSTAL SPRING STOCK FARM, Silver Creek, Allegan County, Michigan.

JERSEYS—YEARLING BULL READY FOR SERVICE. Also bull calves. Brookwater Farm, R. F. D. No. 7, Ann Arbor, Mich.

LINE BRED JERSEY COWS AND HEIFERS. Fresh or due soon. Male calves eligible to registration. CHAS. B. COOK FARM, Owosso, Michigan.

The Jersey

comes into maturity early, is long-lived and is often found making records even to advanced age. She stands above all other breeds for economic production. Shall we mail you free a good book on the Jersey?

THE AMERICAN JERSEY CATTLE CLUB, 324 W. 23d St., New York City.

Jerseys. Bulls ready for service, extra quality sired by Jacoba's Fairy Emanon, No. 10711, from high producing dams. SMITH & PARKER, Howell, Mich.

Jersey Bulls for Sale from high-producing dams, with testing Assoc. records, also on semi-official test. C. B. Wehner, R. 6, Allegan, Mich.

Jerseys. Registered bull calves 10 to 20 dollars, heifers not registered 15 to 20 dollars. Barred Rock eggs. PETER H. DOUMA, R. 2, Holland, Michigan.

FOR SALE, Registered Jersey Cows—fresh or to freshen soon. WATERMAN & WATERMAN, Mendonville Farm, 1-1 Ann Arbor, Michigan.

BIDWELL SHORTHORNS

Registered Bulls For Sale.

Big and strong in prime condition for immediate use, 15 to 22 months old. Priced for quick sale. Albion Stamp 332670 by Ch. Shenstone Albino, in service. Write or see them on farm at Lake Shore & Michigan Southern Depot, or five minutes walk from Detroit, Toledo & Ironton Depot.

BIDWELL STOCK FARM

Box D. Tecumseh, Michigan.

SHORTHORN COWS

FOR SALE.

Two Shorthorn cows, 5 years old in June, in calf. Will calve next month by the Service Bull Adjutant Duke No. 375225. Cows sired by Adjutant No. 283135. They are in fine condition. The first check for \$250 will take them. Farm 2 1/2 miles northwest of Rivers Junction, Jackson Co., P. O. Onondaga, Mich. H. W. Darling.

MILKING SHORTHORNS—Young bulls sired by a Grand May & Otis bull for sale. DAVIDSON & HALL, Tecumseh, Michigan.

Shorthorns—Dairy or beef bred. Breeding stock all ages for sale at farmers prices. C. W. Crum, Secy. Cent. Mich. Shorthorn Breeders' Assn., McBride, Mich.

FOR SALE—Shorthorn Bulls, red and roans, by sons of Avondale and Victor Linwood, both International winners. John Schmidt, R. 2, Reed City, Mich.

Dairy Bred Shorthorns of Best Bates STRAIN. J. B. HUMMEL, Mason, Michigan.

SHORTHORNS: 6 CHOICE YOUNG BULLS FOR SALE

W. W. KNAPP, Howell, Michigan.

SHEEP.

IT PAYS TO BUY PURE BRED SHEEP OF PARSONS.

I sell and ship everywhere and pay express charges. Write for club offer and price list. Oxford, Shropshire and Friesian-Delaine. PARSONS, Grand Lodge, Mich. R. 2.

OXFORD-DOWN SHEEP, NO STOCK FOR SALE.

M. F. GANSSLEY, Lennon, Michigan.

Leicesters—Yearling and ram lambs from Champion Rock of Thumb of Mich. Also select Berkshire swine. Elmhurst Stock Farm, Almont, Mich.

Wool-Mutton Shropshire Ewes, bred to imported out stock quick. Mostly sired by imported ram. Write today. MAPLEWOOD STOCK FARM, Allegan, Mich.

HOGS.

Durocs & Victorias—Grand bunch of Gilts due March and April. Comprising the blood of Superba, Defender, Much Ado, and others. A few young boars. M. T. STORY, Lowell, Mich.

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, Marietta, Mich.

BERKSHIRES—Open or bred sows. Registered. \$30 for choice, all guaranteed. G. H. RIDER, Almont, Mich.

BERKSHIRES: Sows and Gilts Bred for April and May farrowing; of the best Breeding. A. A. PATULLO, Deckerville, Michigan.

HAMPSHIRE Swine—Breeding stock of all age from most popular strains. Write for breeding. Inspection invited. Floyd Myers, R. 2, Decatur, Ind.

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.

CHESTER WHITES. August and September pigs, from the great Chester Bad, Redford, Bronson King. A certificate of registry with each pig. John Gindling, Bronson, Michigan.

O. I. C. Fall Pigs—Choice gilts bred to one of the best boars in the State. C. J. THOMPSON, Rockford, Michigan.

THIS O.I.C. SOW WEIGHED 932 LBS. AT 23 MONTHS OLD

IONIA GIRL

I have started more breeders on the road to success than any man living. I have the largest and finest set herd in the U. S. Every one an early developer, set hard in the U. S. Every one an early developer, ready for the market at six months old. I want to place one hog in each community to advertise my herd. Write for my plan, "How to Make Money from Hogs." G. S. BENJAMIN, R. No. 10 Portland, Mich.

O. I. C's—STRICTLY BIG TYPE. For 12 yrs. I have been breeding for size and length with quality. Lengthy Prince one of the largest boars the breed ever produced, heads our herd, assisted by White Monarch and Frosts Choice, 2nd. prize under six months boar at Mo. Inter State Fair 1914. Stock for sale at all times, prices reasonable. Address, NEWMAN'S STOCK FARM R. No. 1, Marietta, Mich.

O. I. C.—Spring boars all sold. We have some fine fall pigs ready to ship. JOHN BERNER & SON, Grand Lodge, Michigan.

O. I. C's—One boar. Gilts bred for March and April farrow. Aug. and Sept. pigs. I pay express. G. P. ANDREAS, Danville, Mich.

O. I. C's—I have extra fine lot of last spring boars and a lot of this fall pigs, either sex, not akin. 3/4 mile west of depot. OTTO B. SCHULZE, Nashville, Michigan.

O. I. C. SWINE

Write for new price list, just out. Have on hand service boars, also other sex of Aug. farrow. I am also looking orders for March and April Pigs. A. J. GORDEN, R. No. 2, Dorr, Michigan.

O. I. C. nothing for sale at present but will take orders for Mar. and Apr. pigs, pairs not akin, Reg. free and shipped on approval. J. W. Howell, Ovid, Mich.

O. I. C's—Good thrifty stock for sale at all times. Choice sows bred for spring farrow. TED DRAPER, Munith, Michigan.

O. I. C's—Spring pigs, pairs and trios, not akin, from state fair winners. AVONDALE STOCK FARM, Wayne, Mich.

O. I. C.—25 sows bred for spring farrow. 75 Fall pigs, large and growthy. Write your wants. GLENWOOD STOCK FARM, Zeeland, Michigan.

O. I. C. Choice gilts bred for spring farrow. Sept. pigs. Serviceable boar weighing 330 lbs. price \$30. The long bodied and big boned kind. Alvin V. Hatt, Grass Lake, Mich.

Duroc Jerseys of the heavy boned type. Bred Sows and fall Pigs of both sex for sale. M. A. BRAY, Oakemos, Ingham Co., Michigan.

O. I. C. Gilts bred for March and April farrow. September pigs ready to ship. H. W. MANN, Danville, Michigan.

O. I. C's—Two serviceable boars, sow coming two-yr. old, bred for March farrow, fall pigs, all stock registered. S. J. HOWELL, St. Johns, Mich.

Duroc Jerseys: A few choice boars and bred gilts. Also S. C. W. Leghorns and Buff Rock Cockerels. J. McNICOLL, Sta. A. R. No. 4, Bay City, Michigan.

Duroc Jerseys—A few choice gilts bred for April and May farrow. Fall pigs either sex. S. C. STAHLMAN, CHERRY LAWN FARM, Shepherd, Michigan.

DUROC JERSEYS—A few fall boars and 12 bred gilts for sale. CAREY U. EDMONDS, Hastings, Michigan.

DUROC GILTS—Bred to farrow in April and May, \$35 each. If my selection does not suit you return sow after inspection at my expense and get your money back. ROPE KON FARM, S. L. WING, PROPR, Kinderhook, Mich.

O.I.C. and Chester White Swine

50 Gilts bred for March and April farrow, bred to White Hall Jr., second prize aged boar, Illinois State Fair, and Allen, Jr. Champion at Wis. State Fair, and to Jumbo and Wonder Boy. Here are a pair of big ones and are smooth. Special prices for the month of February. Service males and fall pigs of either sex. Write your wants and come and visit the greatest herd in state. All stock shipped c. o. d. and Reg. Free.

ROLLING VIEW STOCK FARM, R. No. 2, Cass City, Mich.

SPECIAL on Durocs—I will sell 35 choice bred Sows, 6 boars, with all papers. Send for catalog. I will put you on mailing list. St. Michaels, Mich. 1915. Phone Volinia. H. G. Keeler, Cassopolis, Mich.

DUROC JERSEY—Bred gilts for March and April farrow; bred right and priced right. W. C. TAYLOR, Milan, Michigan.

RUROC JERSEYS.

From Prize-Winning Stock.

Write, or better still, come.

Brookwater Farm, Ann Arbor, Mich., R. F. D. 7.

DUROC JERSEYS—Aug. boars ready for service. Also Aug. gilts bred for June farrow to prize-winning stock. Shipped C. O. D. for your inspection. F. J. DROTT, Route No. 1, Monroe, Mich.

Duroc Jersey—March gilts bred to son of Vot's steer. Champion 1912 fairs. Orders booked for March pigs. E. H. MORRIS, Monroe, Mich.

Capitol Herd Duroc Jersey Swine. Established 1888. Sept. pigs. Write for description, prices and catalog. J. H. BANGHART, PROP., Lansing, Michigan.

DUROC JERSEYS—Spring pigs of either sex at reasonable prices. Pairs not akin. W. J. BAUMAN, Burr Oak, Michigan.

POLAND CHINAS—60 head registered boars and sows; fine stock. A. G. MEADE, Colby Ranch, Stanton, Michigan.

POLAND CHINAS of the big type. Boars ready for service. Sows bred for spring farrow. A. A. Wood & Son, Saline, Mich.

POLAND CHINAS—Choice gilts bred to "Big Type," hours of great quality; also young boars. L. W. BARNES & SON, Byron, Michigan.

Poland China Sows and Gilts bred for March and April farrow. Also fall pigs, satisfaction guaranteed. G. W. HOLTON, Kalamazoo, Mich.

LARGE TYPE P. C.—Either sex, pairs and trios, not akin. Am looking orders for bred gilts. W. J. HAGELSHAW, Augusta, Mich.

Big Type Poland China Boars and Gilts plenty of size and great quality. I know I can please you. ROBERT MARTIN,



Rheumatism

Just put a few drops of Sloan's on the painful spot and the pain stops. It is really wonderful how quickly Sloan's acts. No need to rub it in—laid on lightly it penetrates to the bone and brings relief at once. Kills rheumatic pain instantly.

Mr. James E. Alexander, of North Harpswell, Me., writes: "Many strains in my back and hips brought on rheumatism in the sciatic nerve. I had it so bad one night when sitting in my chair, that I had to jump on my feet to get relief. I at once applied your Liniment to the affected part and in less than ten minutes it was perfectly easy. I think it is the best of all Liniments I have ever used."

SLOAN'S LINIMENT

Kills Pain

At all dealers, 25c.
Send four cents in stamps for a TRIAL BOTTLE

Dr. Earl S. Sloan, Inc.
Dept. 22 Philadelphia, Pa.



The editors of the Farm Journal were reared at the plow and they know what's what and how to help you.

You are invited to try it—It proves something to you that more than 800,000 farmers already approve the paper. Five years, \$1. Any time you are not satisfied you get your money back.

The Farm Journal
182 Washington Square, Philadelphia

Handy Wagons
Save High Lifts
Built low—wide tires prevent rutting—light draft—save work and repairs. Write for free catalog of steel wheels and wagons.
Electric Wheel Co., 35 Elm St., Quincy, Ill.

BOOK ON DOG DISEASES
And How to Feed
Mailed free to any address by the Author
H. CLAY GLOVER, V. S.
118 West 31st Street, New York

Michigan Livestock Insurance Co.
Capital Stock—\$100,000. Surplus—\$100,000
Home Office—Charlotte, Michigan.
Only Home Co. in Michigan.
COLON C. LILLIE President.
H. J. WELLS, Secretary-Treasurer.

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.

Navel Infection.—Have lost four of my ten calves and those which died were only sick two or three days. Every one of them had bowel trouble; the cows carried their calves 270 days. J. T., Osseo, Mich.—If you will apply healing remedies to navel of young calves as soon as they are born you will perhaps protect them from diarrhoea and scours. First the cord should be tied one inch from the body, stub painted with tincture iodine, then apply any good home-healing antiseptic remedy twice daily.

Dog Has Mange.—I have a coon dog that is troubled with mange, or some other skin ailment which produces great itching. The hair falls out in patches and the disease seems to spread. W. P., Pinckney, Mich.—Apply one part coal-tar disinfectant and 20 parts water twice a day, or one part sulphur and four parts lard three times a week.

Indigestion—Barren Mare.—I have a horse that is low in flesh, discharges from nose, but his appetite is good. Is his ailment catching? I also have an old mare that is quite thin and fails to get with foal. W. H. K., Walton, Mich.—His teeth may need floating, or he may have diseased grinder tooth causing nasal discharge. Give 1 dr. of ground nux vomica, 1 dr. powdered sulphate iron, ½ oz. ground gentian at a dose in feed three times a day. Dissolve a teaspoonful of salt in a pint of water and rinse out nostrils twice a day. Give your mare 1 dr. of ground nux vomica, 2 drs. of ground gentian and ½ oz. of Fowler's solution at a dose three times a day. She may possibly be barren, and never get with foal.

Diseased Molar Tooth.—About two months ago I bought a mare which was in a run-down condition; she has a good appetite, is fed ground corn and oats with plenty of alsike and timothy hay, but does not take on flesh. She has a fetid discharge from right nostril and when driven considerable thick mucus comes from her head. R. R., Roscommon, Mich.—Examine her mouth and you will find the fourth upper molar tooth diseased which when extracted she will perhaps get well. Give her a teaspoonful of powdered sulphate iron and a dessertspoonful of Fowler's solution at a dose three times a day.

Indigestion.—Have calf four weeks old that is fed 2½ qts. of fresh milk from cow twice a day, but it is not doing well. The calf is lively and apparently healthy, and not troubled with lice. Is cob meal a good food for calves three months old? J. S., Cedar, Mich.—Give your calf 15 grs. of hypophosphite of soda and 20 grs. of ground gentian at a dose in milk three or four times a day. You have not been feeding calf often enough. Also give it some ground oats and clover; add ground oats and wheat bran to cob meal, instead of giving it alone and your calf will do better.

Capped Hock.—For the past twelve months my four-year-old gelding has been troubled with capped hock. G. E. L., Lake Odessa, Mich.—Apply equal parts tincture iodine and spirits of camphor every day or two.

Thirsty Mare.—I have a six-year-old mare that is fond of snow; right away after drinking water she will lick and eat snow. She is in foal. J. S., Kenton, Mich.—Place water before her in stable, also give her ½ oz. cooking soda at a dose in feed three times a day. Give her two tablespoonsful of cider vinegar in drinking water three times a day until her thirst mostly leaves her.

Indigestion.—We have a cow that came fresh last fall; since then she has not thrived and is thin. W. H., Bridgeport, Mich.—Give her 1 dr. of ground nux vomica, ½ oz. of ground gentian, ¼ oz. ground cinchona bark at a dose in feed three times a day. A change of feed will do her good.

Weak Heart.—Old mare pants badly, coughs some and is out of condition. Would you advise me to breed her to colt 20 months old, or would you advise me to not breed colt to mares before he is four years old? L. A., Alden, Mich.—Give ½ dr. ground

nux vomica, ¼ oz. Fowler's solution and ½ oz. powdered licorice at a dose in feed three times a day. Feed less bulky fodder and exercise her daily. Yes, breed her. Breed him to a few mares at two and three years of age.

Brood Mare Sweats in Stable.—I have a 12-year-old mare that sweats during the night while standing in stable. J. G., Bear Lake, Mich.—Clip her and give her 1 dr. of acetate potash, ½ dr. ground nux vomica, ½ dr. powdered digitalis at a dose in feed three times a day for two weeks; then give ½ oz. of Fowler's solution in feed three times a day. Her bowels should be kept open and active, this is best done by giving well salted bran mash, clover and roots.

Laminitis (Founder).—Our six-year-old horse is sore and stiff; when walking he keeps fore feet well out in advance of body. B. T., Newaygo, Mich.—Shoe him with rolling motion shoes, clip hair off fore coronets and apply one part powdered cantharides and four parts lard and apply three times a month.

Pimples—Surfeit.—I am a reader of the Michigan Farmer and find some very good advice in veterinary column. I bought a young mare one year ago that has been troubled with pimples and a sort of breaking out, causing itchiness. When driven she shows it most. T. F. W., Monroe, Mich.—Give her 1 oz. of sulphate soda at a dose in feed three times a day and clip her.

Weakness.—Have 20 two-year-old heifers that have lived on hay all winter; one of them is down and unable to get up without help and when placed in slings is hardly able to stand. F. E. W., Spring Lake, Mich.—Give her 1 dr. of ground nux vomica, ½ oz. gentian, ½ oz. ground cinchona at a dose three times a day. Feed her plenty of grain, clover and roots.

Hogs Cough.—I have a bunch of hogs that are growing well, but are troubled with a cough; it is eight weeks since I noticed them hacking. E. J., Charlotte, Mich.—Mix equal parts ginger, licorice, cooking soda and ground gentian together and give each hog a teaspoonful at a dose in feed two or three times a day.

Elbow Tumor.—My nine-year-old mare has a shoe boil on elbow which our local Vet. opened but failed to cure. What had I better apply to take it off? E. W. R., Lowell, Mich.—Call a competent Vet. and have him cut off tumor, removing some loose skin with bunch or he will not have a smooth elbow when wound heals.

Chronic Azoturia.—I have six-year-old mare of a nervous disposition which has had three different attacks of azoturia. She is also lame occasionally in left fore foot. She has been examined by three different veterinarians who fail to locate her lameness. I. F. R., Riverdale, Mich.—Azoturia is usually caused by feeding a horse too much grain without giving them exercise; therefore, you should be able to prevent future attacks by giving the animal a few miles of exercise every day and feeding carefully. The lameness is in foot, and doubtless incipient navicular disease. Apply one part tincture iodine and two parts camphorated oil to coronet every evening.

Itchy Cow.—I have a cow which seems to lick herself a great deal and when an opportunity presents itself she rubs against posts, trees or fences enough to make skin raw. The cow standing next to her has commenced to rub herself. J. M. H., Chase, Mich.—Your cow may be lousy. Wash her with one part kerosene and nine parts soapuds once a day for a week, then apply one part bichloride mercury and 500 parts water twice a day. She should perhaps be kept away from your other cattle.

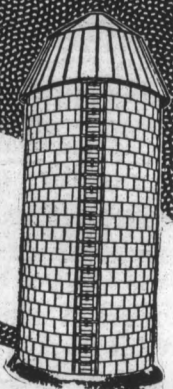
Pelvic Fracture.—I have a mare which, after plowing hard one day last August, showed lameness in left hip. Has not worked for the past five months and when in stable leans against stall partition and when walking goes crooked. D. A. A., Flint, Mich.—Apply one part aqua ammonia and two parts camphorated oil to hip once a day. Her recovery is doubtful.

Loss of Appetite—Cough.—I have a six-year-old mare that I bought ten days ago, but she has lost her appetite. I also have another horse that coughs occasionally, but is not sick. F. C., Milwaukee, Wis.—Give her ½ dr. fluid extract nux vomica and ½ oz. Fowler's solution at a dose in feed three times a day. Give other horse ½ oz. licorice and ¼ oz. ginger at a dose in feed three times a day.

Indigestion—Weakness.—I have a five-year-old mare that is not thriving; two local Vets. filled teeth and gave her medicine without doing her any apparent good. She lacks life and courage. C. T., Dundee, Mich.—Give her 2 drs. phosphate soda at a dose in feed three times a day. Also give her 1 dr. ground nux vomica and ½ oz. of Fowler's solution at a dose three times a day.

Lap-Joint Blocks

make stronger, more durable walls—you brace tile against tile—the silo material that lasts for generations. Write us—learn more about this construction in the



Lansing Vitrified Tile SILO

First Cost the Only Cost

Reinforced throughout with twisted steel—10% stronger than steel not twisted. Thin mortar line exposed between blocks—fluted end keeps mortar from slipping—gets solid grip. Write for low price offer and catalog.

J. M. PRESTON CO.
Dept. 309, Lansing, Mich.
Get our offer on Climax Silage Cutters and Bidwell Thrashers

Dunhams' Percherons

are today as for the past forty-eight years the breed's best. As a matter of fact you can also get more here for your money than elsewhere. If you are interested in

Percherons and want to get in touch with the oldest concern in the business—the one that handles the best class of horses, and whose reliability is proven by the experience of thousands of satisfied customers. Come and see us.

New illustrated catalog on application
DUNHAM'S, Wayne, DuPage County, Illinois.

PERCHERON SALE.

Farmers and Breeders Attention.

In order to insure quick sales we have decided to cut our prices. Your choice for \$1600. A lot of good ones at \$400-\$500-\$600.

A. A. PALMER & SONS,
R. R. Orleans, P. O. Belding, Mich.

FOR SALE—One Pair of Ch. Belgian Geld'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, 5 yrs. old, wt. 1540 lbs.; One Brown Gelding, 5 yrs. old, wt. 1500 lbs.; one Bay Blocky 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 2200 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.
STARKWEATHER STOCK FARM,
Northville, Mich.

LOESER BROS.

We have sixty head of imported Belgian and Percheron stallions and mares, from weanlings up. We are also offering a car lot of big drafty grade brood mares all in foal, weighing 1600 to 1800 pounds.

LIGONIER, IND.

METZ BROS.,

Importers and Breeders of

Percheron Stallions and Mares

We have a fine selection of stallions and mares ranging from 1 to 6 years old. Prices reasonable, terms to suit purchaser. METZ BROS. Niles, Mich.

CLYDESDALE We have a lot of choice young Stallions and Mares for sale at bargain prices. Terms to suit. FINDLAY BROS., Fairgrove, Michigan.

Registered Percherons, BROOD MARES, FILLIES AND YOUNG STALLIONS at prices that will surprise you. L. C. HUNT & CO., Eaton Rapids, Michigan.

Pigeon Pony Farm—Reg. Shetland Ponies, mostly spots, 1 spotted stallion and young stock for sale. Dr. W. T. Morrison, Pigeon, Mich.

SOUTH ST. PAUL HORSE & MULE COMPANY. Union Stock Yards, South St. Paul, Minn. A large assortment of Good Horses and Mules always on hand. PRIVATE SALES DAILY.

HORSE AUCTION EVERY MONDAY. GET IN TOUCH WITH US.

PERCHERONS—Imposant, one of the heaviest horses in state, at head of stud. Brood Mares as good, young stock for sale. CHAS. OSGOOD & SONS, Mendon, Michigan

FOR SALE—Registered Percheron Stallion Mares and Fillies at reasonable prices. Inspection invited. F. L. KING & SON, Charlotte, Mich.

FIVE REGISTERED PERCHERON STALLIONS, 1 black, from weanlings to 12 years old, and sound. WM. McRODAN, Dutton, Kent Co., Mich.

Registered Clydesdale Stallions for Sale. F. A. PETZ, CAPAC, MICHIGAN.

REGISTERED Percheron Stallion 1800 lbs., 4 yrs. 1st prize State Fair, 1914. No use for him. Will sell cheap. Terms, Mayhue 165 E. High St., Detroit.

A TOP Dressing of Nitrate of Soda on Wheat should give you a splendid increase in yield of heavier, better Wheat than you have been producing.

To the farmers who apply I will send absolutely free enough Nitrate of Soda to try it. This offer is necessarily limited, so write at once. To the twenty-five farmers sending the best results from these trials, I offer as a prize Prof. Voorhees' book "Fertilizers," a standard work of 327 pages, handsomely bound.

Send post card with name and complete address, mentioning this Journal

WILLIAM S. MYERS, Director
25 Madison Avenue, New York

CHEAPEST and BEST FEED For Cows

All of the sugar beet left after man's food (sugar) has been soaked out by water. Clean, wholesome, pure, dried vegetable food.

LARROWE'S DRIED BEET PULP

Free from adulteration. Don't buy bran, middlings, cornmeal, barley, oats or other carbohydrate feed when you can get a better feed like Dried Beet Pulp for less money per ton. Ask your dealer.

THE LARROWE MILLING CO.,
1000 Chicago Bldg.
DETROIT, MICH.

ZYRO
TRADE MARK
GALVANIZED ANTI-CORROSIVE
NO-CO-RO Metal
SILOS
Stand the Test!

Their practical construction stands for lasting service. Made of NO-CO-RO Metal—an exceptionally pure galvanized iron. Perfectly fitting doors make the "ZYRO" Metal Silo

Absolutely Air-Tight
It cannot crack, shrink or collapse—is practically trouble-proof. Many unique and exclusive features put the "ZYRO" Silo in a class of its own. Write today for

FREE BOOK OF METAL SILO FACTS
Tells all about "ZYRO" Silos and shows them "on duty" with many prominent farmers and dairymen. If you think of building a silo, study the "ZYRO" advantages. Write for helpful Catalog today.

THE CANTON CULVERT & SILO CO., BOX 120 CANTON, OHIO.

EARN COST THEN PAY. TILE SILO

Chain of Kilns; Atlantic to Rio Grande

Reduces freight cost; fire and frost-proof; weight anchors itself; ample housing galvanized; priced at your town; 5 year guarantee; free sample.

Kalamazoo Tank & Silo Co., Kalamazoo, Mich.

The Guernsey Silo
Glazed Tile-Steel Reinforced

New Book-Page 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.

Guernsey Clay Co., 908 Fletcher Bldg Indianapolis, Ind.

DEHLER CALF WEANER

LATEST and BEST.
Picks the calf and does not injure cow. Agents wanted. Postpaid 60c.

Dehler Bros. Mfg. Co., 15th St., & 5th Ave., Moline, Ill.

Michigan White Cedar FENCE POSTS

GEORGE M. CHANDLER, Onaway, Mich.

Practical Science.

FOOD LAW ENFORCEMENT IN AND FOR MICHIGAN.

BY FLOYD W. ROBISON.

(Continued from last week).

Buckwheat Flour Law.

Besides the general food law quite a good many other special acts have been passed by the Legislature from time to time, dealing specifically with individual classes of material. The Legislature of 1903 passed an act in relation to the manufacture and sale of buckwheat flour, which act permitted the admixture with buckwheat flour of wheat, corn, rye, or other like substances, but compelled the labeling of the product as a buckwheat flour compound.

Law Governing Milk One of the First Passed.

One of the earliest separate acts passed by the Legislature was in 1873, known as Public Acts No. 26, which provided for penalties in the adulteration of milk and milk products; an act passed in 1887 to prevent the sale of impure, unwholesome, adulterated, or swill milk, which acts have been amended and added to by the Legislature frequently from that time on. In all the statutes which have been passed referring to the adulteration of milk, and there are more covering this commodity than any other commodity known, none have yet anticipated the giving of power to the inspector to pass final judgment upon a product. It would seem that ample time had been shown for the Legislature to become conscious of the need for placing judicial powers in the hands of an inspector if there were need for that to be done. The fact that no statute gives the inspector such power is sufficient, it seems to us to discourage the use of such power by an inspector. We do not believe there is any warrant in law permitting an inspector of either a state department or a board of health to destroy food even though it may not conform to his interpretation of the law.

Standard for Butter and Cream.

The Legislature of 1913 passed a very important act, known as act No. 244, to regulate the sale of butter and cream in the state of Michigan. This act establishes a butter-fat standard for butter, which is a most desirable addition to the food law. Under this act any product which contains less than 80 per cent milk fat cannot be sold as butter, and any product which contains less than 18 per cent of milk fat cannot be sold as cream.

The Drug Law.

A standard for linseed oil was provided in act No. 210 of the Public Acts of 1909, which likewise makes unlawful the adulteration of this product. The Legislature of 1909, in what is known as act No. 146, passed the first law, requiring the inspection of drug products, the state has had. This act is in conformity with the National Food and Drug Act and attempts to bring the same restrictions to the traffic within the state that the National Food and Drugs Act brings to interstate traffic.

(Continued next week).

The growing of special crops pays well when brains and salesmanship are mixed with it. Some of those which any farmer may attempt are onions, potatoes, seeds, small fruits, orchard fruits, early tomatoes, lima beans, celery and flowers. Nothing of this sort should be undertaken without previous study and experiment. They should be begun with caution and increased as experience dictates. It is worth considering. Many have found it the road to permanently prosperous agriculture.

CONCRETE in the BARNYARD

UNIVERSAL PORTLAND CEMENT CO. CHICAGO - PITTSBURGH

Let us Give You This Book It's Free

"Concrete in the Barnyard" contains information of interest to every farmer. If you haven't done any concrete work, you'll want this book of simple instructions. If you have already begun building up your farm with permanent structures of concrete, the detailed plans and directions in this book will be of great help to you in further work. We are always glad to give special information in addition, whenever desired. Don't be without this book. Send for a copy today.

Universal Portland Cement Co.
CHICAGO, 208 South La Salle St. PITTSBURGH, Frick Bldg.
MINNEAPOLIS, Security Bank Building
Plants at Chicago and Pittsburgh
Annual Output 12,000,000 Barrels

Concrete for Permanence

Run on Kerosene—6c for 10 Hours

Ellis Engines develop more power on cheap lamp oil than other engines do on high-priced gasoline. Will also operate successfully on distillate, petrol, alcohol or gasoline. Strongest, simplest, most powerful engines made; only three working parts. No cranking, no excessive weight, no carbonizing, less vibration, easy to operate.

ELLIS ENGINE

Horizontal Engine Vertical Engine

Have patent throttle, giving three engines in one; force-feed oiler; automobile type muffler; ball-bearing governor adjustable while running and other exclusive features. Every engine sent on 30 days' approval with freight paid. 10-year guarantee. Write for 1915 catalog, "Engine Facts," showing New Models with special prices.

ELLIS ENGINE CO., 2839 East Grand Boulevard, Detroit, Mich.

FREE This Steel Document Box
Made of Bessemer Steel. Fire and Burglar Proof
Sent Anywhere in the U. S. Prepaid

Every person needs a Strong, Steel Document Box of this kind. Deeds, Mortgages, Bonds, Notes, Insurance Policies and Private Papers are too valuable to have pigeon-holed loosely about the house. Even though you keep them permanently in a safe deposit vault, it is dangerous to carry them loosely in your pocket to and from the bank.

This Steel Document Box is constructed of Bessemer steel and heavily coated with black enamel. You can't cut it with an ax. Lid fits closely into a grooved edge on the bottom half. Hinges are on inside. It locks with an individual key and just fits your coat pocket. Size 11 in. long, 5 in. wide by 2 in. deep. It insures Safety and Saves Time and Worry. You should not let your papers go unprotected another minute. Send for the box at once.

Our FREE Steel Document Box Offer Send us one subscription to six months (26 issues) at 75 cents and we will forward immediately prepaid and FREE the Steel Document Box shown above.

The Farming Business

is a weekly illustrated in colors. It is a great new \$1.50 farm paper with over 100,000 subscribers and but a few months old. It is not an ordinary farm paper. It treats farming as a BUSINESS and the farmer as a BUSINESS MAN. It helps you with the selling end to get the highest price for what you produce—it helps you run your business at a profit.

EXTRAORDINARY FEATURES—Only farm paper with representative in Europe investigating future crop conditions for American farmers. A weekly Market Letter, News Review and Colored War Map (War affects markets, markets determine success of farmer's business)—New Farm Inventions and Discoveries that lower cost and increase profits—Departments for entire family—a Boy and Girl's page—Patterns—Needlework—Home Maker's Club—in short a big farm magazine that you need in your business.

Published by **W. D. BOYCE CO., Chicago, Ill.**

Fill In This Coupon and Mail Now For FREE Document Box

W. D. BOYCE CO.,
Dept. 805, 508 N. Dearborn St., Chicago, Ill.

Gentlemen—Enclosed please find 50 cts. for 4 months (16 issues) subscription to Farming Business and Steel Document Box FREE.

Name.....
St. No. P.O. Box.....
R.F.D.
Town.....
State.....

FREE TEN-DAY TRY-ON

Ruthstein's Latest Triumph

SAVE
\$10 to \$20
a year
on shoe
BILLS



ADJUSTABLE LEATHER TAPS

Make My "Steels"
INDISPENSABLE

to Every Man
and Boy for
Every Purpose



"Steels" mean All-day-comfort to Every Man or Boy. Can be worn from sun-up to sun-down
"Steels" do not absorb barnyard or stable filth and odors. Easy to wear—Easy to clean
"Steels" protect the Man or Boy who can't pick his steps—make him tireless and sure-footed
"Steels" keep the feet dry and comfortable in all weathers—Protect the Health the year 'round
"Steels" with Adjustable Leather Taps can be worn at all times and places. They do not sweat the feet

Health, Comfort and Economy Demand that You Wear "Steels" The Lightest — and Only Absolutely Waterproof — Workshoe



The World's Greatest Workshoe

Twelve years of untiring effort and the expenditure of a Fortune have enabled me to produce a workshoe that surpasses all others for Comfort, Lightness, Protection, Practicability, Service and Economy—Absolutely Waterproof under all conditions—in all seasons—from season to season—for town or country.

It cost more than a half a million in cash to bring My "Steels" to their present perfection and make this offer and announcement to you today. I recently spent one hundred thousand dollars to improve my "Steels"—make them more comfortable—improving every part of the shoe—and to increase my capacity to meet the tremendously increased demand. My latest TRIUMPH Adjustable Leather Taps—make my "Steels" the Only Practical, General Purpose Workshoe.

Saved Millions for Workers

My "Steels" have saved to workers more than twenty million in shoe expense alone, and many Millions more in doctor and drug bills—in loss of time from sickness or bad weather—because no man nor boy need fear to wear my "Steels" in the roughest storm—summer or winter—rain, snow, sleet, slush or mud.

Now, My "Steels" will save countless Millions more for the men and boys who see this advertisement—who will wear my "Steels."

My Steels—Best Health Insurance

Here is the only all-the-year-around workshoe ever invented. The shoe for every season—Cool in Summer—Warm in Winter—Dry and Shapely—always. They never Harden nor Waterlog, Scald the feet, Warp, Twist, or Leak.

My "Steels" absolutely protect the wearer from Rheumatism, Lumbago, Sciatica, Coughs, Sore Throat and other "wet-foot troubles."

My "Steels" are Foot-form-fitting—always keep their original shape. The Steel Sole is a Natural

Arch Support. Nothing to Rub nor Chafe. Sure prevention and relief for Corns, Bunions, Callosities, Chilblains, and all Foot Discomforts.

My "Steels" are altogether the Best Investment you can make, Best for your Health—Best for your Comfort—Best for your Pocket-book.

Leather-Tapped "Steels"—My Masterpiece

The Adjustable Taps of my New Model "Steels" are of firm, solid, special Process Leather, firmly attached to the wonderful sole of thin, wear-resisting, springy steel that has made my "Steels" the World's Greatest Workshoe.

Leather Taps Instantly Replaced

Then, when worn, the Leather Taps are Instantly Removed—Instantly Replaced by anyone—at home. The cost of New Taps is small—but 40c, for a full set of better-wearing, more solid leather than is ever put into the best all-leather workshoes. They last three times as long as any other taps.

The Ideal General Service Workshoe

Here—At Last—is the Ideal Shoe for every Man or Boy. Not alone for the Farmer—not alone for the Dairy, Stock or Creamery Man—the Fruit or Vegetable Grower—but for Everyone who Works or Plays—Indoors or Out—in City, Town, Village or Hamlet—Forest or Field or Range or Road or Pavement—on Mountain or Plain—in Factory or Mine—for Mechanic, Laborer, Soldier, Shopman, Sportsman—for every man who Does Things—for Every Worker.

My "Steels" stand Alone—Supreme—The Greatest and Best General Service Workshoe the World has ever seen.

"Steels" in All Sizes for Men and Boys

"Steels" run in same sizes as ordinary leather shoes and rubber boots—and in all heights. Sizes for Men 5 to 12, 6, 9, 12 or 16 inches high—for Boys, Sizes 1 to 4, 6 or 9 inches high.

You Must Try My "Steels"

You cannot begin to realize the True Value of my "Steels"—you cannot know the height of Shoe Comfort, Economy and Protection—until you try and wear my "Steels."

"Steels" for Boys

The Easy, Light, Comfortable, Waterproof, Healthy Shoe for Boys. The "Knock-about" Shoe—the Sensible, Long-wearing Shoe. The Greatest School—the Greatest Play Shoe—the Greatest All-around Shoe for REAL BOYS. No more Wet Feet. No more hot, heavy "arctics" or rubber boots. No more danger of colds or sickness. Keep your feet "powder dry" in any kind of wet, damp, sloppy, snowy weather. My "Steels" are best to SHAPE YOUNG FEET and avoid the foot-troubles of later life. Show this to Mother! She knows what's best for you. "Steels" will save her hours of worry.



This Book FREE



Let me send this book to you by mail, postpaid. Read it and learn more of this great shoe with the sole of steel—the shoe with the light, springy, airy "step"—the shoe that rests your foot naturally and comfortably—always holding its perfect shape—never a "run-down" heel, broken arch, warped sole, worn toe, twisted uppers, or cracks or leaks. Before you think of buying a pair of work-shoes, get this great book of shoe facts and learn about this wonderful, foot saving sole of seamless steel. Do not think of turning this page until you have sent for this free book.

You know, and I know, that the day of the Leather Workshoe is passing—that you must find something better—more Comfortable—more Lasting—more Economical—that leather workshoes are getting lower in quality and higher in price every year—that cheap workshoes are cheaply made—that even the most expensive will not last one full season.

My "Steels" are higher in grade and lower in price than any other workshoe—three to five times better value for less money.

Try "Steels" Ten Days at My Risk

I have spent a Fortune to MAKE GOOD every claim and every statement made for my "Steels." You cannot prove their worth to you unless you try my "Steels." You cannot profit by my years of effort if you lay aside this paper before writing to me.

I do not ask you to take my word nor the unstinted praise of the Million wearers of my "Steels." I'm Asking you to TAKE YOUR OWN JUDGMENT—the evidence of your own senses.

Just TRY my "Steels"—just send the Coupon or a postal—ask for my FREE BOOK—ask for FREE DEMONSTRATION—FREE TEN-DAY TRY-ON—in your own home—on YOUR OWN FEET.

DON'T lay this paper aside until you have done what I ask—for your own good—for the sake of your Health and General Prosperity. You already know my reputation—ask any Banker—any Express Company or the Publisher of any Paper—they'll tell you I am absolutely reliable.

Send Postal or this Coupon

N. M. RUTHSTEIN, The Steel Shoe Man,
Dept. 126, Racine, Wis.

Dear Sir—Please send me, postpaid, your free book "The Sole of Steel" and full particulars of your Free Ten-Day Try-On Offer without cost, risk or obligation to me.

Name.....

Street or R. F. D. No.....

Town.....State.....

N. M. RUTHSTEIN, STEEL SHOE MAN U. S. FACTORY - Racine, Wis.
Canadian Factory, - Toronto, Ontario
British Factory, Northampton, England
Dept. 126, Racine, Wis.
ALSO manufacturer of the "World Famous Scientific Shoe" FOR DRESS and GENERAL SERVICE