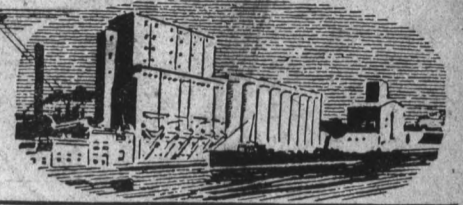


*The Michigan*  
**BUSINESS FARMER**

(Keep the Business Farmer coming—  
see Coupon page 13)



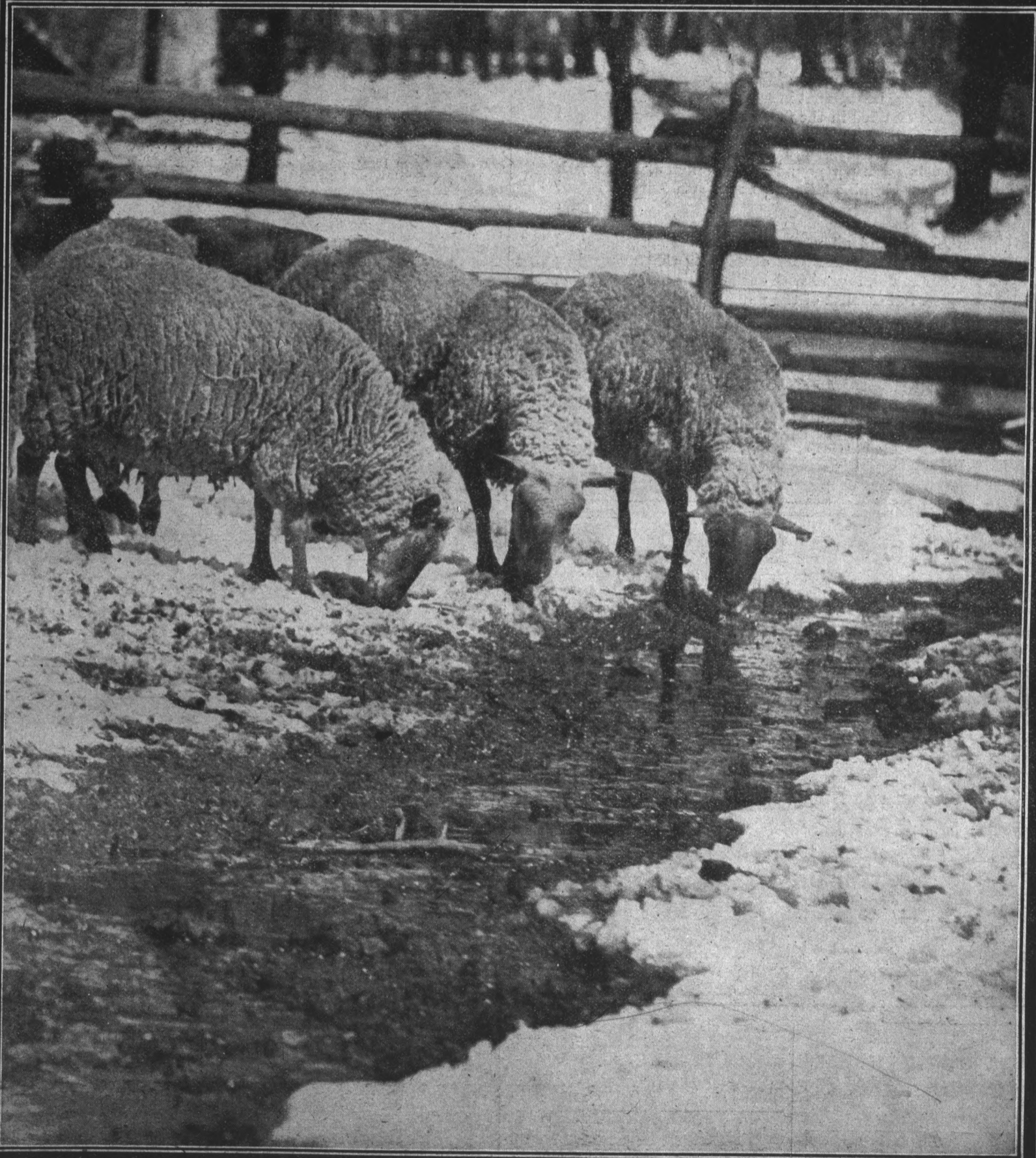
An Independent  
Farm Magazine Owned and  
Edited in Michigan



VOL. X, NO. 12

SATURDAY, FEBRUARY 3, 1923

\$1 PER YEAR



A Modern Tale of the Golden Fleece!

(Only Six States Lead Michigan in Number of Pure Bred Sheep)

Read in this issue: *Dr. Friday Begins Milk Quiz in Detroit Area—Pruning Fruit Trees*



Michigan Farm Bureau Brands include the Best varieties of alfalfa, clover, seed grains and other field and grass seeds. Their Vitality, Description and Purity are guaranteed to be as represented to the full amount of the Purchase Price.

## Genuine Grimm Alfalfa Seed

Farm Bureau Brand Grimm, Scarified and Recleaned, requires less seed per acre. For purity of strain, germination, hardiness, tonnage, high feeding value and soil improvement it is the best.

Seed of unknown adaptation often fails. Can you afford to take the chances with your investment in seed, labor, and land? Farm Bureau Grimm is certified in the fields and after threshing and is adapted to this climate.

Grimm Seed costs more per pound than Common. It's worth the price if you get Genuine Grimm. Buy Farm Bureau Brand and *know it's right*.

Buy Grimm Alfalfa and all your other seeds from your local CO-OPERATIVE ASSOCIATION demanding that every bag be Farm Bureau Brand, tagged with our analysis and guarantee, which covers the full amount of the purchase price.

If you can't get this service locally, write to the

*Seed Department*

**MICHIGAN STATE FARM BUREAU**  
LANSING, MICHIGAN



## Overshoe Bargains

**SEND NO MONEY** Examine goods and if you are not convinced that you have more than your money's worth we will gladly return your money. Don't delay. Order now before article you want is sold out. **PAY ON ARRIVAL**

### 15 Inch 8 Eyelet Hi-Cut Arctic

**\$2.75** Plus Postage

All rubber eight-eyelet laced overshoe 15 inches high; wool lined; laces like a shoe. It will pay you to make this saving on a pair of overshoes which would ordinarily cost six dollars. Sizes 7 to 11. Special \$2.75 plus postage.



### Heavy 2 Buckle Cloth Top Arctics

**\$2.39** Plus Postage

Two-buckle heavy arctics made from high-grade rubber bottoms with high-grade snow-proof cloth tops. Full lined. Sizes 6 to 11. These durable, snow excluding rubbers are a most unusual bargain at our special price of \$2.39, plus postage.



### 4 BUCKLE ALL RUBBER ARCTICS

**\$2.29** Plus Postage

The lowest price on overshoes of this quality in America. Men's four-buckle all rubber arctics, heavy friction cloth lining. Pure gum rubber uppers, double corrugated rubber soles. Seams reinforced. These overshoes would cost at least \$4.50 in any retail store. Sizes 9 to 13. Only \$2.29 plus postage.



### Genuine Goatshair SOCKS

**3 pairs for \$1.00** Plus Postage

Here is the best sock buy in the country today. A genuine army regulation pure wool worsted sock, with knitted top and reinforced toe and heel. There is nothing that can beat them for warmth and wear combined. They are of a medium heavy weight and are easily worth \$1 per pair. Special price 3 pairs for only \$1.00. Dozen pairs, \$3.75.



**U.S. SALVAGE CO.** Wabash St., E. Corner 10th ST. PAUL, MINN.

## BUSINESS FARMERS EXCHANGE

Ads Under this Head 10c per Word, per Issue

### GENERAL

**LET US TAN YOUR HIDE—COW AND** Horse hides for fur coats and Robes. Cow and Steer hides into Harness or Sole Leather. Catalog on request. We repair and remodel worn furs; estimates furnished. **THE CROSBY FRISIAN FUR CO.**, Rochester, N. Y.

**FOR SALE—CLEVELAND TRACTOR WITH** Disk and Plows; a bargain for some one, is in fine condition, will exchange for horses. **M. L. MORNINGSTAR**, Shelby, Mich., R. 1.

**FREE COAL—FOR A FEW HOURS SPARE** time—write today. **PEOPLES COAL CO.**, 1120 W. 35th St., Dept. 71, Chicago, Ill.

### HELP WANTED MALE

**WANTED—MARRIED FARM HAND BY** year. **FRED H. POSTER**, Clarkston, Mich.

**SALESMEN, GREAT OPPORTUNITY FOR** pushers to make big money selling oils and greases on liberal commission and bonus. Unlimited prospects for men who know how. Old company. Quality products. Attractive prices. Square deal. Write today to Dept. A-22, **MANUFACTURERS OIL & GREASE COMPANY**, Cleveland, Ohio.

**WE PAY \$200 MONTHLY SALARY, FURNISH** rig and expenses to introduce our guaranteed poultry and stock powders. **BIGLER COMPANY**, X682, Springfield, Ill.

**AGENTS—SELL WOLVERINE LAUNDRY** Soap. A wonderful repeater and good profit-maker. Free automobile to hustlers. **WOLVERINE SOAP CO.**, Dept. E3, Grand Rapids, Mich.

**MAN AND WIFE WITHOUT FAMILY FOR** farm work, near Detroit. Woman must be experienced cook. **BOX 233**, care Michigan Business Farmer.

### CORD-WOOD SAW FRAMES

**BUZZ SAW FRAMES, BLADES, MANDRELS,** belting, pulleys, wood-working machinery, etc., of every description. Low prices, prompt shipments. Catalogue free. Write **GEO. M. WETTSCHURACK**, La Fayette, Indiana.

## Current Agricultural News

### 1922 CROP OUTPUT IN MICHIGAN SHOWS INCREASE

THE crop output for the farms of Michigan in 1922 aggregated \$215,000,000, an increase of 17 per cent over 1921 when the valuation dropped to 184,004,000. The complete annual report of the Michigan Cooperative Crop Reporting Service is now in the hands of the printer and will be ready for mailing within a short time, according to Verne H. Church, Agricultural Statistician. The report further states that each of the grain crops, together with beans, clover seed and sugar beets were bringing better prices on December 1, 1922 than on the corresponding date of the previous year, and that a large monetary return per acre was derived from all crops except wheat, buckwheat, potatoes and wild hay. The fruit crops, potatoes and hay were less in price than one year ago.

It is asserted that the figures indicate that the low point has been passed and farm financial conditions are beginning to improve with favorable prospects for the future. Michigan's important position as a dairy state and the diversified nature of her crops have lessened the severity of the depression and are aiding in the recovery from it, in comparison with other states that suffered the greater distress caused by inflated land values.

The combined yields of all crops in the State were 7.4 per cent better than the average of recent past years. This is an exceptional showing as only four other important crop states made as good a record. While the State generally leads in the yields of one or more crops, it is unusual to attain this high average for all crops.

The best crop of the year was hay, although corn, potatoes, clover seed and most of the fruits yielded above the average. The poorest crops were winter wheat and rye although these were fair in both yield and quality for the State as a whole. All main crops were larger in volume than last year except corn, rye and sugar beets, and all had a greater total value except potatoes, sugar beets and clover seed.

### FARM BUREAU REPORTS SURPLUS OF \$200,000

FROM a \$15,000 deficit to a net worth of more than \$200,000 in two years' time is the record of the Michigan State Farm Bureau, according to a report from Lansing, and if unpaid memberships were included, the net worth of the bureau would be \$642,000.

The annual report of the Farm Bureau is now being prepared for the annual meeting at the Michigan agricultural college during Farmers' week and the above figures will appear in it.

This report will also show that the Michigan State Elevator exchange has made up its deficit of \$11,000 shown on the books 18 months ago and has accumulated a surplus of \$30,000 besides.

Every department of the bureau, except the Detroit Produce exchange organized last spring, now is on a paying basis and the outlook for the organization is said to have never looked better.

While the membership is not as large as two years ago, the bureau from a financial standpoint is in a much stronger position.

### MICHIGAN CONDITIONS IMPROVE

TEMPERATURES have averaged above normal over the entire area, with precipitations slight, as a rule.

Wheat and rye continue in good condition. Alternative thawing and freezing has caused slight damage and chinch bugs are reported in some localities.

The car shortage is interfering with the free movement of corn to some extent, but the demand is good on account of the heavy feeding operations.

Pastures and meadows were benefited by light rains, snow and mild weather, and are furnishing some winter feed.

Michigan beans are in good de-

mand and prices generally are satisfactory. Farmers are feeding their surplus potatoes to dairy cattle with good results.

Livestock is in good condition generally, except for a few scattered cases of hog cholera.

### INTERNATIONAL EGG LAYING CONTEST AT M. A. C.

THE production at the contest for the week ending January 23, shows another big increase.

Evergreen Poultry Farm continues with their excellent work when they established a new record for weekly production with a weeks total of 52 eggs and a total to date of 488.

The Barred Rock section show 4.6 per cent increase. Kent's pen from New York continues to lead this section with a production of 439 eggs. Dennison's pen with 419 eggs retain their position in second place. Brummer's Poultry Farm with a production for the week of 41 eggs get into third place and Christophel drops to fourth place with 37 eggs for the week and 409 eggs to date.

The Wyandotte section remains the same for weekly production, showing a very slight increase. The pen from Evergreen Poultry Farm gradually increase their lead. Sink's pen from Farmington remains in second place with 395 eggs. Caterola farm is third with 371 eggs and Keister's pen from Bangor, retains fourth place with a production of 318 eggs.

Smith's pen of Buff Wyandottes are showing excellent production finishing with 45 eggs for the week and 313 to date. Decker's Wyandottes which were late arrivals are getting in their stride.

Van Raalte again leads the Ancona section with 10 birds in action. DeGroot and Manning are again in second and third place respectively.

In the Rhode Island Red section the same three places receive mention. Mrs. Travis is standing first, Dunning second and the College Reds third. Mrs. Goss' pen from South Haven threatened to be a serious opponent when their production for the week increased to 50 eggs.

In the White Leghorn class we find Shaw's pen from South Haven once more in the lead with a weekly production of 45 eggs and a total to date of 447. Hanson drops to second place only three eggs behind Shaw's pen.

### GIRL BEST FARM ACCOUNTANT IN WEXFORD COUNTY SCHOOLS

A COMMITTEE composed of T. T. Riddell, Farm Management Demonstrator, M. A. C., Roy Noteware, Commissioner of Schools and Fay Horton, Banker of Manton, January 22nd, examined the books and stories of the Farm Accountants in the Consolidated Schools of Wexford County awarding the prize to Dorothy M. Smith of Manton, who kept the accounts on the farm of Edgar Derbyshire.

This closes the first year's work in the consolidated schools of Wexford County on the project of farm accounting, the students keeping the actual accounts on the farms upon which they live.

Of the forty-eight starting last January, twelve graduated or left school; five moved from the County; two died and twelve quit the work and eighteen finished the books in one or more departments. This is above the percentage in the United States by several per cent.

The winning of this honor entitles Miss Smith to a trip to Farmers Week which is furnished by the Cadillac State Bank and the Peoples Saving Bank of Cadillac, the Manton State Bank of Manton, and the Farmers State Bank of Mesick.

The competition was kept between individuals from all the schools and it gave the committee considerable work to properly award the honors. Among the higher standing contestants stood Dorothy M. Smith of Manton; Edwin Ransom, Pearl Strackengust of Buckley; Ethel Bump and Earl Teal of Mesick; Clara Phillips of Hoxeyville and Gertrude Stiver of Harlan.

SATURDAY  
FEBRUARY 3rd.  
1923  
—  
VOL. X, NO. 12.  
—

Being absolutely independent  
our columns are open for the  
discussion of any subject per-  
taining to the farming business.

"How to the line, let the chips fall where they may!"

# The Michigan BUSINESS FARMER

"The Only Farm Magazine Owned and Edited in Michigan"

Published Bi-Weekly  
Mt. Clemens, Mich.

\$1 PER YEAR

Entered as second-class mat-  
ter, August 22, 1917, at the  
post-office at Mt. Clemens,  
Mich., under act of March  
3rd, 1879.

## Dr. Friday Begins Milk Quiz in Detroit Area

With Gov. Groesbeck, Legislature and Daily Press Backing Him, He Promises to Uncover Facts  
Long Demanded by Producers—Many Want Milk Investigation Made State-wide

**W**HAT the milk producers have long demanded about, but with little encouragement is apparently about to become a reality through the good offices of Dr. David Friday, president of the Michigan Agricultural College.

About two months ago, Dr. Friday was called in to act as an arbitrator for the producers and distributors in the Detroit area, who could not reach a mutual understanding in the price of milk for the month of December. He set the price at \$3 per hundred to the producer and 14 cents per quart to the consumer in Detroit. But at the same time, Dr. Friday announced that he could not be sure of this price being fair to the three parties: producer, distributor and consumer, until he had made a thorough investigation of the situation and promised to start work on such a probe, for the benefit of all concerned, at once.

In the meanwhile the daily press in Detroit took up the cry and thus, Governor Groesbeck became interested and is reported to have instructed Representative Vincent P. Dacey, of Detroit, to conduct a personal investigation, for the specific purpose of helping Dr. Friday, if it became necessary to use the powers of the state to do so.

### Same Prices for January

The first meeting of the investigation being conducted by Dr. Friday was held at the Hotel Cadillac, Detroit, and representatives of the press, which means the public, were barred, so in effect the meeting was secret. At its conclusion Dr. Friday said: "My purpose in conducting this inquiry," "is primarily to learn whether or not the present price of milk in Detroit is a just one. To find this out I shall have to probe the costs and methods of distribution here as well as the cost of production on the dairy farms and the manner in which the farmers get their milk."

"I know already that many farmers maintain 'inefficient' cows. By that I mean cows don't produce according to the demands of the market. The consumption of milk is

### AN INTERVIEW WITH DR. FRIDAY

**T**O secure a statement from Mr. David Friday on the Detroit Milk situation, I interviewed him Thursday, January 25, upon his return from the Detroit conference, which was held on Wednesday.

The situation at present seems to be somewhat indefinite and unsettled. Friday is starting a careful investigation of all phases of the Detroit situation which bear upon the distributing of milk.

He will probably be some weeks upon this work, as there are a number of difficult angles to be considered. The fluctuation of supply and demand at different seasons, unorganized distributors, labor costs in the distributing plants—these are among the things which Friday mentioned yesterday as calling for a careful and complete study.

Prof. J. T. Horner, of the M. A. C., economics department, is working with Friday in the detailed investigation.

For the present, as I understand the situation, the contract price agreed upon for December between the producers and distributors (with Mr. Friday serving as "arbitrator") is to continue in effect. This calls for \$3.00 a hundred pounds to the farmer and retail sales from the wagon at 14 cents a quart.

The only definite bit of information Mr. Friday gave out on the present situation in Detroit is that they are receiving in Detroit now 15 to 20 per cent more milk than the people of Detroit are consuming as whole milk. This, of course, means that the surplus must be used in manufactures, and bought at a lower price. This, according to Friday, is one of the chief problems connected with the entire issue. Consumption of milk in Detroit has declined two and one-half to three per cent—the normal lowered consumption at this season of the year, apparently.

President Friday seemed unwilling to give out any definite statement at this time, beyond the fact that he is to make a careful study of all angles of the difficult situation during the next few weeks.—J. B. Hasselman.

about 20 per cent less in winter than in summer. But almost always there is a surplus of milk in winter and a shortage in summer. The farmers should 'freshen' their cows so a greater yield would come in the summer. That automatically would revise the price.

"This afternoon the dealers and producers got together pretty well on this angle. They agreed to a tentative arrangement whereby the farmer will be penalized for over-production in the wrong season."

He announced also, that the price of milk to the producer and consumer in the Detroit area would remain the same for the month of January, that it had been set by him,

a month earlier, for the December.

While Dr. David Friday's milk inquiry settled itself down to an examination of books, evidences continued today to accumulate to show that producers are not receiving the \$3 rate for each 100 pounds of milk.

It is the payment of this rate that makes the cost of milk high to the consumer, the distributors have been claiming.

The practice of underpaying the farmer, and at the same time loading on him the charges of hauling from the stations to the creameries in Detroit, is classified as good business by the management of the big distributing companies.

It is good business also to under-

sell rivals who set up in business along routes formerly owned by the big creameries. Evidence of this type of cutting was obtained by a daily paper and submitted to W. J. Kennedy of the Detroit Creamery.

Mr. Kennedy readily admitted his company was cutting the price in one section. He declared that former employees of his concern had had the temerity to set themselves up in business. He was going to sell milk 2 cents cheaper than the new distributors did in order to drive them out of business, he said.

### Want Inquiry Made State-Wide

Several Michigan legislators have now come forward with the demand that the milk investigation be made state-wide and such important areas as Grand Rapids, Flint, Saginaw, Kalamazoo and Jackson, be taken into consideration. They seem to feel that the conditions are only slightly worse in the Detroit area. Lansing has, of course, in operation a farmers' owned company which is making the experiment, with apparent success of distributing its own milk to the consumer and yet both consumer and distributor have reaped a great benefit.

"I am inclined to agree with my colleague, Representative Joseph Warner, of Ypsilanti," said Representative Howell, of Saginaw. "He says the distributors in Detroit give a rotten deal to both the farmer and the consumer. 'He has been both producer and distributor and he ought to know.'"

### Next Meeting February Tenth

Prof. J. T. Horner, of the Dairy Division, M. A. C., has been delegated by Dr. Friday to carry on an actual investigation of the creamery companies books and the next meeting is scheduled for February tenth and it has not yet been announced as to whether this meeting will be conducted publicly or not, altho there is considerable pressure being brought to bear on Dr. Friday, to hold these meetings in the open, where all the facts can be secured and presented to the judgement of the vast masses of people interested in milk, from both sides of the question.

## Car Shortage Causes Thousands of Dollars of Loss to Potato Growers

**W**HETHER thousands and thousands of dollars in unpaid taxes on some of the finest potato farms in the second tuber producing county in Michigan will be returned to the state this year depends upon the relief which the Pere Marquette and Pennsylvania railroads are able to give shippers in Mecosta county in the next few weeks.

People in southern Michigan have no idea of how badly the car shortage has paralyzed the agricultural interests in this county. During the past three days while the writer was attending and speaking at eight agricultural meetings in Mecosta county he interviewed scores of farmers who have not been able to sell one pound of their 1922 potato crop. Many of them said they had borrowed to the limit of their credit during the past three years and now they must let their taxes go back to the state because of their inability to pay.

Decline in prices is not entirely the cause of this situation. A survey of the area indicates that the lack of transportation facilities making it impossible for growers even to get production costs out of their

crops, has precipitated this crisis in the lives of the nation's food producers in Mecosta county.

Last fall, when farmers could have sold their potatoes at 60 to 65 cents a hundred-weight, they were unable to get even common box cars for movement of their crop during the season when it was not necessary to go to the expense of relining the car. But under the belief that the railroad would fulfill its obligations as a common carrier and would furnish cars, farmers stated that they left their potatoes in pits or hauled them into temporary basements until cars could be supplied. Those tubers still are in the pits and cellars but farmers say they are now worthless. Many of them froze early in December and others have frosted since.

### 400 Carloads Perish

Marketing representatives at the shipping points in the county estimate that approximately 400 carloads of potatoes valued at \$96,000 have perished through frost or have been consumed by cattle simply because the railroads were unable to furnish the necessary cars. A question has been raised by some of the growers as to whether the farmers can hold the railroads liable for

these damages alleged to be the direct result of the railroads failing to supply cars upon numerous and repeated requests.

The car shortage seems to be most acute on the Pere Marquette line. Seven months ago when the writer was investigating claims of this railroad for its request to abandon the branch lines from Mecosta to Barryton and Remus to Weldman he was told that the tonnage was not sufficient to warrant maintaining the lines. This week he found that there is more business on these two branch lines than the railroad can begin to handle.

Since last September the Barryton potato growers' association has had a request on file with the Pere Marquette for one car a day to load out potatoes, but the railroad has been unable to supply only a part of the orders.

This is not the first year, farmers stated, that this region has been gripped with a car shortage. While other lines, particularly the Michigan Central, have been supplying its shippers with nearly all the cars they needed, the Pere Marquette for some reason, either lack of cars or indifference, has been slow in filling or-

ders, but not as tardy as during the last four months.

### Question of Leasing

The situation now has resolved itself, according to growers and market men, into the question of whether the state should not lease or buy enough cars to insure its farmers adequate transportation facilities to market their crops. The farmers believe, however, that the railroads should be charged with their transportation responsibilities. They point out that factories in the cities do not have to buy or lease cars, and they can see no reason why they should do so although there is some talk among the local associations of advising the Michigan Potato Growers' exchange at Cadillac to lease cars next season the same as the old line companies do.

In order to be economical in the marketing of potatoes, C. C. Wells, manager of the Michigan Potato Growers' exchange and one of the speakers at this series of meetings, half of the Michigan crop should go to market before Nov. 1. The balance, if the railroads supply the cars, can be marketed in an orderly manner during the winter and early

(Continued on Page 18.)



Proper training of this tree during the first two or three years of its life would have prevented this.

**M**OST fruit growers will agree that tree growth and fruit production are regulated to a considerable extent by pruning practices, but there is much confusion as to the amount and kind of pruning that should be employed to give the desired results. Experiment Station investigators are gradually working out various phases of the pruning problem, but it will probably be many years before definite rules can be formulated relative to the training and pruning of all kinds and types of fruit trees.

Yet, while these problems are being solved, trees must be pruned. It is the main purpose of this article to present some of the underlying principles which the fruit grower should constantly keep in mind, and to show how these principles may be applied to such trees as are commonly found in Michigan.

Throughout the discussion of pruning practices certain terms are used more or less frequently, and it is well that an understanding be had of these, together with the general principles involved. Again, certain practices are applicable, in a general way, to all kinds of deciduous fruit trees, and these may be briefly discussed before taking up more detailed consideration of the handling of specific kinds of fruit trees.

The removal of an entire branch, limb, twig or spur is referred to as thinning or "thinning out." Thinning results in a less crowded condition throughout the tree, and it usually permits a greater amount of light and a freer circulation of air in the interior portions. This kind of pruning generally encourages the formation of fruit spurs and discourages the formation of lengthy side branches or laterals. It favors the development of an extensive fruiting system, but continued thinning with some kinds and varieties of fruits eventually leads to the formation of wide-spreading or rangy trees that are expensive to handle and that are unable to carry their crops without artificial supports.

When the tip or any larger portion of a branch is removed, the process is known as heading or "heading back." This type of pruning is practiced when branches are growing out of bounds; when one part of the tree is growing more rapidly in proportion to the tree as a whole that is desired; to encourage the development of the framework branches of the tree at such points as they are desired, and to avoid a rangy type of growth. The heading back of a vigorous shoot usually results in the formation of several strong-growing lateral shoots and few spurs the succeeding year. Hence, it promotes the formation of a compact head. In other words, heading back has more to do with the development of form of tree than with the development of a fruiting system, and is practiced to a greater extent with young trees than with those in bearing. Heavily headed back young trees should not be expected to attain greater size than those headed lightly or not at all—in fact, if continued for several years, the gross effect is an undersized tree, as well as one late in coming into fruit production.

This division between thinning and heading is somewhat artificial. In other words, a single pruning cut may result in a thinning out as well as a cutting back. This is frequent-

ly the case when three- or four-year-old wood is being removed from peach trees and the cuts are made close to a lateral of the former parent branch.

Two branches that have made practically the same amount of growth are often found growing from a common point. If left unpruned or if headed back to the same length, the amount of growth from each of the following year will be approximately equal. If one branch is cut several inches shorter than the other, the longer one will give rise to more growth the following years, and eventually the shorter one will become a side branch of the longer, as naturally occurs if one branch is longer than the other and no pruning takes place. Thus equal cutting back of branches arising from a common point results in equal growth, and unequal cutting back results in unequal growth. Furthermore, when two branches of equal size emerge from a common place in such a way as to form a sharp "Y", a weak crotch results unless steps are taken to strengthen it. Equal cutting back of these two branches will not better the condition, but unequal cutting back, leaving one considerably longer than the other, will encourage the longer one to become a leader or main branch, and the other will eventually become a lateral or side branch. The crotch is strengthened and splitting in later years avoided.

#### Long Pruning

Recently the attention of some fruit growers has been directed to a kind of pruning, very popular in California, known as "long pruning," and it may be well to state briefly the meaning of this term. Pruning as commonly practiced on the Pacific Coast, until recently, consisted of some thinning-out and a very heavy heading back (removal of 50 to 75 per cent of each new branch) of the new growth each year. This resulted in devotion by the trees of too large a part of their energies to the growth of long shoots and not enough to fruit production, and the fruiting wood on the interior portions of the trees was often shaded out by the dense top. Fruit growers have found that they can reduce this excessive wood growth and increase the fruitfulness of their trees by practicing a "thinning-out" and they thus discontinued the former severe "heading." Since the new growth is left without heading, the result is a tree very different in appearance from the former heavily cut-back one, and hence the term "long-pruning."

Generally, the greatest growth response takes place in the immediate vicinity of a pruning cut. This is noticeable where a large branch has been removed, resulting in the formation of numerous watersprouts near the point of removal. In like manner, if a branch or shoot is cut back, a few laterals (side branches) will usually develop near the end of the headed-back branch, although some response may be noted some distance away. The removal of a branch has comparatively little direct effect on the tree as a whole. If, then, it is desirable to renew vegetative growth throughout the tree, the cutting must be distributed throughout the entire tree. Work confined to the outer parts of the tree will give direct response in these parts, but will generally in-

# Pruning Fruit Trees

Now is the Time to Do this Valuable Work

By ROY E. MARSHALL

Professor of Horticulture, M. A. C.

directly affect the central parts by admitting more light and permitting a freer circulation of air. The careful pruner should keep these facts in mind in all pruning practices.

There is a strong tendency among pruners to remove all the fruit spurs and short shoots from the young trees, especially from the scaffold branches, as they are thought to be of no use. However, experience shows that, if allowed to remain, these are productive of the first fruit of the tree. If they are removed, the tree will not come into early bearing. Some pruners think that these small twigs will only be in the way in later years. These fruiting branches seldom reach a length of more than a few inches, and if they do they may be shortened. Even if some are broken off from time to time, it will certainly pay well to leave and preserve a liberal supply of them as long as possible.

#### How to Remove a Branch

So much emphasis has been placed by many writers upon right and wrong methods of removing branches that it would seem unnecessary to mention these again, but some growers are still very careless in this operation. The wound resulting from the removal of a branch will heal much more rapidly if the cut is made close to and almost parallel with the main stem. If removed even a slight distance beyond the parent branch, the result is a slow healing wound. If a stub is left, it usually dies and heart rot eventually develops in the parent branch. It is often advisable first to saw in for a short distance on the under side of large branches so as to prevent the splitting and peeling of bark from the parent branch when the branch is nearly sawed through.

Pruning is ordinarily done during the dormant season. Slight preference should be given to that done in late winter or early spring because the wounds heal more rapidly; but if all pruning is left until such a time, the work may not be completed because of the rush of other farm practices in early spring. Consequently, any favorable weather, after the dropping of the foliage in the fall and before the opening of the buds in the spring, may be utilized for pruning. If one has a large acreage, he should start work in the older apple and pear trees during the early winter, and reserve the stone fruit and younger trees for late winter and spring pruning. It is believed that pruning done during any weather that is suitable for the pruner will

result in no ill effects. However, it is possible that heart rot, die-back, bruising, splitting, etc., may result from pruning frozen wood.

#### Pruning Tools

Two tools are essential for pruning work: a pair of small hand shears and a saw. With these two tools a pruner can do practically all of the work that will be required in bearing trees and most of the work in young trees.

The shears should be made of the best material obtainable, as cheap shears are easily sprung. A good pair of steel shears will withstand heavy work for several years. The shears should be seven to ten inches in length, nine being the size usually preferred.

The saw should be so constructed as to cut rapidly, leave a smooth cut, be as light as is consistent with rigidity and good lasting qualities; and it should have a hand grip that will not tire or cramp the hand or wrist. A saw on which the teeth are set to cut on the "pull" is less tiring to the pruner. Saws with teeth on both edges are objectionable, as they are usually poor in cutting quality and frequently injure bark on the permanent branch.

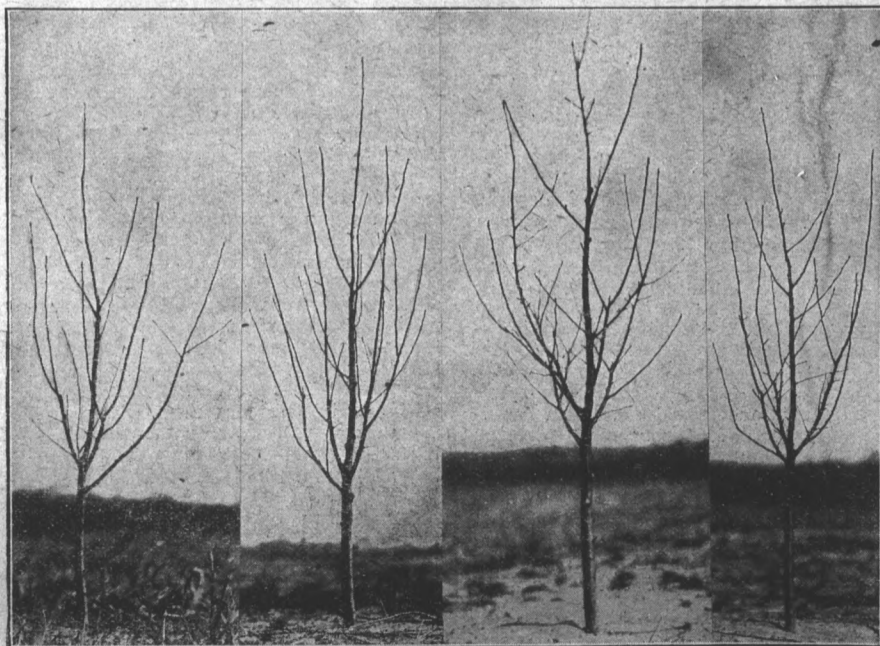
A pair of lopping or wooden handled shears often facilitate the work about young trees and about the lower parts of old trees. It is a somewhat awkward tool to use in the upper parts of bearing trees. Such shears should be about 20 to 26 inches in length and of double leverage.

Pole pruners, six to ten feet in length, enable the pruner to work the tops of trees five to ten years old to better advantage. They should not be used where it is possible to employ the other tools, because work with the pole pruner is, at best very slow, and the cutting cannot be done as precisely as with other tools.

It is considered good practise to paint wounds larger than one and one-half to two inches in diameter with a good white lead to which some kind of antiseptic has been added. An ounce of cyanide of mercury or bichloride of mercury may be dissolved in a little turpentine and thoroughly mixed with a gallon of the paint. A charcoal brush, grafting wax, such as is used in bridge grafting, makes an excellent covering. See Michigan Experiment Station Circular No. 14, Revised.

#### Types of Training

Fruit trees may be developed according to any one of several different styles of training during the non-bearing, vegetative, or formative (Continued on page 17.)

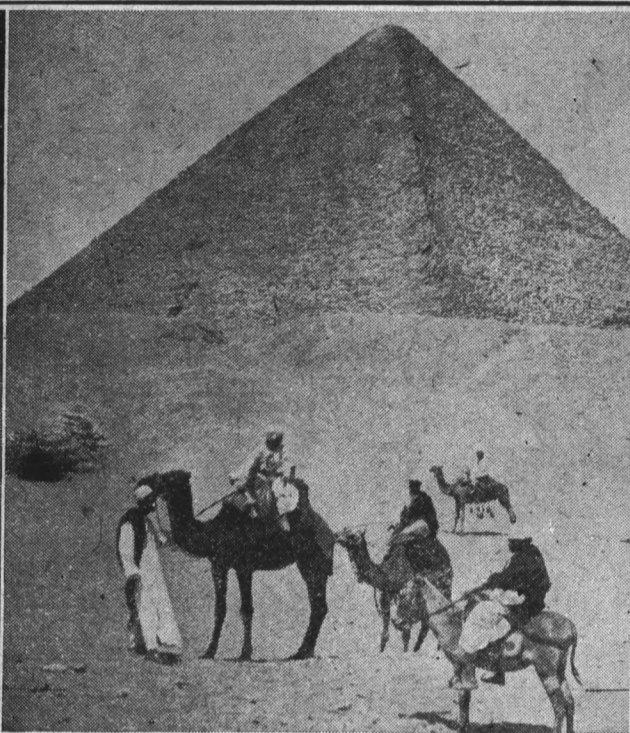


A group of two-year-old Northern Spy trees which are being trained according to the modified leader system. Note that they show from five to seven lateral scaffold branches. Two or three more will be selected from near the top of the central leader a year later. A central leader will not be retained above that shown here. These trees have had a very light thinning out and sufficient tipping back to maintain the proper relationship between branches.

# PICTURES FROM FAR AND NEAR



Four feet—count 'em yourself!—This chicken, a Rhode Island Red, was hatched on an Indiana farm, and 'tis said, that by virtue of its two useless appendages it rules the barnyard. The chicken is perfectly normal otherwise.



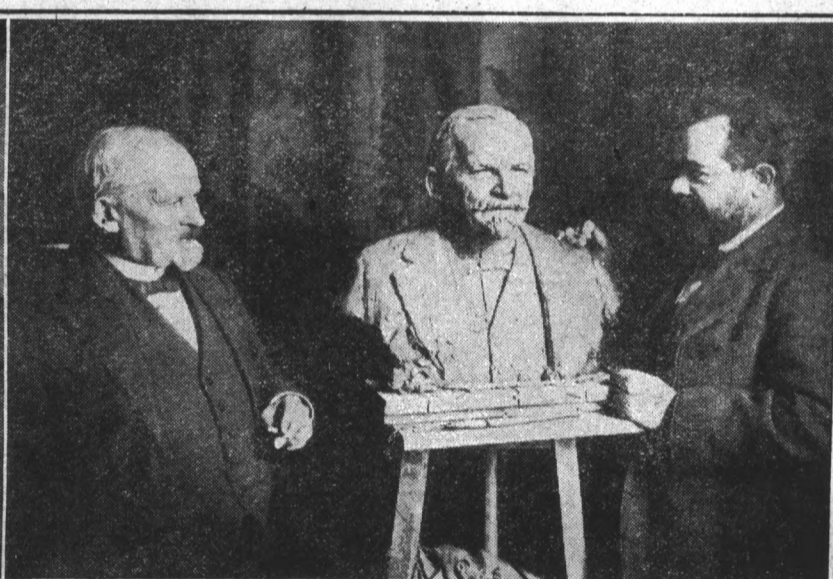
Great pyramid is work of scientist—The pyramid of Kunuf, at Gizih, Egypt, which according to English engineers, was designed by a scientist who must have known the shape of the earth. They give the date of the commencement of the pyramid as 2170 B. C.



A novelty for the bride—A unique chest of drawers which is being imported into Germany. The chest is made of marble and is in the form of a bride in bridal gown of the 18th Century. In the body are several small and large drawers.



Waiting for the train!—John McGuigan, of White Cloud, Michigan, who has been paralyzed for the past fifteen years, has supported himself and his family by meeting all trains and selling candy, cigars, and magazines. "Billy" brings his master in. "Billy" leads a happy life. The passengers feed him with everything from cigars to magazines.



What Coue suggested to sculptor—"Every day in every way," the bust of Emile Coue, the now famous evangelist of optimistic health, is being completed in marble under the skillful chisel of Jo Davidson, eminent American sculptor. Mr. Davidson did most of the work in France, before M. Coue, sailed for America, but he is completing the work now at his studio in New York.



The Radio Typewriter—Edward Hebern, a mechanic of Oakland, California, has just invented a radio-typewriter that takes its messages from the air and writes them out as if operated by the hand of a ghost. What next will man invent?



They're going swimming!—Up in Manchester, New Hampshire, where there is plenty of snow, and where ice skating is the chief sport in the winter time, men and boys, with Indian-like fortitude, don bathing suits and make for the 'Old Swimmie' Hole, while the Mercury slithers around 20 below zero.



Uncle Sam employs blind man—W. A. West, who is blind, is considered one of the most efficient lacers in Uncle Sam's mail bag repair shop. He puts the finishing touch on the bag, putting in the rope that is used to lock the bags. He has turned out an average of 300 bags a day.

# Michigan Leading Fight to End T. B. in Cattle

Cost State over \$300,000 in 1922 to Identify Owners and it will cost nearly Two Million More

IT is possible to free Michigan of tuberculous cattle within five years, but the cost will be around two million dollars if we are to accept the figures just issued by the State Department of Agriculture, in their first annual report.

Dr. T. S. Rich, federal inspector in charge of the tuberculosis eradication in cooperation with the state officials, agrees with this statement and says he bases his judgement on the phenomenal achievements in Michigan during the last 12 months.

The State first undertook to encourage bovine tuberculosis eradication by payment of indemnity for animals slaughtered on account of this disease in 1909. The testing was done by veterinarians over the State without any definite plan until July 1, 1917, when a cooperative agreement was entered into with the Federal Government under the Federal and State accredited plan, by which owners of purebred herds voluntarily submitted their cattle for the tuberculin test by State or Federal veterinarians and agreed to follow instructions in regard to methods of handling their herds in order to prevent exposure to the disease from outside sources. Herds were signed up and taken under supervision in many counties of the State and were regularly tested without expense to the owner, and both State and Federal Governments paid indemnities when animals reacted and were slaughtered. These herds were widely scattered in many counties over the State and greatly stimulated in-

## MONEY APPROPRIATED TO FIGHT BOVINE TUBERCULOSIS IN MICHIGAN

THE total funds appropriated by counties during the past year for cooperative bovine tuberculosis eradication on the area basis amounted to \$107,700.00. The counties and amounts given are as follows:

Hillsdale	\$7,000.00	Washtenaw	\$10,000.00
Jackson	8,000.00	Eaton	8,000.00
Livingston	4,500.00	Ingham	5,000.00
Grand Traverse	2,500.00	Calhoun	9,000.00
Antrim	2,500.00	Clinton	8,000.00
Charlevoix	2,500.00	Monroe	5,000.00
Emmet	2,500.00	Leland	1,500.00
Gogebic	2,500.00	Oceana	4,000.00
Wayne	5,000.00	Muskegon	5,000.00
Kent	5,000.00	Ogemaw	5,000.00
Shiawassee	5,000.00		
		Total	\$107,700.00

terest in tuberculin testing by educating the general public and the herd owners in particular as to the importance and significance of the work. As the work increased, however, the expense became too great in proportion to the results secured because of the time wasted and expense incurred in traveling from place to place to test herds. This led to the adoption of the area plan, by which the tuberculin test is applied to all cattle in a given area. The work is conducted with much greater economy and efficiency and infected herds are located rapidly and diseased animals removed.

Under the area plan, as is it now being handled in this State, the

County Board of Supervisors is asked to make an appropriation sufficient to cover the salary of one veterinarian employed by the county and the cost of carrying on the work in the county, including transportation of veterinarians, ear tags for cattle, etc., and the Board of Supervisors signs the cooperative agreement with the Bureau of Animal Industry and the United States Department of Agriculture.

In October of last year the first big victory over bovine tuberculosis was won when the herds of Hillsdale county, in a whirlwind campaign of 12 days through the work of 33 testers, were freed of the scourge.

One of the men who was instru-

mental in obtaining funds for the work was Prof. H. R. Smith, formerly a resident, but now live stock commissioner of the National Live Stock Exchange. Among state authorities, cooperating with the department, are H. W. Norton, Jr., director of the bureau of animal industry of department of agriculture and State Veterinarian B. J. Killam.

The results of the drive fired the state with enthusiasm for tuberculosis eradication.

At the beginning the applications from herd-owners were purely voluntary. But the county authorities here and there caught the spirit of the movement. Boards of supervisors began to invite the department of agriculture to send representatives to explain to them the needs and cost of the campaign, and county after county made the necessary appropriations to undertake the work.

These invitations had the approval of about 95 per cent of the herd-owners, and yet it was felt that to leave even 5 per cent of the herds in any area untested might largely nullify the effort.

Prompted by overwhelming public opinion, a search was made for means to compel objectors to comply with the will of the great majority and the existing law was found to be ample on the subject. The commissioner of agriculture is empowered to quarantine any herd deemed a menace to the public health.

Armed with this authority, the inspectors have been able to make the eradication absolute in every county to which they have been invited by the county authorities. No effort has been made to bring pressure on any county and no county has been solicited to undertake the campaign.

## Over 160,000 Cattle Tested

The total amount accomplished during the past year has surprised even the authorities themselves. More than 23,000 herds containing about 160,000 cattle have been put under supervision.

All the cattle have been tested at least once in eight counties. Hillsdale, Jackson, Livingston, Grand Traverse, Charlevoix, Antrim, Emmet and Gogebic.

In addition to the test is now in progress in Wayne, Washtenaw, Ingham, Eaton, Kent and Shiawassee, while Monroe, St. Joseph, Calhoun, Huron, Muskegon, Oceana, Leelanau, Otsego, Presque Isle, Cheboygan, Schoolcraft and Ontonagon are on the waiting list.

The counties have appropriated out of their own funds from \$2,500 to \$15,000, depending on their area and number of herds. The appropriation usually is based on 25 cents per animal. The total money raised by the counties reached \$125,000.

Indicative of the rapid spread of the idea is the fact that 17 other counties have, through their boards of supervisors, requested representatives of the state department to come and explain the work and advise with them as to plans. All this has been accomplished during the last 12 months.

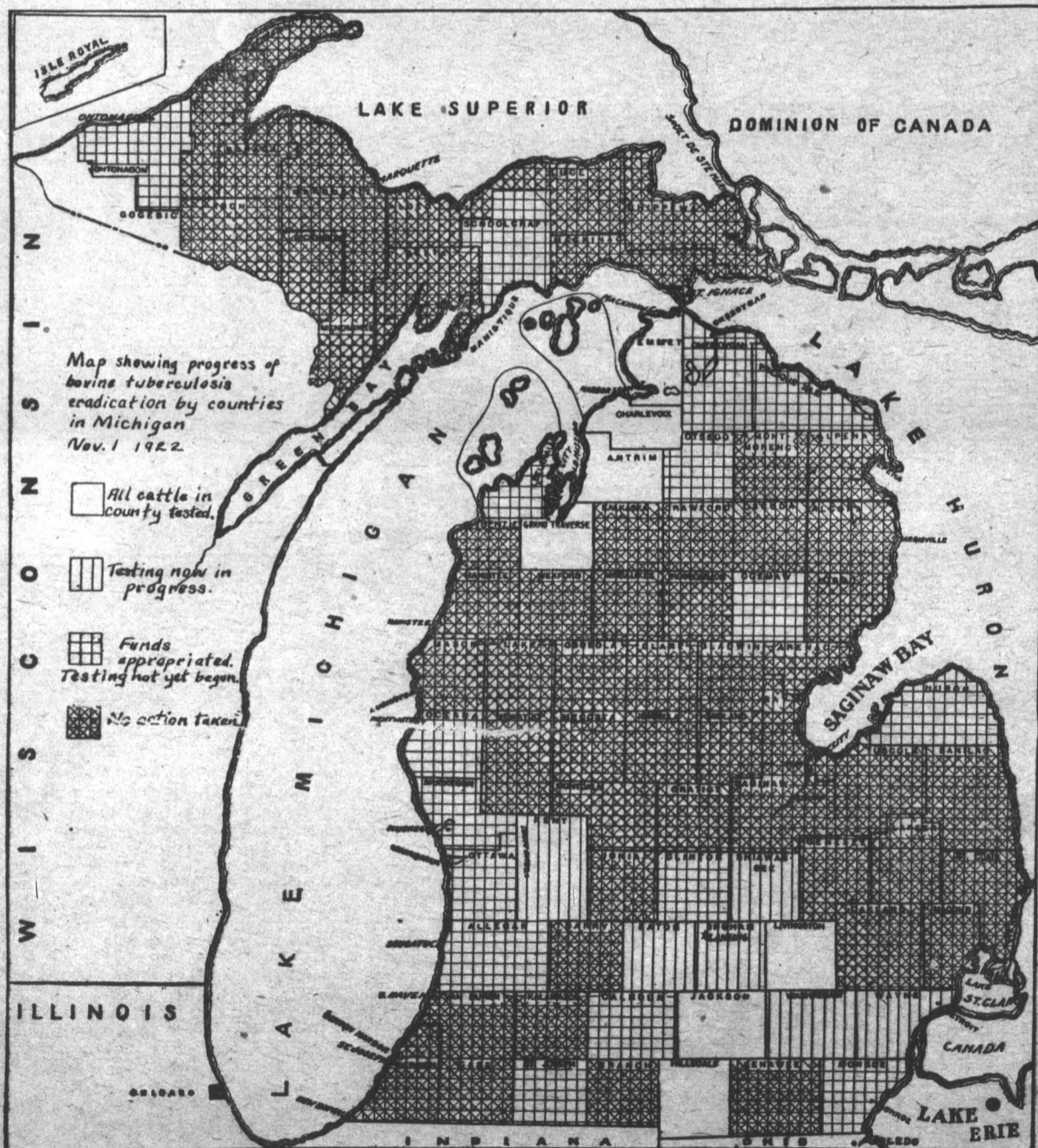
## \$300,000 for Five Years

The experience gained has enabled a pretty accurate estimate of costs. Fortunately, Michigan was aroused to the need before conditions became bad. The percentage of animals reacting to test is only about 3 1/2.

Out of the 23,000 herds under supervision, 19,000 have no tuberculosis. This fact greatly simplifies the problem, and at the same time argues forcefully for the adoption at once of a thorough state-wide program.

As an illustration of the cost of neglect, the experience of New York State is cited. During the last year the authorities in that state have expended for tuberculosis eradication

For less than \$300,000 the Michigan authorities estimate that they could finance a five-year campaign which would completely eradicate tuberculosis from the cattle of Michigan.



This map shows the remarkable progress that has been made in the fight to free cattle herds of bovine tuberculosis in Michigan. The results place the state at the front in this work and strengthen confidence in the belief that the disease can be driven to the last ditch in Michigan and all other states before many years. At the left is a key to markings.

(Courtesy Chicago Daily Drovers Journal)

# Historical Background of Michigan Agriculture

Third and Concluding Installment of Historical Outline of Rural Life in Michigan, by Prof. L. A. Chase

For many years the farmers of Michigan seemed not to have been greatly concerned regarding the quality of the seed grown. It is said to have been as late as 1909 that the Michigan Agricultural College began the distribution of pedigreed grain seed. It was not long thereafter that a group of farmers organized an association for the promotion of the use of superior and purebred seeds. This organization is now known as the Michigan Crop Improvement Association. In this way there has come into use such new improved varieties of grain as "Rosen Rye" (introduced from Russia by a student at the College by the name of Rosen) "Red Rock Wheat," "Worthy," and other varieties of oats, "Black Barbless Barley," etc. These have demonstrated their worth and added greatly to the productiveness of Michigan agriculture. Similarly there has been organized "The Michigan Potato Producers Association" for the purpose of improving the quality and yield of the Michigan potato crop. Both associations have a system of inspection and certification for purebred seed. The Michigan State Farm Bureau, since its organization in 1919 has undertaken the distribution of purebred seed to its members. When one contrasts the fifty-five varieties of potatoes listed by the State Board of Agriculture in the state in the year 1868 with the much smaller number of standard varieties found here today, one sees something of the revolution that has taken place in agricultural practice in the last few years.

It is no doubt true that certain other factors have reduced agricultural production in Michigan. The fertility of the soil has generally speaking not been maintained up to the standard found by the pioneers. Our farmers in this respect have not taken anything; like the pains which belong to the patient, industrious and wise farmers of China. History must record that the fertile surface soils were allowed to be washed away by rains and floods, and to have its essential humus destroyed by frequent burnings by forest and brush fires. Hilltops were deforested and this encouraged their denudation and ruin for agricultural purposes. In some sections, continued cropping in the same tracts, with the removal and sale of forage grasses without anything being done to replace the elements they have taken from the soil, has had its inevitable result in bankrupting the productive power of the land. It is requiring all the improvements in agricultural practices and marketing methods to overcome this self-imposed handicap.

## Native Wild Fruits

The native wild fruits of Michigan—the wild crabapple, wild plum, wild cherry and numerous wild berries (raspberries, black, red and white, salmon-berry, cranberry huckleberry, wintergreen berry) were added to by certain tame species, such as the pear and the apple which, originally introduced into the territory by early French settlers or coureurs de bois, were found growing in a wild state by the first American travelers and settlers. The wild grapes had a wonderful luxuriance in the southeastern section of the state where soil conditions were more favorable than the climate, giving rise to the name "River Raisin" along whose banks, as well as the Detroit River, the vine grew of enormous size and in great profusion. To find bearing apple-trees in remote places in the Michigan wilderness struck the first American comers as curious, and they wondered much as to the cause. It is still more a matter of conjecture than of clear record.

With the settlement came imported varieties of domesticated fruits and fruit culture, first among the early French and then among the Americans. Familiar types of apple, like the "Rambo," the "Greening," the "Snow," the "Spitzenberg," the "Twenty Ounce," and various pippins seem to have arrived early.

Very early, too, apparently as early as the attainment of statehood—the great fruit industry of the Lake Michigan shore had gained its start, and peaches were going to market from the mouth of the St. Joseph River, and tame grapes were growing close to Grand Haven. There is testimony that the removal of the protecting forest from the interior of the state had its part in driving fruit culture, particularly of the peach and grape, to the lake shore where the winter blasts and summer breezes were tempered by the influence of the vast body of water over which they passed. The hardier plums, apples, cherries made good their position in the interior counties and even as far north as the shore of Lake Superior. At Ypsilanti and other southern points tree nurseries appeared very early and supplied fruit-growers with native stock. Thus before the time of the Civil War the Michigan fruit industry was thoroughly established. The State Horticultural Society was established in 1870 and in the intervening half century there has been a steady improvement in horticultural methods and results. The nut-bearing trees—the hickory, the beech, the butternut, the walnut, the chestnut and the hazelbush—have also contributed largely to the food supply of the people, but not much in commercial quantities. Of late there has been formed "The Northern Nut-growers' Association" to promote the growing of edible nuts in the northern states.

Horses are reported to have been introduced into Michigan by the early French, described as hardy, strong, of a quiet disposition and some of them quite speedy. An amalgamation of this type with early American breeds is said to have occurred. These early American horses were of moderate size, (fifteen to sixteen hands high and weighing 1,000 to 1,200 pounds). English thoroughbred stallions crossed with native mares improved the strain and provided the carriage and driving horses of later days. About 1854 the Morgan and Black Hawk horses are said to have been introduced from New England along with Hamiltonian and other trotting blood. During this period draught horse breeds, mainly of English stock, are reported to have entered the state. Then came Percherons from France, English Clydes and other types. By 1892 Belgians were also in evidence. Cleveland Bays and French coach-horses had then arrived. In 1892 Michigan had 530,000 horses which had risen to 640,000 in 1920.

In the pioneer era cattle, sheep and swine were of various non-descript types and it is only recently that there has arisen a demand for pure-bred stock.

In 1890 the Michigan Improved Livestock Breeders' and Feeders' Association was formed, and, as in-

terest grew, there were formed special associations for particular breeds, such as the Aberdeen-Angus, the Holstein-Friesian, Short-horns and other varieties of cattle, and for particular breeds of sheep and swine. It is now much more common than it once was to find Michigan farmers with pure bred registered livestock.

## Manufacturing Butter and Cheese

The manufacture of butter and cheese in factories dates from the time shortly after the Civil War and has been closely associated with the cattle business. It did not destroy the domestic manufacture of these products, but it has become relatively of much greater importance as the census figures show. It has always been of greatest importance in the southern and central counties. The milk producers of the state have organized and Michigan Allied Dairy Association comprises a number of industries related to the production and distribution of milk and milk products. Laws have been enacted for the protection of the purity of milk supply and to prevent short measures in its sale. Some cities have established commissions to certify to the purity of the milk sold to the public and to prevent the sale of impure milk.

Sheep are grown both for their fleece and for mutton. The pioneers made their own cloth from home-grown wool and even yet there are people in Michigan who continue this practice in spite of the greater cheapness of factory-made goods. The spinning wheel still hums in a few farm homes, and turns out a product that has no shoddy in it. There are also several factories in Michigan in both peninsulas, for the manufacture of woolen goods—not all from Michigan wool however, although they have utilized a portion of the wool gathered in by the Michigan State Farm Bureau. There has been a great improvement in the grades of Michigan sheep and Michigan wool is regarded as of excellent quality. In the early period of Michigan history, however, sheep-raising was common especially in the southern counties.

In the earlier period of the state's history, meat, like almost everything else, was produced at home or in local slaughter-houses. While at present, much Michigan livestock is shipped to packing-plants outside the state—to Chicago, Toledo and Buffalo—Detroit stockyards and packing plants have also received large shipments and are doing an increasingly important business. Indeed, as Detroit contains more than a quarter of the population of Michigan it affords an important market for many Michigan farm products.

The pioneers gathered sugar and honey from the forest. Maple sugar is still an important Michigan product, sugar making time being one of the high spots of the rural calendar.

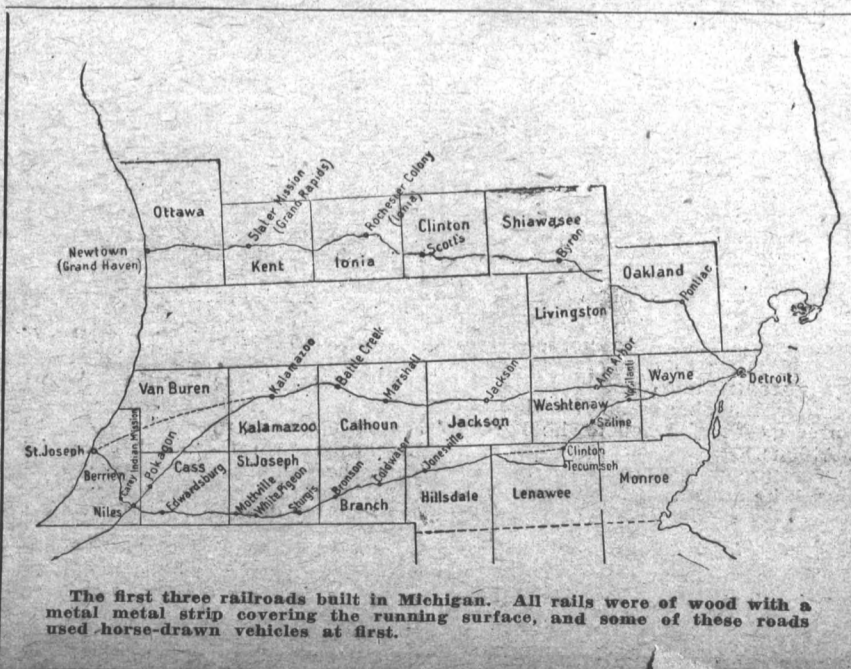
The sugar-maple grows throughout most of the two peninsulas and sugar making on the farm is equally distributed. The maple sugar producers recently formed a state association to further their interests, and they are now distributing a portion of their syrup and sugar through the Michigan State Farm Bureau. Very much the same remarks apply to the production of honey. The unimproved cutover lands of the northern section of the state, through the abundance of the nectar-yielding vegetation which they carry, are becoming recognized as very favorable to honey-production and a beginning has been made in this territory.

The abundance of the right kinds of timber and iron, favored the early growth of factories of the manufacture of farm machinery, at first, fanning mills, corn planters, plows, etc., and more recently were added vehicles, threshing-machines, hand-mills, wire-fence, many kinds of implements and tractors, while the upper Peninsula contributes butter-bowls, clothes-pins, handles, and stump-pullers.

## Marketing

For many years Michigan farmers marketed their products, each for himself, as best he could. The results were not always profitable. The Grange was established in Michigan in the early '70's and still later the Ancient Order of Gleaners, both of which have sought to improve market conditions for the farmers. Later still associations of farmers for the purpose of marketing some particular crop—such as potatoes, milk, honey, livestock, sugar-beets, etc.—were formed, and some of these have done a very large business—that of the Michigan Potato Growers Exchange amounting to several millions of dollars in a year. The fruitgrowers have a considerable number of these selling organizations. This organizing movement culminated in 1919 with the establishment of the Michigan State Farm Bureau which grew very rapidly and now (1921) has nearly 100,000 members. With and through its county and local farm bureaus, it handles seed, wool, grain, fertilizers, forest products and other things bought or sold by members; and it serves as a sort of business clearing house for the other farmers' selling organizations. There is a similar national organization—the American Farm Bureau Federation—with which the State Farm Bureau is affiliated. Local groups of farmers have also established co-operative stores, elevators, creameries and cheese factories, bull associations, telephone and lighting companies, and purchasing organizations for their mutual advantage. There are state laws which permit and favor such organizations. All this is quite unlike the individualism of the early period of Michigan rural life.

Through the telephone, rural mail service, automobile, and the inter-urban, rural life has ceased to be isolated. This easier contact with the common life of the state and the nation has stimulated rural thought and made it more responsive to new ideas. This may well prove one of the most noteworthy aspects of the agricultural revolution that the past generations seems to have witnessed. Though laborious the farmers' life appears to be, it is undoubtedly much less laborious than it was before the invention of labor-saving machinery relieved the husbandman of much of the severest drudgery or his existence and elevated him to the position of a business manager requiring executive ability rather than sheer brute force to gain results. This, too, has liberalized thought and done much to relieve the farmer from the stigma of narrow conservatism that has sometimes attached to him. The stock has always been sturdy and capable of growth but it has required greater breadth and flexibility of mind. This the development of the later-years has seemed to be bringing about.



(Continued from Jan. 20 issue)

NO sooner had the idea of escape come to him than he had acted. A flood of light filled the room as his body crashed through the glass. He heard a cry—a single shot—as he struck the ground. He gathered himself up and ran swiftly. Fifty yards away he stopped, and looked back. Quade and Rann were in the window. Then they disappeared, and a moment later the room was again in gloom.

For the second time Aldous hurried in the direction of MacDonald's camp. He knew that in spite of the protecting curtain, the glass had cut him. He felt the warm blood dripping over his face; both hands were wet with it. The arm on which he received the blow from the unseen object in the room gave him considerable pain, and he had slightly sprained an ankle in his leap through the window, so that he limped a little. But his mind was clear—so clear that in the face of his physical discomfort he caught himself laughing once or twice as he made his way along the trail.

Aldous was not of an ordinary type. To a curious and superlative degree he could appreciate a defeat as well as a triumph. His adventures had been a part of a life in which he had not expected to win, and in to-night's game he admitted that he had been hopelessly and ridiculously beaten. Tragedy, to him, was a first cousin to comedy; to-night he had set out to kill, and, instead of killing, he had run like a jack-rabbit for cover. Also, in that same half-hour Rann and Quade had been sure of him, and he had given them the surprise of their lives by his catapultic disappearance through the window. There was something ludicrous about it all—something that, to him, at least, had turned a possible tragedy into a very good comedy-drama.

Nor was Aldous blind to the fact that he had made an utter fool of himself, and that the consequences of his indiscretion might prove extremely serious. Had he listened to the conspirators without betraying himself he would have possessed an important advantage over them. The knowledge he had gained from overhearing their conversation would have made it comparatively easy for MacDonald and him to strike them perhaps a fatal blow through the half-breed DeBar. As the situation stood now, he figured that Quade and Culver Rann held the advantage. Whatever they had planned to do they would put into quick execution. They would not lose a minute.

It was not for himself that Aldous feared. Neither did he fear for Joanne. Every drop of red fighting blood in him was ready for further action, and he was determined that Quade should find no opportunity of accomplishing any scheme he might have against Joanne's person. On the other hand, unless they could head off DeBar, he believed that Culver Rann's chances of reaching the gold ahead of them would grow better with the passing of each hour. To protect Joanne from Quade he must lose no time. MacDonald would be in the same predicament, while Rann, assisted by as many rascals of his own colour as he chose to take with him, would be free to carry out the other part of the conspirators' plans.

The longer he thought of the mess he had stirred up the more roundly Aldous cursed his imprudence. And this mess, as he viewed it in these cooler moments, was even less disturbing than the thought of what might have happened had he succeeded in his intention of killing both Quade and Rann. Twenty times as he made his way through the darkness toward MacDonald's camp he told himself that he must have been mad. To have killed Rann or Quade in self-defence, or in open fight, would have been playing the game with a shadow of mountain law behind it. But he had invaded Rann's home. Had he killed them he would have had but little more excuse than a house-breaker or a suspicious husband might have had. Tete Jaune would not countenance cold-blooded shooting; even of criminals. He should have taken old Donald's advice and waited until they were in the mountains. An unpleasant chill ran through him as he thought of the narrowness of his double escape.

# The Hunted Woman

By James Oliver Curwood

Michigan's Own and America's Formost Author of the Great Northwest

(Copyright by James Oliver Curwood)

## SYNOPSIS

JOANNE GRAY is one of the passengers on the train bound for Tete Jaune Cache, the home of "The Horde," where she has no friends and all will be strange to her. The train stops at a town composed of several tents, she goes in search of food and a bath. She is directed to "Bill's Shack" and here she meets Bill Quade, who not only owns and operates "Bill's Shack" but is also leader of the lawless men of the town. Quade says he has a room she can rent and that he will show it to her. As they pass out of the room a newcomer enters the doorway leading off the street. The newcomer is John Aldous, a well known novelist. He sees the strange girl enter the place and believes she has made a mistake and as he stands in the doorway his eyes rest upon the curtained doorway through which they have passed. In but a moment the girl steps out, face flaming and eyes flashing. Quade follows her apologetically. He starts to offer the girl money but before he can do so Aldous steps to the girl's side and floors Quade with a terrific blow. Aldous hurries the girl away from the scene to the home of friends. Joanne tells Aldous she is going to Tete Jaune to find her husband, Mortimer FitzHugh. Aldous decides to go with her to protect her from Quade and his partner Culver Rann. Aldous believes FitzHugh is dead and locates a friend who declares he has seen the grave. Upon their arrival at Tete Jaune they are met by friends of Aldous, the Blacktons, at whose place they are to stay during their stop. Aldous visits an old friend, Donald MacDonald and then strolls about town. He is on the lookout for Quade and Rann and finds them at Rann's home. He spies upon them.

To the surprise, John Aldous found MacDonald awake when he arrived at the camp in the thickly timbered coulee. He was preparing a midnight cup of coffee over a fire that was burning cheerfully between two big rocks. Purposely Aldous stepped out into the full illumination of it. The old hunter looked up. For a moment he stared into the blood-smeared face of his friend; then he sprang to his feet, and caught him by the arm.

"Yes, I got it," nodded Aldous cheerfully. "I went out for it, Mac, and I got it! Get your emergency kit, will you? I rather fancy I need a little patching up."

MacDonald uttered not a word. From the balsam lean-to he brought out a small rubber bag and a towel. Into a canvas wash-basin he then turned a half pail of cold water, and Aldous got on his knees beside this. Not once did the old mountaineer speak while he was washing the blood from Aldous' face and hands. There was a shallow two-inch cut in his forehead, two deeper ones in his right cheek, and a gouge in his chin. There were a dozen cuts on his hands, none of them serious. Before he had finished MacDonald had used two thirds of a roll of court-plaster.

Then he spoke.

"You can soak them off in the morning," he said. "If you don't, the lady'll think you're a red Indian on the warpath. Now, you fool what have you gone and done?"

Aldous told him what had happened, and before MacDonald could utter an excusable idiot and that nothing MacDonald might say could drive the fact deeper home.

"If I'd come out after hearing what they had to say, we could have got DeBar at the end of a gun and settled the whole business," he finished. "As it is, we're in a mess."

MacDonald stretched his gaunt frame before the fire. He picked up his long rifle, and fingered the lock.

"You figger they'll get away with DeBar?"

"Yes, to-night."

MacDonald threw open the breech of his single-loader and drew out a cartridge as long as his finger. Replacing it, he snapped the breech shut.

"Don't know as I'm pertic'lar sad over what's happened," he said, with a curious look at Aldous. "We might have got out of this without what you call strenuous trouble. Now—it's fight! It's goin' to be a matter of guns an' bullets, Johnny—back in the mountains an' the snake of a half-breed'll get the start of us. Let 'em have a start! They've got two hundred miles to go, an' two hundred miles to come back. Only—they won't come back!"

Under his shaggy brows the old hunter's eyes gleamed as he looked at Aldous.

"To-morrow we'll go to the grave," he added. "You're curious to know what's goin' to happen when we find that grave, Johnny. So am I. I hope—"

"What do you hope?"

MacDonald shook his great gray head in the dying firelight.

"Let's go to bed, Johnny," he rumbled. "It's gettin' late."

## CHAPTER XIV

To sleep after the excitement through which he had passed, and with to-morrow's uncertainties ahead of him, seemed to Aldous a physical impossibility. Yet he slept, and soundly. It was MacDonald who roused him three hours later. They prepared a quick breakfast over a small fire, and Aldous heated water in which he soaked his face until the strips of court-plaster peeled off. The scratches were vividly evident, but inasmuch as he had a choice of but two evils, he preferred that Joanne should see these instead of the abominable disfigurement of the court-plaster strips.

Old Donald took one look at him through half-closed eyes.

"You look as though you'd come out of a tussle with a grizzly," he grinned. "Want some fresh court-plaster?"

"And look as though I'd come out of a circus—no!" retorted Aldous. "I'm invited to breakfast at the Blacktons', Mac. How the devil am I going to get out of it?"

"Tell 'em you're sick," chuckled the old hunter, who saw something funny in the appearance of Aldous' face. "Good Lord, how I'd like to have seen you come through that window—in daylight!"

Aldous led off in the direction of the trail. MacDonald followed close behind him. It was dark—that almost ebon-black hour that precedes summer dawn in the northern mountains. The moon had long ago disappeared in the west. When a few minutes later they paused in the little opening on the trail Aldous could just make out the shadowy form of the old mountaineer.

"I lost my gun when I jumped through the window, Mac," he explained. "There's another thirty-eight automatic in my kit at the corral. Bring that, and the .303 with the gold bead sight—and plenty of ammunition. You'd better take that forty-four hip-cannon of yours, along, as well as your rifle. Wish I could civilize you, Mac, so you'd carry one of the Savage automatics instead of that old brain-storm of fifty years ago!"

MacDonald gave a grunt of disgust that was like the whoof of a bear.

"It's done business all that time," he growled good humouredly. "An' it ain't ever made me jump through any window as I remember of, Johnny!"

"Enough," said Aldous, and in the gloom he gripped the other's hand. "You'll be there, Mac—in front of the Blacktons'—just as it's growing light?"

"That means in three quarters of an hour, Johnny. I'll be there. Three saddle-horses and a pack."

Where the trail divided they separated. Aldous went directly to the Blacktons'. In the kitchen he saw Tom, the Oriental cook, busy preparing breakfast. Blackton himself, comfortably dressed in duck trousers and a smoking-jacket, and puffing on a pipe, opened the door for him. The pipe almost fell from his mouth when he saw his friend's excoriated face.

"What in the name of Heaven! he gasped.

"An accident," explained Aldous, with a suggestive shrug of his shoulders. "Blackton, I want you to do me another good turn. Tell the ladies anything you can think of—something reasonable. The truth is, I went through a window—a window with plenty of glass in it. Now how the deuce can I explain going through a window like a gentleman?"

With folded arms, Blackton inspected him thoughtfully for a moment.

"You can't," he said. "But I don't thing you went through a window. I believe you fell over a cliff and were caught in an armful of wait-a-bit bushes. They're devilish those wait-a-bits!"

They shook hands.

"I'm ready to blow up with curiosity again," said Blackton. "But I'll play your game, Aldous."

A few minutes later Joanne and Peggy Blackton joined them. He saw again the quick flush of pleasure in Joanne's lovely face when she entered the room. It changed instantly when she saw the livid cuts in his skin. She came to him quickly, and gave him her hand. Her lips trembled, but she did not speak. Blackton accepted this as the psychological moment.

"What do you think of a man who will wander off a trail, tumble over a ledge, and get mixed up in a bunch of wait-a-bit like that?" he demanded, laughing as though he thought it a mighty good joke on Aldous. "Wait-a-bit thorns are worse than razors, Miss Gray," he elucidated further. "They're perfectly devilish, you know!"

"Indeed they are," emphasized Peggy Blackton, whom her husband had given a quick look and a quicker nudge. "They're dreadful!"

Looking straight into Joanne's eyes, Aldous guessed that she did not believe, and scarcely heard, the Blacktons.

"I had a presentment something was going to happen," she said, smiling at him. "I'm glad it was no worse than that."

She withdrew her hand, and turned to Peggy Blackton. To John's delight she had arranged her wonderful shining hair in a braid that rippled in a thick, sinuous rope of brown and gold below her hips. Peggy Blackton had in some way found a riding outfit for her slender figure, a typical mountain outfit, with short divided skirt, loose blouse, and leggings. She had never looked more beautiful to him. Her night's rest had restored the color to her soft cheeks and curved lips; and in her eyes when she looked at him again, there was a strange, glowing light that thrilled him. During the next half-hour he almost forgot his telltale disfigurements. At breakfast Paul and Peggy Blackton were beautifully oblivious of them. Once or twice he saw in Joanne's clear eyes a look which made him suspect that she had guessed very near to the truth.

MacDonald was prompt to the minute. Gray day, with its bars of golden tint, was just creeping over the shoulders of the eastern mountains when he rode up to the Blacktons'. The old hunter was standing close to the horse which Joanne was to ride when Aldous brought her out. Joanne gave him her hand, and for a moment MacDonald bowed his shaggy head over it. Five minutes later they were trailing up the rough wagon-road, MacDonald in the lead, and Joanne and Aldous behind, with the single pack-horse between.

For several miles this wagon-trail reached back through the thick timber that filled the bottom between the two ranges of mountains. They had travelled but a short distance when Joanne drew her horse close in beside Aldous.

"I want to know what happened last night," she said. "Will you tell me?"

Aldous met her eyes frankly. He had made up his mind that she would believe only the truth, and he had decided to tell her at least a part of that. He would lay his whole misadventure to the gold. Leaning over the pommel of his saddle he recounted the occurrences of the night before, beginning with his search for Quade and the half-breed. He left out nothing—except all men-

(Continued on page 18)

# OPPORTUNITY SALE NOW IN FULL SWING

Send no money

Pay on arrival

## Pick Your Bargains - Quick!

### Exquisitely Embroidered Gabardine Dress

**\$2<sup>98</sup>**

This delightful model is sure to be one of the favorites of the season. It is of beautiful cotton gabardine in navy blue or brown. The vestee, smart belt, sleeves and fashionable panels are richly embroidered. The self material belt ties gracefully at back. Sizes 16 to 44. Order Navy by No. 96E-5525. Order Brown by No. 96E5526. Send no money. Pay \$2.98 and postage on arrival.



### Women's Felt Moccasins

Fine grade wool felt with combination insert of fawn. Order American Beauty by No. 96-389. Order Copen by No. 96-390. Order Lavender by No. 96391. Sizes 3 to 8.



**98c**

Send no money. Pay 98c and postage on arrival.

### Men's 4-Buckle All Rubber Arctics

**\$2<sup>48</sup>**

State Size Guaranteed best quality all rubber 4-buckle hi-cut arctic for men. Made with double thick soles and seams reinforced.



### Order Quick.

Snow-excluding tongue. Furnished in men's sizes 7 to 15. Wide widths. Sensational value. Send quick. Order by No. 96A990. Send no money. Pay \$2.48 and postage on arrival.

### MEN'S AND BOYS' STORM BOOTS

Wonderful Hi-Cut Storm Boots of soft brown cowhide leather, absolutely barnyard proof. Durable outsoles, sewed and nailed; solid leather insoles; dirt-excluding bellows tongues. Sizes 6 to 12. Wide widths. Order 9 in. Men's by No. 96A769. Send no money. Pay \$2.98 and postage on arrival. State size. Order boys' sizes, 1 to 5 1/2, by No. 96A770. Order little boys' sizes, 9 to 13 1/2, by No. 96A771. Price \$1.98. Send no money. Pay bargain price and postage on arrival.

**\$1<sup>98</sup> UP**



Same style, barnyard proof, 16-in. cowhide hi-cut for men. Sizes 6 to 12. Wide widths. Order by No. 96A777. Send no money. Pay \$4.98 and postage on arrival.

Don't send one cent. Just letter or postcard brings you any of these smashed price bargains. Merely give name and number of each article you want. Also state size and write your name and address plainly to avoid delay. Pay nothing till goods arrive—then only the amazing bargain price and postage. If you are not delighted with your bargain, return the goods and your money will be cheerfully refunded. ORDER NOW!

### Women's Stitch-Down Oxfords

**\$1<sup>98</sup>**

SEND NO MONEY.



Give Size

Classy stitchdown Oxford for women. Wonderfully comfortable and stylish. Uppers of dark mahogany leather. Smooth leather insoles. Flexible stitchdown oak outsoles. Low rubber heels. Sizes 2 1/2 to 8. Wide widths. Order by No. 96A268. Send no money. Pay only \$1.98 and postage on arrival.

Order similar style patent leather by No. 96A-264. Pay \$2.48 and postage on arrival.

### Rich Black Sateen Aprons

**\$1<sup>79</sup>**

The material is an excellent soft, lustrous black sateen with collar, cuffs and pockets of good grade fancy cretonne. Pockets are a novelty basket design with applique flower trimming. The same effect is carried out on one side of the waist. A full cut, comfortable garment which is just the thing for morning wear at home. Designed with wide self-material sash belt all around Big value. Order by No. 96E-5098. Send no money. Pay \$1.79, and postage on arrival. Money back if not satisfied.



### Women's Genuine Kid Hi-Cut Boot



Send for this handsome rich kidskin shoe. Note the medium toes with pretty imitation perforated tips, the perforation around vamp and on lace stays. Very popular model and real bargain now. Durable, flexible soles. Sizes 2 1/2 to 8. Wide widths.

**\$2<sup>29</sup>**

Order by No. 96A122. Pay \$2.29 and postage on arrival.

### Patent Leather or Brown Calf Finished Oxfords

**\$1<sup>98</sup>**

This smart pump in sizes 2 1/2 to 8. In black patent leather or brown calf finish—a stunning one-strap model with imitation shield tip and medial-heel, effectively perforated. Has medium rubber heel. Order patent leather by No. 96A72. Order brown calf finish by No. 96A73. Send no money. Pay \$1.98 and postage on arrival.



Give size.

**\$2<sup>98</sup>**

Order by No. 96A949. Send no money. Pay \$2.98 and postage on arrival. State size wanted. Order similar style in knee boot sizes 7 to 12 by No. 96A-950. Pay \$2.98 and postage on arrival.

State Size

### Women's Black Patent Gun Metal or Brown Calf Finish Leather

**\$1<sup>98</sup>**

CHOICE OF THREE LEATHERS



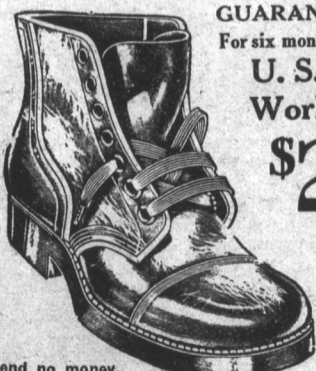
Always State Size

Made with imitation shield tip and medialion perforated vamp, perforated lace stay and circular foxing. Has medium rubber heel and medium pointed toe. Sizes 2 1/2 to 8. Wide widths. Order Patent by No. 96A64. Order Gunmetal by No. 96A65. Order Brown by No. 96A70. Send no money. Pay \$1.98 and postage on arrival.

### GUARANTEED For six months' wear U. S. Army Work Shoe

**\$2<sup>98</sup>**

State Size



Send no money.

Men! Don't lose a moment in ordering this wonderful brown work shoe. It is made of leather as near waterproof as can be made—solid leather through and through with full grain leather uppers, guaranteed to wear six months. Easily worth \$5.00. Two full, heavy double soles, sewed and nailed for greater strength. Extra wide, full leather counter, riveted to prevent ripping. Sizes 7 to 11, wide widths. Order by No. 96A699. Send no money. Pay \$2.98 and postage on arrival.

### Boy's Guaranteed Shoes

Six months' guarantee. Two full green chrome leather soles. Solid leather heels. Made on Munsey type army last. Barnyard acid-proof. Solid leather insoles. Sizes 1 to 5 1/2. Wide widths. State size wanted. Send no money. Order by No. 96A550. Pay \$2.69 and postage on arrival.

### "Stylish Stout" Gabardine Dress

**\$3<sup>98</sup>**

Women of large figure will see in this new model their ideal dress. This is a special design, planned to give long, slendering line to stout figures. Note how the collar, revers and panels carry out the long effect. Note, too, the attractive embroidery on sleeves, vestee and panels. The self-material belt ties at back. Sizes 39 to 53. In three popular shades.



Order Navy by No. 96E5470. Order Black by No. 96E5471. Order Brown by No. 96E5472. Send no money. Pay \$3.98 and postage for any color on arrival. State size.

### One-Buckle Arctic or the Family

**99c UP**



GIVE SIZE

Heavy cashmerette snow-proof top. Genuine gum rubber bottoms; heavy single soles; full fleece lined; sizes for all the family. Order Misses' size, 11 to 2, by No. 96A970. Price 99c. Order Women's size, 2 1/2 to 8, by No. 96A969. Price \$1.19. Order Youth's size, 9 to 13 1/2, by No. 96A968. Price \$1.19. Order Boys' size, 1 to 5 1/2, by No. 96A967. Price \$1.29. Order Men's size, 6 to 12, by No. 96A966. Price \$1.39. Pay Bargain Price and postage on arrival. State size.

### Brand new Standard Tires GUARANTEED 6,000 Miles

**30x3 \$5<sup>98</sup>**

Fresh stock of heavy, non-skid tires of live rubber. Generously oversize, 6,000 guaranteed, but often give 8,000 to 10,000 miles. Choice of non-skid or ribbed in 30x3 size. Others are non-skid. Pay only bargain price listed below and postage on arrival, add 39c for postage on cash orders.

BARGAIN PRICE LIST	
No. 96D4041—30x3	5.98
No. 96D4041—30x3 1/2	6.98
No. 96D4042—32x3 1/2	8.98
No. 96D4043—31x4	10.28
No. 96D4044—32x4	11.58
No. 96D4045—33x4	12.28
No. 96D4046—34x4	12.98

8,000 mile Guarantee  
SHAROOD'S JUNIOR CORD, 30x3  
Same sturdy construction as regular cord but not oversized. A wonder service tire for Fords. Order by No. 96D4090. Send no money. Pay only \$9.19 and postage on arrival, add 49c for postage on cash orders.

GUARANTEED INNER TUBES  
Now is your chance to buy extra thick, live rubber inner tubes at a big saving. Don't wait for tube prices go up. How many shall we send? Give size wanted. No money now. Pay only bargain price and postage on arrival, add 10c for postage on cash orders.

BARGAIN PRICE LIST	
No. 96D4020—30x3	9.9c
No. 96D4021—30x3 1/2	\$1.19
No. 96D4022—32x3 1/2	1.45
No. 96D4023—31x4	1.69
No. 96D4024—32x4	1.79
No. 96D4025—33x4	1.79
No. 96D4026—34x4	1.79

Be sure to mention all Sizes, Colors, etc., and send all Orders from this Page Direct to

**SHAROOD CO.,** Dept 96 MINNEAPOLIS, MINN.



## Square Deal Fence

Farmers who know how to save money buy Square Deal Fence and get the many years of extra service Square Deal gives. Stiff, picket-like stay wires make fewer posts necessary; wavy or crimped strand wires provide springiness and keep the fence tight and trim; the famous Square Deal Knot holds stay and strand wires in a vise-like grip without cutting, breaking or slipping; extra heavy galvanizing prevents rust and insures longest wear.

**FREE To Land Owners**

Ropp's New Calculator—the most valuable farm book ever published. Instantly figures the cash value of your crops; capacity of cribs, bins, silos, barns; answers 75,000 farm problems; prevents errors; saves figuring; every land owner needs Ropp's Calculator daily. Write for it. Post card will do. Send no postage. Get this 50c book and Square Deal catalog. Merely mention on card when you expect to buy when woven wire fence.

**KEystone STEEL & WIRE CO.** (18)  
4818 Industrial St., Peoria, Ill.

**LOOK! ONLY 17¢ A Rod Up** **DIRECT FROM FACTORY**

## Don't Pay More

**Peerless FENCE**  
NOW SOLD DIRECT  
From FACTORY to FARM

New Peerless direct-from-factory selling plan cuts prices on highest quality Fence, Gates, Steel Posts, Barb Wire, Paints and Roofing. Prices begin at 17¢ per rod! Think of it! Peerless quality, famous for 25 years, guarantees your satisfaction.

**FREE** Big 104-page book of Peerless Factory-to-you bargains is now ready. Don't buy until you compare Peerless prices and quality with others. See what Peerless quality means! Note the enormous SAVINGS in PRICE. **PEERLESS WIRE & FENCE CO.** Dep. 3000 Cleveland, O. Factories at Cleveland, Ohio; Adrian, Mich.; Memphis, Tenn.

## You Can Make \$200.00 to \$300.00 PER MONTH



A GOOD LIVE HUSTLER WITH CAR can easily make \$200 to \$300 per month selling Heberling's medicines, pure flavoring extracts, spices, toilet articles, stock powder, dip, etc. direct to consumer in your county. Every home a real prospect for our attractive line of household necessities. Steady repeats. Large profits. No experience or capital required. We teach you and furnish you stock of goods on credit. You pay as you get paid. Exclusive protected territory. Write today for free particulars.

**HEBERLING MEDICINE & EXTRACT CO.**  
Dept. G BLOOMINGTON, ILL.

## 5 — Good — \$1 Magazines

Woman's World, (Monthly) Our Price  
Good Stories, (Monthly) \$1.00  
American Woman, (Monthly)  
The Household, (Monthly) ALL FIVE  
The Farm Journal, (Monthly) FOR 1 YEAR  
ORDER BY CLUB NUMBER 336

**A Dollar Bill will do—We take the risk**

Send all orders to  
**Whitlock & Summerhays**  
25 North Dearborn Street, CHICAGO

GET IT FROM THE FACTORY DIRECT

## KITSELMAN FENCE

"I Saved One-Third," says Wm. B. Lee, Stanton, Mich. You, too, can save. We pay the freight. Write for Free Catalog of Fences, Fencing, Lawn Fences.

**KITSELMAN BROS.** Dept. 105 MUNCIE, IND.

## Farmers Service Bureau

(A Clearing Department for farmers' every day troubles. Prompt, careful attention given to all complaints or requests for information addressed to this department. We are here to serve you. All inquiries must be accompanied by full name and address. Name not used if so requested.)

### WEEDS AND BRUSH ALONG HIGHWAY

I own a farm in Saginaw Township and my land runs up to the township line between Ketchville and Saginaw townships. There is brush along the road that has been there for years and the Ketchville road commissioner has ordered me to cut all the brush from my fence to the center of the road. It is Ketchville's end of the road to keep up. I just took possession of the farm last March and it doesn't seem fair to make one man cut it with several of the neighbors just as bad as mine if not worse. Will you please let me know if I must cut all the brush without any pay or print the law about cutting brush along the highway.

I like the M. B. F., very much and think the service and market pages are worth the price of the paper alone.—H. C. H., Saginaw, Mich.

Section 2, of Chapter 24 of the General Highway Law imposes the duty of cutting all brush and weeds within the limits of the highway upon the Overseer and Commissioner of Highways of the various townships.

Section 10 of the same chapter imposes the duty on the Prosecuting attorney of the county to prosecute all violations of the provisions of the above section of the statute.—State Highway Department.

### FORECLOSING

We purchased a farm Nov. 8, 1919, and it called for \$200 and interest a year. We have only paid the interest in the last two falls. We are letting them foreclose and last year we didn't pay the taxes either nor this year. Now what I want to know is this: Can we hold possession? That is put in crops and take them off, and not live there. I know they can't put us off for 15 months after default of payment of interest. We bought on a mortgage. But we want to know if we can hold possession and not live there and can they make us pay last year's taxes?—L. W. H., Vassar, Mich.

The mortgagor has the right of possession whether he lives on the property or not until the expiration of the equity of redemption, which is one year from date of sale. He does not need to live on the premises to make one who interferes with his possession a trespasser. He might think today that he would quit but change his mind before the time is up and arrange to keep the place. He may suddenly find the land to be valuable. If the taxes were assessed to the mortgagor, personally, and he has any personal property from which the town treasurer could collect the tax he must lose or make himself personally liable to the mortgagee who might have to pay the tax if the property was returned on the land.—Legal Editor.

### CONDEMN RELIGION IN SCHOOL

Is it lawful for a district school teacher to condemn or molest, in any way a faith, or religion or any part thereof during school hours?—A Reader, Durand, Michigan.

A district school teacher does not have the right to condemn or molest in any way any religion or any religious faith during school hours.—G. N. Otwell, Department of Public Instruction.

### KU KLUX KLAN

Will you kindly inform me thru your valuable paper what the Ku Klux Klan is? What their laws, if any, are, or what their society stands for? This will be very much appreciated. Are there any Klansmen in Michigan?—Mrs. A. S., Curtisville, Michigan.

The Ku Klux Klan, a secret organization, was founded at Paluski, Tennessee in 1866. It was formed originally for purposes of amusement only but soon after developed into an association of "regulators," and became notorious for deeds of violence. The proceedings of the Ku Klux Klan in the southern states were a feature of the determined

struggle to withhold from the emancipated slaves the right of voting. At a convention held in 1867 in Nashville, a positive declaration of principles was made. It was in the following terms, in effect:

"We recognize our relations to the United States Government; the supremacy of the Constitution; the union of the states thereunder." They defined the objects of the order as follows:

1. To protect the weak, the innocent and the defenseless from the indignities, wrongs and outrages of the lawless; to succor the suffering and especially the widows and orphans of the Confederate soldiers. To protect and defend the constitution of the United States and all laws passed in conformity thereto, and to protect the States and people from invasion from any source whatsoever. To aid and assist in the execution of all constitutional laws. The Klan was disbanded in 1869 but has since been re-organized, and is claimed to have members in every state in the Union, from Maine to California.

### LET LOCAL PERSON JUDGE

What division is customary when one rents a farm, and furnishes everything, that is, seed, tools and horses. The renter thinks he would be a fool to husk my share of the corn.—E. M. L., Mt. Pleasant, Mich.

If there was nothing said in the lease about what work was to be done I would be of the opinion that the taking of land on shares or percentage contemplates that the renter should do all the work usual in farming and deliver the proceeds in proper shape. The amount given the renter under the circumstances related by would depend upon the locality in which the property is situated. Some land might be worth \$500 per acre and other only \$50 and it would hardly be fair to class the high priced land with that of less value. It would be fairer to take the opinion of those acquainted with the premises in the locality.—Legal Editor.

### DUTIES OF COUNTY SCHOOL COMMISSIONER

What are the duties of a County School Commissioner, and are there any State, County or District School inspectors?—J. S., Toivola, Mich.

The county school commissioner is the chief educational officer in the county. The following are some of his legal duties:

- To conduct all teachers examinations and 8th grade examinations.
- To visit each school in his county at least once a year.
- To inspect, and require correction if necessary of the annual reports of the several school boards.
- To advise with boards of education concerning buildings, equipment, sanitation, etc.
- To advise with teachers concerning methods of instruction, control, community activities, etc.
- To co-operate with village and state superintendent of schools concerning the conduct and development of grade schools.
- To act as assistant conductor of all teachers' institutes held in the county.
- To do all things possible that will improve educational conditions and methods within his county, and to co-operate with all forces directly or indirectly related to education.

There are no state or county school inspectors in Michigan. That term is not used in Michigan law.—W. H. French, Director Vocational training, M. A. C.

### MUST PAY ASSESSMENT

I wish to know if a land owner who does not sign a petition for a trunk line road which is to be built where his farm is situated, can be compelled to pay the special tax that will be levied against his land. Any information you can give us on this will be much appreciated.—A. H., Crosswell, Michigan.

When a portion of the trunk line highway is constructed under the

## FREE

### 300 Candle Power Sunray Lantern

As a special introductory offer, a 300 Candle Power **SUNRAY** Lantern worth \$3.50 will be given absolutely **Free** with the first purchase of a **SUNRAY** Lamp, Lights up the yard or barn like a search-light. Brighter than sun light—burns 30 hours on a few cents worth of kerosene or gasoline. Lights with match or torch. No wicks to trim—no chimney—no smoke—no smell. Find out about this great special offer.



### Better Than Gas or Electricity

Whitest light ever produced. Nothing to wear—simple—absolutely safe—you can burn it upside down. Get rid of drogery and poor light—see the **SUNRAY**—flood your home with light—save your eyes.

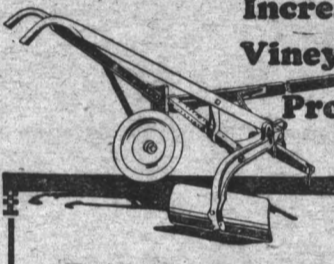
### 15 Days Trial

Absolute satisfaction guaranteed. If you don't like it, send it back. Our money-back guarantee protects you—no red tape.

**Write Today** Send for special introductory offer on **FREE** Lantern and agency proposition, also free literature on the cheapest and best way to light the home. **Act Now!**

**KNIGHT LIGHT CO.**  
Dept. 3302 Chicago, Ill.

## Increases Vineyard Profits



The Syracuse Grape and Berry Hoe is the best tool ever designed for culture of grapes and berries. Kills weeds and stirs up soil under vines and close to roots so that air and plant food are available. Easily guided in and out around posts and vines. Blade reversible to throw soil to or from vines. Cultivator attachment extra. Sold by John Deere dealers.

**FREE BOOK.** Write today for booklet describing this implement. Address John Deere, Moline, Ill., and ask for Booklet GB-8-33.

## JOHN DEERE

THE TRADE MARK OF QUALITY MADE FAMOUS BY GOOD IMPLEMENTS

## FISHER FOLKS

enjoy robustness and live until ripe old age. They know the value of cod-liver oil and its importance as a factor of diet and health.

## Scott's Emulsion

should be taken regularly during a time of weakness as a means of helping to nourish the body and to build up the powers of resistance to normal.

Scott & Bowne, Bloomfield, N. J. 22-49

## Quick Way to Sugar Cure and Smoke Meat

**SIMPLY** pack meat in **Wright's Ham Pickle** and Salt. Then apply **Wright's Smoke** with brush or cloth. **Wright's Ham Pickle** sugar cures and flavors meat better. No trouble. **Wright's Smoke**, made from hickory smoke, gives delicious flavor. Quick—better than smoke-house. No shrinkage or loss. One bottle smokes a barrel of meat. **Wright's Smoke** and **Wright's Ham Pickle** cost little at any drug store. Fully guaranteed.

## FREE NEW \$1 BOOK ON HOME MEAT CURING

Just send name and this \$1.00 Book that tells how to cure all kinds of meat will be sent absolutely Free.

**E. H. WRIGHT CO., Ltd.**  
850 Broadway, Kansas City, Mo.

## CLOVER 2.00 PER BU.

lower in price today than we will ask later. Act quick—supply limited—market advancing. Buy now—your prices subject to change. Have wonderful values in **Wright's** high grade tested Iowa grown **Clover**. Also **Sweet Clover**, **Timothy**, **Alfalfa**, **Hubbards** and all farm and garden seeds. Our prices lowest yet. Save money. Write today for **FREE** SAMPLES, special prices and 116-page catalog.

**A. A. Berry Seed Co., Box 127, Clarinda, Iowa**

assessment district plan all property lying within the limits of the assessment district as established by the Highway Commissioner is assessable according to benefits received and a property owner having property within the district would be obliged to pay his assessment whether he had signed the petition or not.

Under the assessment district plan only 61 per cent of those having property abutting upon the highway are required to sign the petition in order to give the Commissioner authority to proceed under the petition in establishing an assessment district and building the road as described in the petition. In case the road is built under the trunk line act and not under the assessment district plan then there would be no special assessment for any abutting property owners.—H. H. Partlaw, Legal Adviser, State Highway Dept.

#### TAX EMPTION OF SPANISH-AMERICAN WAR VETERAN

I understand that all ex-soldiers of the Spanish-American War are exempted from taxes and am informed that you can give me instructions so I can obtain this exemption.—O. W. R., Detroit, Mich.

—All real estate to the value of \$1,000 used and owned by any soldier or sailor who served three months or more during the Spanish-American War is exempt from

taxation. Should such homestead exceed in value the sum of \$1,000, it is exempt only to the amount of such sum.—Charles J. Deland, Secretary of State.

#### TANNING FUR PELTS

Through the M. B. F. please advise me how I can tan raw muskrat and weasel hides?—H. R., Bad Axe, Mich.

—Fleash the skin or skins carefully. Weasel pelts if properly skinned will need but little, if any fleshing. Soak them two to six hours in the following liquor: Four gallons of cold, soft water; one-half ounce borax; one-half pint salt; one ounce of sulphuric acid. This will prepare the skins for the tanning liquor. Now take two gallons of cold, soft water, (rain water is good) one-fourth pound of pulverized oxalic acid, and one quart of salt. Put the skins in this and leave them until there are no dense spots to be seen. It will take about 36 to 48 hours for muskrat and other fur pelts of the same thickness, but somewhat less perhaps for weasel. When tanned, remove the skins and wring them dry, then pull and work them while drying, so they dry soft. Do this work in the shade, remembering that the more they are worked while drying the softer the tanned pelts will be. In fact "elbow grease" is one of the essentials in successful tanning.

## MICHIGAN CROPS

#### SEEDING FOR HAY

I have five acres of land that I wish to seed for hay. The land is high, dry and is weak light sand. Please tell me what kind of grass seed is best fit for it? The reasons for seeding is because the land has been cropped so long it needs to be built up. The seed I wish to plant is for to build up the ground and produce hay as well. I shall have five acres I wish to seed also, which is low and wet. Hope you can suggest to me the proper kind of seed to sow when and what to sow with it.—R. S., Star Route.

—If you desire a crop that may be made into hay this coming summer we believe you will find soybeans better adopted to the light soil than any other crop. The Manchu, Ito San and Black Eyebrow are the leading varieties for Michigan conditions. They should be sown on well prepared seed bed at the rate of from thirty to thirty-five pounds of seed per acre, when sown in twenty-eight to thirty-two inch rows, and from eighty to ninety pounds of seed per acre when drilled solid. Soybeans may be sown from May 15th to June 10th.

Soybeans are more resistant to soil acidity than any other leguminous crop adapted to Michigan conditions.

If a permanent crop is desired, it would be advisable to lime the soil and either seed sweet clover or a mixture of Mammoth clover, June clover, orchard grass and Kentucky blue grass.

On the low, wet land would recommend seeding a mixture of red top, timothy, alsike clover with a small amount of June clover.—C. R. Megee, Farm Crops Dept., M. A. C.

#### SUDAN GRASS

I would like some information regarding Sudan grass. Where can I get the seed? What is the price of it? How much per acre should be sown? Would it do well on light gravelly soil? Can it be cut for hay? Or is it for pasture? What time in the spring should it be sown? Is it anything like quack grass, or can it be exterminated like other grass?

Sudan grass may be used quite successfully for either hay or pasture. It is practically the only crop that can be sown the latter part of May and produce pasture for horses and cattle the same season as sown. As a hay crop it has about the same feeding value as timothy. The yield usually runs from two to four tons of hay per acre.

Sudan grass should be sown about the middle of May at the rate of from twenty to twenty-five pounds of seed per acre. An ordinary grain drill set to sow two pecks of wheat will sow approximately twenty-five

pounds of Sudan grass seed. It does not have an under-ground root system like quack grass and will not live over the first winter.

The price of Sudan grass seed is quite low, ranging from \$6 to \$7 per hundred pounds. Seed may be secured from the Farm Bureau Seed Department, 221 N. Cedar St., Lansing, Mich., the S. M. Isbell Company of Jackson, Mich., or quite frequently from local seed dealers.—C. R. Megee, Associate in Farm Crops, M. A. C.

#### RENEWING STAND OF ALFALFA

I sowed Alfalfa with oats last spring. There is only about a half stand of alfalfa. I wish to leave it and want to know how I can sow more alfalfa seed to secure a good stand this spring. When should it be sowed?—N. S. A., Fairgrove, Mich.

—It is only occasionally that old stands of alfalfa are successfully thickened by seeding new seed on the old stand. Many more failures occur than successes. Much depends upon the cause of the old stand thinning out. It was due to the original seed not being winter hardy, then some good might be accomplished by seeding six pounds of either Grimm or northern grown common during the early spring. The old plants however, will shade and rob the young ones of moisture so that the new seeding will not have the same chance as when seeded by itself. If the lack of lime is the cause of thinning then it would be more economical to turn under the old stand, lime and reseed. The lack of drainage and inoculation also cause failures. In seeding alfalfa a firm, well prepared seed bed is also of great importance.—C. R. Megee, Farm Crops Dept., M. A. C.

#### ADD ACID PHOSPHATE TO MANURE

TESTS which have been running the Ohio Experiment Station for 20 years show that substantial profits follow the reinforcement of stable manure with acid phosphate before application to the field. According to Director C. G. Williams, 320 pounds of acid phosphate added to eight tons of manure, and applied to corn in a corn-wheat-clover rotation has produced increases, over the yield from manure alone, at the rate of \$109 per ton of acid phosphate. While all land cannot reasonably be expected to yield the same rate of return, there is no question according to Director Williams, but that the practice is a very profitable one. He suggests scattering a pound and a half per animal daily in the stall or manure gutter.

## Montgomery Ward & Co.

The Oldest Mail Order House  
is Today the Most Progressive

This 566 page  
Spring Catalogue  
Is Yours Free



This Catalogue offers a Saving on  
everything you need for the Home,  
the Farm and the Family

Think of having in your own Home a book as complete as a big Department Store with illustrations and prices of everything you need to buy.

Think of the satisfaction, the convenience, and the saving of looking through this book and finding the lowest price—the right price to pay for whatever you buy.

There is a real pleasure and a Saving in this book for every member of your family.

And this new complete Spring Catalogue, 566 Pages, may just as well be yours. One copy is Yours—if you simply fill in and return the coupon below.

### Ward Quality and Right Prices

Everything this book shows is of Ward Quality. Montgomery Ward & Co. is a house of low prices. We aim to offer a saving on everything you buy. But we never sacrifice quality to make a low price.

Ward Quality means full value, long service merchandise, the kind that stands examination and use.

**For The Home:** Everything the woman needs to beautify her home, every practical article of daily use, furniture, carpets, kitchen cabinets—everything—and always the prices offer you a Saving.

**For The Woman:** Everything for your personal use from wearing apparel of every kind to sewing machines. There is a big saving here for you on all your personal needs.

**For The Man:** Clothing, shoes, underwear, automobile tires, tools—everything a man needs for himself or for the farm. Send the coupon now. Learn the pleasure, the Saving this Montgomery Ward Catalogue will bring into your home.

Montgomery Ward & Co.  
Chicago Kansas City  
St. Paul Fort Worth Portland, Ore.

Our Orders Shipped  
Within 48 Hours

Our new system of filling orders is now six months old. Six months' successful operation enables us to say—Your Order will be shipped immediately; certainly in less than 48 hours. As a matter of fact, most of the orders are now being shipped the same day they are received. With the lowest market prices, goods always of Ward Quality, and the most prompt and accurate service, it is true indeed that "Montgomery Ward & Co., the Oldest Mail Order House is Today the Most Progressive."

Mail  
this coupon

To  
MONTGOMERY  
WARD & CO.  
Dept.—H-11

Chicago, Kansas City,  
St. Paul, Fort Worth,  
Portland, Ore. (Mail this coupon to the house nearest you.)

Please mail me my free copy of Montgomery Ward's complete 1923 Spring Catalogue.

Name .....

Address .....

(Continued from Jan. 20th issue)

WHEN Madame Schwimmer reached Detroit she learned that Miss Morgan and Miss Shelley had exhausted their funds. She immediately sold her jewelry to meet the obligations incurred and took a small room on the top floor of the Tuller Hotel. The writer was told by a woman who knew her that Madame Schwimmer was not the charming dazzling creature that report had made her. She is described as a woman of culture and education, sincerely eager to end the war. She was fairly good looking, pale, with dark hair and snappy eyes. She seemed just a plain motherly person, with no great amount of personal magnetism.

Like every newcomer in Detroit Madame Schwimmer was anxious to meet Henry Ford. She was an admirer of the Ford industrial system and desired moreover to show the motor king letters and documents from Earl Grey, the King of Sweden, von Bethman-Hollweg and others. These documents she carried with her always, enclosing them in a flat green leather bag secured to her wrist. It has been said that these papers were forged, but the charge has never been proved. She appealed to Mr. Pipp to secure for her an interview with Mr. Ford. "I think I can arrange for you to meet him," Mr. Pipp told her, "but I shall make the appointment on one condition: You must promise not to ask him for financial aid or try, directly or indirectly, to secure money from him."

Madame Schwimmer's snappy black eyes looked straight into Mr. Pipp's steady blue eyes as she answered: "I give you my word of honor that I shall not ask Mr. Ford for money for any project whatever. I want to secure his aid in presenting my documents to President Wilson." Mr. Pipp then arranged the meeting. At his suggestion Alfred Lucking, Mr. Ford's senior counsel and a former member of Congress, was present when Madame Schwimmer met the motor king in his great office at the Highland Park plant. She presented her credentials and other documents and was questioned searchingly by Mr. Lucking. No witness in court ever underwent a more gruelling cross-examination than did this Austrian woman that morning.

In this connection it must be remembered that there was no stronger advocate of peace in the country than Henry Ford. He had been born in the years of the Civil War and had spent his childhood in the shadow of the old arsenal at Dearborn. His boyhood had been filled with stories of the horrors of war, and one day, years afterward, when driving away from this plant with a friend, he remarked: "There is the factory into which I have put my life. I have given it the best that is in me, but I would rather tear it down, brick by brick with my own hands than have it used for making munitions of war."

The writer can state on the best authority that Mr. Ford did not agree to go to Washington with the peace committee. He was in Wash-

ington shortly after his meeting with Madame Schwimmer, and it was there that he was persuaded to go abroad with the peace delegates. It was at this time that the Peace Ship was suggested to him. Shortly afterward he telephoned Mrs. Ford at their home:

"We are going to Europe," he told her.

"Going where?" asked his astonished wife.

"You and I—We're going to Europe. And we are going to take some people with us."

"Indeed we are not," was Mrs. Ford's emphatic reply. "Don't let anyone talk you into any such notions."

It may be suspected that the motor king was unwilling to risk further discussion with his wife, for next day he called up Mr. Pipp from New York. "There is a rumor here that I am dead," he told the newspaperman. "I don't want Mrs. Ford to worry. Will you telephone her that I am all right. You can get her quicker from your office than I can from here. Tell her my cold is better and that I'll be home soon."

"What about the interview with President Wilson?" Mr. Pipp asked. "There is nothing that he can do." came the answer in weary tones. "I'll tell you about it when I return. By the way, do you mind if I bring Miller back with me? I do not like to make the trip alone." Miller was the Washington correspondent of the News, and Mr. Ford was particularly fond of him.

The next thing Mr. Pipp and Mrs. Ford heard was that the newspaper announcement that Mr. Ford had agreed to finance a peace expedition to Europe; that a considerable party of peace enthusiasts would accompany him, and that he had chartered a ship for the voyage.

Mr. Ford returned to Detroit fired with the zeal of a crusader. To every advisor who urged him to abandon the project he replied: "In Washington they have experts studying every hill, valley, river and road in Europe. They have men studying every phase of war, but no one studying the possibilities of peace. If America is dragged into the war there will be a terrible loss of life among our young men. Thousands will be slaughtered like cattle and other thousands will die from exposure and disease. The reconstruction period through which we shall have to pass will be terrible. If I can be of any service whatever in helping end this war and keeping America out of it I shall do it if it costs me every dollar and every friend I have."

The Peace Ship sailed on December 4, 1915. It was necessary to take in gold the money needed to defray all expenses. Mr. Ford's farm manager, Ray Dalinger, who had served him since the days of the Piquette street plant, had charge of guarding and handling the great bags of coin that were carried in the ship's hold. Hardly was the Statue

of Liberty out of sight before the peace delegates began to be less peaceful among themselves. In a short time the disagreements and friction became more marked. Madame Schwimmer herself became unpopular. She was temperamental and wrapped herself in a mantle of reserve. It has since been said that perhaps Madame Schwimmer was "a conspirator seeking to focus the attention of the world on peace at a time when her country and its allies held the whip hand."

If this be true, she was sadly lacking funds for the undertaking. Her interviews were in full glare of the searching light that beats upon publicity. If she was an arch-spy, what could she accomplish by announcing her presence in a neutral country where the secret service is swift, active and effective? What could she gain by approaching a man whose father was an Englishman; whose wife was the daughter of an English mother, both of whom keep in close touch with England? If she were an adventuress, she was bound to know that it is utterly impossible to reach a man of Henry Ford's prominence without being carefully scrutinized and investigated. If she were sincere in her motives, she has been terribly maligned and her disappointment in the failure of the expedition must have been overwhelming.

Henry Ford was ill when the party reached Christiana. A cold had become worse and he was in no condition to go farther with his already hopeless task. He remained aboard long enough, however, to gather first-hand information of the European situation, especially astounding information regarding Russia. He learned, too, that Germany had no intention of ending the war without a victory that would subjugate the entire English speaking world. He found that what the Allies needed was a submarine detector.

Mr. Ford returned home on New Year's Day, 1916. The experience had aged him. It had opened his eyes to many things he would rather not have known and which he probably never would have believed had he not made the voyage in the Peace Ship. That the war would continue he was convinced. The struggle would be a terrific one and the day was rapidly approaching when America would be drawn into it. Germany knew this country was unprepared and believed that we could not whip an army into shape in time to count in the conflict.

Forthwith Mr. Ford began to do some planning of his own. He ordered his yacht overhauled and made ready for instant service if the government should need it. His River Rouge plant, as has been said, is located at the point where the stream from which it takes its name flows into the Detroit river. The plant was rapidly equipped for the making of eagle boats and submarine chasers. The situation is an ideal one for a naval station, and it was used for

By Sarah T. Bushnell

this purpose throughout the war after the entry of the United States. Finally, Mr. Ford issued orders that work be rushed on his

three million dollar hospital.

With all these preparations he never discussed with any one what he had learned abroad or the work he now had to do. If he read the bitter criticisms he gave them no heed. People close to him realized, however, that the current of his life had changed. He was busy day and night now; the twinkle came to his eyes but seldom, and the iron gray of his hair whitened.

A year later America entered the war and Henry Ford was summoned to Washington.

"How quickly can you supply us with cars and munitions?" he was asked by a congressional committee. "I must have a little time," he parried.

"Exactly how long will it be before you can make your first delivery of cars, trucks, caissons and the like?" came the insistent question.

Henry Ford looked at his watch; it was 11:30. "By 3 o'clock tomorrow afternoon my first delivery will be complete," he replied. "I can telegraph to the plant and start work immediately. They should receive the order in five minutes."

The Congressmen laughed. They did not know that he had spent many sleepless nights planning every detail of the work that he knew he would be called upon to do. They did not know that he had been waiting the day when he must place all the resources of his great industry at the service of the government. The great factory—the largest motor plant in the world and the only one that hitherto had refused war orders—was equipped to the last detail so that at the signal from its owner every department could take up the work for war.

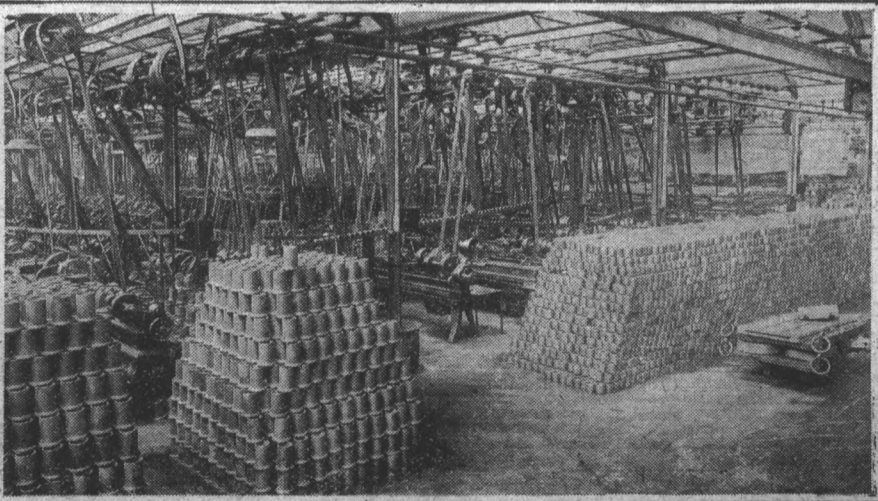
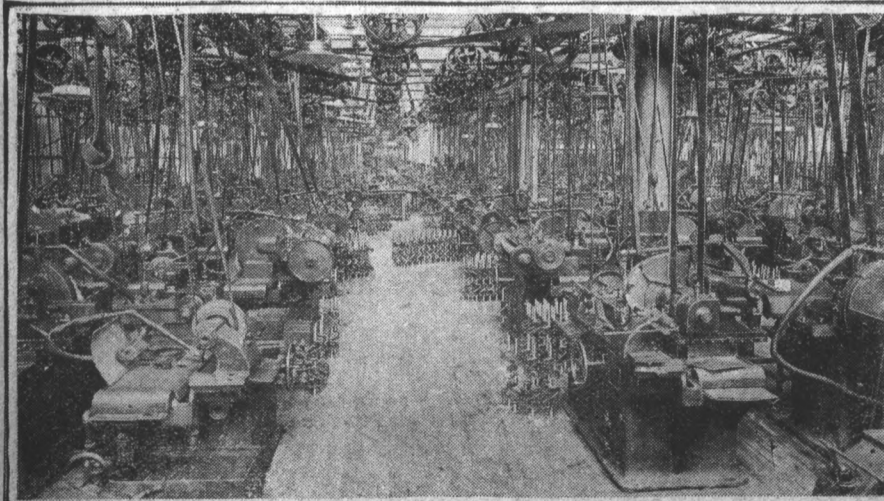
That is why the Ford plant played the wonderful part it did in supplying the necessities of war. That is why it was able to turn out finished materials for the armies faster than the ships could carry them across the Atlantic. What Henry Ford had learned on his unsuccessful peace voyage had caused him to prepare for the day that now had arrived. He knew that every day the struggle was prolonged more brave young soldiers would fall and he employed all his vast resources to hasten the coming of peace by a speedy victory.

Henry Ford gave all his war profits—twenty-nine millions—to the government, with no hampering conditions. This vast amount was turned back to the Treasury to be used as the government saw fit. This was the act of a pacifist. If all the war advocates had done the same the country's war debt would not be so staggering to-day and there would have been less talk of war profiteers.

#### CHAPTER VII.

#### The Ford-Newberry Senatorial Campaign

If the Peace Ship injured the prestige of Henry Ford the effect was not apparent in his native state in 1916, for in that year the dele-



Two views of the Ford plant at Highland Park, showing the maze of belting and machinery which make it possible to turn out four thousand complete automobiles in a single day. These machines are kept busy by three shifts of men who fill in twenty-four hours every day. Even with Mr. Ford's earnest endeavor, it is hardly possible to keep the thousands of humans who toil here from becoming machines themselves. Thousands of visitors are conducted through this plant every year. Many foreign notables visiting America ask to be shown only two world-famous sights, "Niagara Falls and the Ford factory." This now is only one of the industries owned by Henry Ford who once, as this story has told, was a Michigan farmer boy.

gation sent to the Republican National Convention at Chicago was instructed to give him its complimentary "favorite son" vote. Mr. Ford had none of the characteristics of a statesman, or even politician, and does not yearn for public office, but he has more men working for him than there are people living in Nevada and Wyoming; he has been marvelously successful in his conduct of immense business undertakings, and it would seem that he must be capable of filling a place in the Senate of the United States—not as a statesman or politician, not as a hard-working, successful man who always has had the interests of many people at heart.

In Michigan, where he is best known and most esteemed, many citizens were eager for him to be their senator, as William Alden Smith had announced that he would not be a candidate to succeed himself. Mr. Ford was urged to make the race on the Republican ticket and although the nomination would have been equivalent to election he refused, partly because he did not want the office and partly because he did not want to take the time away from his business. Then the Democrats appealed to him to become their standard bearer. "Michigan," they told him, "is overwhelmingly Republican. You are the only man who can make the race as a Democrat with any hope of success. At this critical period the President needs the support in Washington of every friend he has."

About this time the President sent for Mr. Ford to come to Washington for a conference. They discussed the submarine detector on which Mr. Ford himself had been working. From that the conversation turned to the coming senatorial campaign. Partisanship did not enter into the conversation, but the President said that he needed Mr. Ford in the Senate and gave as his reason that he "was fair-minded and had no party prejudices," and he added: "No one knows as I do the work that you and your son are doing to help win the war. No one knows better than I know the heartache and the sacrifice that you are putting into it. But I hope you will put aside your personal feelings, make this additional sacrifice and be a candidate."

Mr. Ford was touched by the appeal, but his reply was characteristic of the man. "I cannot leave Detroit," he told the President. "I cannot take my eyes off the plant. No matter how many officials I may have, I must be there myself. If I am around my factory all day and every day; I am there very often at night. I've gotten out of bed many a time to drop in on the night shift and see how things were moving. I've worked right along with the men on the submarine detector and we have just completed it. I cannot take time to make the race. Moreover, I have so much to do at Detroit that I could not spend enough time in Washington if I were Senator. Besides, I can't make speeches and I have not the patience to sit around and listen to folks who like to talk."

Mr. Wilson put his hand on Mr. Ford's shoulder. "The country needs you," he said. "We are being swamped with waste; we are being hampered by various combinations. I need your aid in this time of stress. I know your obligation and I realize that I am asking more than you feel you can give; but I need you—need you more than you know."

And when Henry Ford returned to Detroit the same argument was advanced from every side: "The President needs you. You are the only man in Michigan that can be elected on the Democratic ticket."

Meanwhile the Republican, alarmed by the general talk of Mr. Ford as the Democratic candidate, cast about for the strongest man they could find to oppose him. They selected Commander Truman H. Newberry, prevailed upon him to enter the primaries and he was selected as the Republican nominee. Mr. Newberry was a man of great wealth—several times a millionaire—and was connected with the most influential families of the state. His home was in the fashionable suburb of Grosse Pointe, ten miles from Detroit. In 1905 he had been appointed Assistant Secre-

tary of the Navy and when America entered the world war President Wilson made him a Lieutenant Commander in the navy, the highest rank ever conferred upon a civilian. Later he became aide to Rear Admiral N. E. Usher, commandant of the third naval district, which includes New York and Brooklyn. At that time no one had any idea of the bitterness and legal prosecutions that would follow the campaign; no one had any idea that Commander Newberry, one of Michigan's leading citizens, would be convicted and sentenced by a Republican jury and judge for violation of the federal election law, and that many other party leaders would be involved with him. If either Mr. Ford or Commander Newberry had known what was in store it is more than likely that neither would have taken part in the campaign, even if they had foreseen that after the long and bitter fight Mr. Newberry would be cleared in the United State Supreme Court and the law under which he was prosecuted declared unconstitutional.

Finally Mr. Ford agreed to run. Soon the battle was on. His admirers took off their coats, rolled up their sleeves and went to work. Party lines were swept aside and Detroit never has known such a campaign as that which followed. Soon the excitement swept over the entire state—both men were known in every township and village and both were regarded as the strongest their respective parties could have selected. As time passed the campaign grew hotter and hotter. Straw votes were taken everywhere and it was confidently predicted that Henry Ford would be elected by an overwhelming majority, although he had almost no newspaper support—Michigan having few Democratic papers.

But the race was not over. Two developments were to upset the hopes of Mr. Ford's followers. One was the letter written by President Wilson asking for a Democratic congress. This did his candidacy much harm. The other was the statement attributed to Charles Evans Hughes, which appeared in the newspapers on November 3, 1918, just two days before the election. The statement itself hurt Mr. Ford's chances, and Mr. Ford's subsequent action did his cause still more harm. It should be kept in mind that the Ford Motor company did a great amount of war work. Armistice rumors were already being heard, but the necessity of guarding the country's war secrets was as great as ever.

In its issue of Sunday morning, November 4, the Detroit Free Press carried a full-page advertisement, which also appeared in other newspapers, parts of which are given below. The "ad" was published by the Republican State Central Committee, over the signature of John D. Mangum, chairman. At the top in heavy type, at least two inches high, were the words:

"HENRY FORD AND HIS WORK."

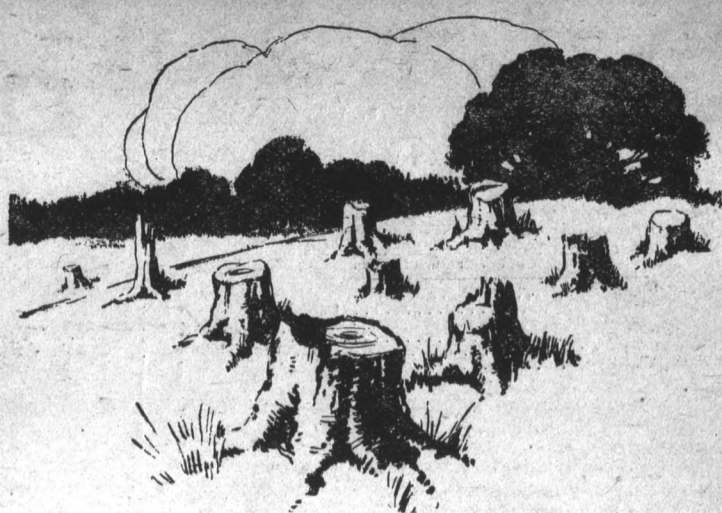
Below this was the following statement:

"Carl Emde, a German alien and a German sympathizer, is boss of the drafting work on the Liberty motor at the Ford plant. Henry Ford knows he is a German alien and a German sympathizer, but he refuses to take him off this work."

"This is not hearsay. It is absolute fact, vouched for by Charles Evans Hughes, whom President Wilson appointed to find out why the production of American aeroplanes has been so much delayed, when the American soldiers in France needs them so much. President Wilson's confidence in Mr. Hughes is emphasized by the fact that Mr. Hughes is a former justice of the Supreme Court of the United States. His reputation and respect for the truth and for fairness in judgment have never been questioned, even by his bitterest adversaries. Concerning Emde's job, Mr. Hughes says in his report to the President:

"IT IS POSSIBLE FOR ONE IN THAT DEPARTMENT TO BRING ABOUT DELAYS THE CAUSES FOR WHICH, IN VIEW OF THE MULTIPLICITY OF DRAWINGS, IT WOULD BE HARD TO TRACE."

(Continued on page 18.)



## It's Cheaper this Year

IT costs less this year to remove stumps from your land—the new du Pont explosive, Dumorite, will blast them out for much less than it used to cost.

Dumorite has approximately the same strength as 40% dynamite, stick for stick, with the slow, heaving action of "20%"—and you get  $\frac{1}{3}$  more sticks for each dollar. It is non-freezing and non-headache. Get it at your local dealer's and clear more land at less cost.

Write for free, 110-page "Farmers' Handbook of Explosives." It gives full information on the use of explosives for land clearing, ditching and tree-planting.

E. I. DU PONT DE NEMOURS & CO., Inc.

McCormick Bldg.,  
Chicago, Ill.

Hartley Bldg.,  
Duluth, Minn.

**$\frac{1}{3}$**  more per dollar

NON-HEADACHE **DU PONT** NON-FREEZING  
**DUMORITE**

**TWO YEARS FOR \$1**

—if YOU act at once!

**\$1**

and the coupon below will renew your own subscription for TWO YEARS FROM DATE OF EXPIRATION.

—or will enter a NEW subscriber's name for TWO FULL YEARS

—or will renew your subscription for ONE YEAR and enter the name of a NEW subscriber for ONE YEAR.

This is the greatest offer we have ever made and we do not promise to keep it open over 30 days, so you must act at once, if you wish to profit by this 50% saving!

(We acknowledge every remittance received with a receipt by first class mail)

THE MICHIGAN BUSINESS FARMER,

Mt. Clemens, Michigan

(1) For \$1 enclosed you will enter or renew my subscription for 2 years:

My Name..... R. F. D. No.....

P. O. .... State .....

(If you are renewing kindly send address label from recent issue)

(2) For \$1 enclosed renew my own subscription as above 1 year and add the following new subscribers name paid-in-full for 1 year:

New Name..... R. F. D. No.....

P. O. .... State .....

(Continued from Jan. 29th issue)

WHEN Madame Schwimmer reached Detroit she learned that Miss Morgan and Miss Shelley had exhausted their funds. She immediately sold her jewelry to meet the obligations incurred and took a small room on the top floor of the Teller Hotel. The writer was told by a woman who knew her that Madame Schwimmer was not the charming dazzling creature that report had made her. She is described as a woman of culture and education, sincerely eager to end the war. She was fairly good looking, pale, with dark hair and snappy eyes. She seemed just a plain motherly person, with no great amount of personal magnetism.

Like every newcomer in Detroit Madame Schwimmer was anxious to meet Henry Ford. She was an admirer of the Ford industrial system and desired moreover to show the motor king letters and documents from Earl Grey, the King of Sweden, von Bethman-Hollweg and others. These documents she carried with her always, enclosing them in a flat green leather bag secured to her wrist. It has been said that these papers were forged, but the charge has never been proved. She appealed to Mr. Pipp to secure for her an interview with Mr. Ford. "I think I can arrange for you to meet him," Mr. Pipp told her, "but I shall make the appointment on one condition: You must promise not to ask him for financial aid or try, directly or indirectly, to secure money from him."

Madame Schwimmer's snappy black eyes looked straight into Mr. Pipp's steady blue eyes as she answered: "I give you my word of honor that I shall not ask Mr. Ford for money for any project whatever. I want to secure his aid in presenting my documents to President Wilson." Mr. Pipp then arranged the meeting. At his suggestion Alfred Lucking, Mr. Ford's senior counsel and a former member of Congress, was present when Madame Schwimmer met the motor king in his great office at the Highland Park plant. She presented her credentials and other documents and was questioned searchingly by Mr. Lucking. No witness in court ever underwent a more grueling cross-examination than did this Austrian woman that morning.

In this connection it must be remembered that there was no stronger advocate of peace in the country than Henry Ford. He had been born in the years of the Civil War and had spent his childhood in the shadow of the old arsenal at Dearborn. His boyhood had been filled with stories of the horrors of war, and one day, years afterward, when driving away from this plant with a friend, he remarked: "There is the factory into which I have put my life. I have given it the best that is in me, but I would rather tear it down brick by brick with my own hands than have it used for making munitions of war."

The writer can state on the best authority that Mr. Ford did not agree to go to Washington with the peace committee. He was in Wash-

ington shortly after his meeting with Madame Schwimmer, and it was there that he was persuaded to go abroad with the peace delegates. It was at this time that the Peace Ship was suggested to him. Shortly afterward he telephoned Mrs. Ford at their home:

"We are going to Europe," he told her.

"Going where?" asked his astonished wife.

"You and I—We're going to Europe. And we are going to take some people with us."

"Indeed we are not," was Mrs. Ford's emphatic reply. "Don't let anyone talk you into any such notions."

It may be suspected that the motor king was unwilling to risk further discussion with his wife, for next day he called up Mr. Pipp from New York. "There is a rumor here that I am dead," he told the newspaperman. "I don't want Mrs. Ford to worry. Will you telephone her that I am all right. You can get her quicker from your office than I can from here. Tell her my cold is better and that I'll be home soon."

"What about the interview with President Wilson?" Mr. Pipp asked.

"There is nothing that he can do," came the answer in weary tones.

"I'll tell you about it when I return. By the way, do you mind if I bring Miller back with me? I do not like to make the trip alone." Miller was the Washington correspondent of the News, and Mr. Ford was particularly fond of him.

The next thing Mr. Pipp and Mrs. Ford heard was that the newspaper announcement that Mr. Ford had agreed to finance a peace expedition to Europe; that a considerable party of peace enthusiasts would accompany him, and that he had chartered a ship for the voyage.

Mr. Ford returned to Detroit fired with the zeal of a crusader. To every advisor who urged him to abandon the project he replied: "In Washington they have experts studying every hill, valley, river and road in Europe. They have men studying every phase of war, but no one studying the possibilities of peace. If America is dragged into the war there will be a terrible loss of life among our young men. Thousands will be slaughtered like cattle and other thousands will die from exposure and disease. The reconstruction period through which we shall have to pass will be terrible. If I can be of any service whatever in helping end this war and keeping America out of it I shall do it if it costs me every dollar and every friend I have."

The Peace Ship sailed on December 4, 1915. It was necessary to take in gold the money needed to defray all expenses. Mr. Ford's farm manager, Ray Dalinger, who had served him since the days of the Piquette street plant, had charge of guarding and handling the great bags of coin that were carried in the ship's hold. Hardly was the Statue

of Liberty out of sight before the peace delegates began to be less peaceful among themselves. In a short time the disagreements and friction became more marked. Madame Schwimmer herself became unpopular. She was temperamental and wrapped herself in a mantle of reserve. It has since been said that perhaps Madame Schwimmer was "a conspirator seeking to focus the attention of the world on peace at a time when her country and its allies held the whip hand."

If this be true, she was sadly lacking funds for the undertaking. Her interviews were in full glare of the searching light that beats upon publicity. If she was an arch-spy, what could she accomplish by announcing her presence in a neutral country where the secret service is swift, active and effective? What could she gain by approaching a man whose father was an Englishman; whose wife was the daughter of an English mother, both of whom keep in close touch with England? If she were an adventuress, she was bound to know that it is utterly impossible to reach a man of Henry Ford's prominence without being carefully scrutinized and investigated. If she were sincere in her motives, she has been terribly maligned and her disappointment in the failure of the expedition must have been overwhelming.

Henry Ford was ill when the party reached Christiana. A cold had become worse and he was in no condition to go farther with his already hopeless task. He remained aboard long enough, however, to gather first-hand information of the European situation, especially astounding information regarding Russia. He learned, too, that Germany had no intention of ending the war without a victory that would subjugate the entire English speaking world. He found that what the Allies needed was a submarine detector.

Mr. Ford returned home on New Year's Day, 1916. The experience had aged him. It had opened his eyes to many things he would rather not have known and which he probably never would have believed had he not made the voyage in the Peace Ship. That the war would continue he was convinced. The struggle would be a terrific one and the day was rapidly approaching when America would be drawn into it. Germany knew this country was unprepared and believed that we could not whip an army into shape in time to count in the conflict.

Forthwith Mr. Ford began to do some planning of his own. He ordered his yacht overhauled and made ready for instant service if the government should need it. His River Rouge plant, as has been said, is located at the point where the stream from which it takes its name flows into the Detroit river. The plant was rapidly equipped for the making of eagle boats and submarine chasers. The situation is an ideal one for a naval station, and it was used for

By Sarah T. Bushnell

this purpose throughout the war after the entry of the United States. Finally, Mr. Ford issued orders that work be rushed on his

three million dollar hospital.

With all these preparations he never discussed with any one what he had learned abroad or the work he now had to do. If he read the bitter criticisms he gave them no heed. People close to him realized, however, that the current of his life had changed. He was busy day and night now; the twinkle came to his eyes but seldom, and the iron gray of his hair whitened.

A year later America entered the war and Henry Ford was summoned to Washington.

"How quickly can you supply us with cars and munitions?" he was asked by a congressional committee.

"I must have a little time," he parried.

"Exactly how long will it be before you can make your first delivery of cars, trucks, caissons and the like?" came the insistent question.

Henry Ford looked at his watch: it was 11:30. "By 3 o'clock tomorrow afternoon my first delivery will be complete," he replied. "I can telegraph to the plant and start work immediately. They should receive the order in five minutes."

The Congressmen laughed. They did not know that he had spent many sleepless nights planning every detail of the work that he knew he would be called upon to do. They did not know that he had been waiting the day when he must place all the resources of his great industry at the service of the government. The great factory—the largest motor plant in the world and the only one that hitherto had refused war orders—was equipped to the last detail so that at the signal from its owner every department could take up the work for war.

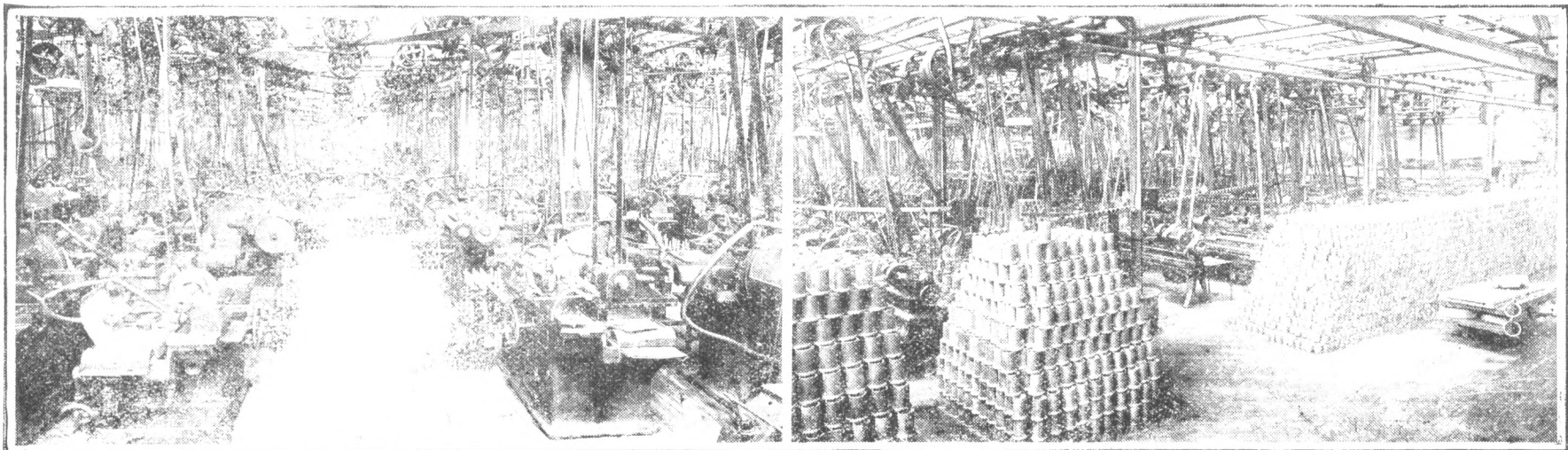
That is why the Ford plant played the wonderful part it did in supplying the necessities of war. That is why it was able to turn out finished materials for the armies faster than the ships could carry them across the Atlantic. What Henry Ford had learned on his unsuccessful peace voyage had caused him to prepare for the day that now had arrived. He knew that every day the struggle was prolonged more brave young soldiers would fall and he employed all his vast resources to hasten the coming of peace by a speedy victory.

Henry Ford gave all his war profits—twenty-nine millions—to the government, with no hampering conditions. This vast amount was turned back to the Treasury to be used as the government saw fit. This was the act of a pacifist. If all the war advocates had done the same the country's war debt would not be so staggering to-day and there would have been less talk of war profiteers.

#### CHAPTER VII.

#### The Ford-Newberry Senatorial Campaign

If the Peace Ship injured the prestige of Henry Ford the effect was not apparent in his native state in 1916, for in that year the dele-



Two views of the Ford plant at Highland Park, showing the maze of belting and machinery which make it possible to turn out four thousand complete automobiles in a single day. These machines are kept busy by three shifts of men who fill in twenty-four hours every day. Even with Mr. Ford's earnest endeavor, it is hardly possible to keep the thousands of humans who toil here from becoming machines themselves. Thousands of visitors are conducted through this plant every year. Many foreign notables visiting America ask to be shown only two world-famous sights, "Niagara Falls and the Ford factory." This now is only one of the industries owned by Henry Ford who once, as this story has told, was a Michigan farmer boy.

gation sent to the Republican National Convention at Chicago was instructed to give him its complimentary "favorite son" vote. Mr. Ford had none of the characteristics of a statesman, or even politician, and does not yearn for public office, but he has more men working for him than there are people living in Nevada and Wyoming; he has been marvelously successful in his conduct of immense business undertakings, and it would seem that he must be capable of filling a place in the Senate of the United States—not as a statesman or politician, not as a hard-working, successful man who always has had the interests of many people at heart.

In Michigan, where he is best known and most esteemed, many citizens were eager for him to be their senator, as William Alden Smith had announced that he would not be a candidate to succeed himself. Mr. Ford was urged to make the race on the Republican ticket and although the nomination would have been equivalent to election he refused, partly because he did not want the office and partly because he did not want to take the time away from his business. Then the Democrats appealed to him to become their standard bearer. "Michigan," they told him, "is overwhelmingly Republican. You are the only man who can make the race as a Democrat with any hope of success. At this critical period the President needs the support in Washington of every friend he has."

About this time the President sent for Mr. Ford to come to Washington for a conference. They discussed the submarine detector on which Mr. Ford himself had been working. From that the conversation turned to the coming senatorial campaign. Partisanship did not enter into the conversation, but the President said that he needed Mr. Ford in the Senate and gave as his reason that he "was fair-minded and had no party prejudices," and he added: "No one knows as I do the work that you and your son are doing to help win the war. No one knows better than I know the heartache and the sacrifice that you are putting into it. But I hope you will put aside your personal feelings, make this additional sacrifice and be a candidate."

Mr. Ford was touched by the appeal, but his reply was characteristic of the man. "I cannot leave Detroit," he told the President. "I cannot take my eyes off the plant. No matter how many officials I may have, I must be there myself. If I am around my factory all day and every day; I am there very often at night. I've gotten out of bed many a time to drop in on the night shift and see how things were moving. I've worked right along with the men on the submarine detector and we have just completed it. I cannot take time to make the race. Moreover, I have so much to do at Detroit that I could not spend enough time in Washington if I were Senator. Besides, I can't make speeches and I have not the patience to sit around and listen to folks who like to talk."

Mr. Wilson put his hand on Mr. Ford's shoulder. "The country needs you," he said. "We are being swamped with waste; we are being hampered by various combinations. I need your aid in this time of stress. I know your obligation and I realize that I am asking more than you feel you can give; but I need you—need you more than you know."

And when Henry Ford returned to Detroit the same argument was advanced from every side: "The President needs you. You are the only man in Michigan that can be elected on the Democratic ticket."

Meanwhile the Republican, alarmed by the general talk of Mr. Ford as the Democratic candidate, cast about for the strongest man they could find to oppose him. They selected Commander Truman H. Newberry, prevailed upon him to enter the primaries and he was selected as the Republican nominee. Mr. Newberry was a man of great wealth—several times a millionaire—and was connected with the most influential families of the state. His home was in the fashionable suburb of Grosse Pointe, ten miles from Detroit. In 1905 he had been appointed Assistant Secre-

tary of the Navy and when America entered the world war President Wilson made him a Lieutenant Commander in the navy, the highest rank ever conferred upon a civilian. Later he became aide to Rear Admiral N. E. Usher, commandant of the third naval district, which includes New York and Brooklyn. At that time no one had any idea of the bitterness and legal prosecutions that would follow the campaign; no one had any idea that Commander Newberry, one of Michigan's leading citizens, would be convicted and sentenced by a Republican jury and judge for violation of the federal election law, and that many other party leaders would be involved with him. If either Mr. Ford or Commander Newberry had known what was in store it is more than likely that neither would have taken part in the campaign, even if they had foreseen that after the long and bitter fight Mr. Newberry would be cleared in the United State Supreme Court and the law under which he was prosecuted declared unconstitutional.

Finally Mr. Ford agreed to run. Soon the battle was on. His admirers took off their coats, rolled up their sleeves and went to work. Party lines were swept aside and Detroit never has known such a campaign as that which followed. Soon the excitement swept over the entire state—both men were known in every township and village and both were regarded as the strongest their respective parties could have selected. As time passed the campaign grew hotter and hotter. Straw votes were taken everywhere and it was confidently predicted that Henry Ford would be elected by an overwhelming majority, although he had almost no newspaper support—Michigan having few Democratic papers.

But the race was not over. Two developments were to upset the hopes of Mr. Ford's followers. One was the letter written by President Wilson asking for a Democratic congress. This did his candidacy much harm. The other was the statement attributed to Charles Evans Hughes, which appeared in the newspapers on November 3, 1918, just two days before the election. The statement itself hurt Mr. Ford's chances, and Mr. Ford's subsequent action did his cause still more harm. It should be kept in mind that the Ford Motor company did vast amount of war work. Armistice rumors were already being heard, but the necessity of guarding the country's war secrets was as great as ever.

In its issue of Sunday morning, November 3, the Detroit Free Press carried a full-page advertisement, which also appeared in other newspapers, parts of which are given below. The "ad" was published by the Republican State Central Committee, over the signature of John D. Mangum, chairman. At the top in heavy type, at least two inches high, were the words:

"HENRY FORD AND HIS WORK."

Below this was the following statement:

"Carl Emde, a German alien and a German sympathizer, is being drafted for work on the Liberty motor at the Ford plant. Henry Ford knows he is a German alien and a German sympathizer, but he refuses to take him off this work."

"This is not hearsay. It is absolute fact, vouched for by Charles Evans Hughes, whom President Wilson appointed to find out why the production of American aeroplanes has been so much delayed, when the American soldiers in France need them so much. President Wilson's confidence in Mr. Hughes is emphasized by the fact that Mr. Hughes is a former justice of the Supreme Court of the United States. His reputation and respect for the truth and for fairness in judgment have never been questioned, even by his bitterest adversaries. Concerning Emde's job, Mr. Hughes says in his report to the President:

"IT IS POSSIBLE FOR ONE IN THAT DEPARTMENT TO BRING ABOUT DELAYS THE CAUSES FOR WHICH, IN VIEW OF THE MULTIPLICITY OF DRAWINGS, IT WOULD BE HARD TO TRACE."

(Continued on page 18.)



## It's Cheaper this Year

IT costs less this year to remove stumps from your land—the new du Pont explosive, Dumorite, will blast them out for much less than it used to cost.

Dumorite has approximately the same strength as 40% dynamite, stick for stick, with the slow, heaving action of "20%"—and you get  $\frac{1}{3}$  more sticks for each dollar. It is non-freezing and non-headache. Get it at your local dealer's and clear more land at less cost.

Write for free, 110-page "Farmers' Handbook of Explosives." It gives full information on the use of explosives for land clearing, ditching and tree-planting.

E. I. DU PONT DE NEMOURS & CO., Inc.

McCormick Bldg.,  
Chicago, Ill.

Hartley Bldg.,  
Duluth, Minn.

$\frac{1}{3}$

more per dollar

NON-HEADACHE **DU PONT** NON-FREEZING  
**DUMORITE**

**TWO YEARS FOR \$1**

—if YOU act at once!

**\$1**

and the coupon below will renew your own subscription for TWO YEARS FROM DATE OF EXPIRATION.

—or will enter a NEW subscriber's name for TWO FULL YEARS

—or will renew your subscription for ONE YEAR and enter the name of a NEW subscriber for ONE YEAR.

This is the greatest offer we have ever made and we do not propose to keep it open over 30 days, so you must act at once, if you wish to profit by this 50% saving!

THE MICHIGAN BUSINESS FARMER,

Mt. Clemens, Michigan

(1) For \$1 enclosed you will enter or renew my subscription for 2 years:

My Name ..... R. F. D. No. ....

P. O. .... State .....

(If you are renewing kindly send address label from recent issue.)

(2) For \$1 enclosed renew my own subscription as above 1 year and add the following new subscribers name paid-in-full for 1 year:

New Name ..... R. F. D. No. ....

P. O. .... State .....

# The Michigan BUSINESS FARMER

SATURDAY, FEBRUARY 3, 1923

Edited and Published by  
THE RURAL PUBLISHING COMPANY, Inc.  
GEORGE M. SLOCUM, President  
Mt. Clemens, Michigan

Represented in New York, Chicago, St. Louis and Minneapolis by  
the Associated Farm Papers, Incorporated  
Member Agricultural Publishers Association  
Member Audit Bureau of Circulations.

Milton Grinnell ..... Managing Editor  
Grace Nellis Jenney ..... Farm Home Editor  
Frank D. Wells ..... Fruit Editor  
J. Herbert Ferris ..... Radio Editor  
William E. Brown ..... Legal Editor  
William W. Slocum ..... Treasurer  
Henry F. Hopkins ..... Plant Superintendent

Address All Communications to the Publication, Not Individuals.

## ONE DOLLAR PER YEAR

The date following your name on the address label shows when your subscription expires. In renewing kindly send this label to avoid mistakes. Remit by check, draft, money-order or registered letter; stamps and currency are at your risk. We acknowledge by first-class mail every dollar received.

Advertising Rates: 45c per agate line, 14 lines to the column inch, 772 lines to the page. Flat rates:  
Live Stock and Auction Sale Advertising: We offer special low rates to reputable breeders of live stock and poultry; write us.



## RELIABLE ADVERTISERS

We will not knowingly accept the advertising of any person or firm who we do not believe to be thoroughly honest and reliable. Should any reader have any cause for complaint against any advertiser in these columns, the publisher would appreciate an immediate letter bringing all facts to light. In every case when writing say: "I saw your advertisement in The Michigan Business Farmer!" It will guarantee honest dealing.

"The Farm Paper of Service"

## 1923 SHOULD BE READJUSTMENT MIDDAY

**E**XTRACTS from article under above caption, by financial editor of the Chicago Tribune, under date of January 1, 1923:

"The year 1922 will go down in American economics as the beginning or recovery from the drastic deflation of wartime and its aftermath, one of the most severe periods of depression in the country's history.

"American business industry throughout the year manifested a steadily improving pace. From a general depression in the winter of 1921, which revealed itself in unemployment of several million workers, the situation in one year reversed itself, and in recent months there have been complaints from some of the larger industries of shortage of labor, in spite of an advancing trend in wages.

"One of the best indices of the year's progress lies in a comparison of the country's financial situation now and at the end of 1921, as disclosed by the reports of the federal reserve system. Loans and rediscounts now aggregate about \$565,000,000, or as much as at the close of 1921.

"Improvement in both agriculture and industry undoubtedly would have been more marked out but for the troubled European situation. Nevertheless, the record of our international commerce is not such as to cause discouragement.

"The United States last year sold about \$1,000,000,000 more commodities than it bought, which is a comfortable margin.

"Generally, all classes enter the new year with better sentiment, encouraged by obstacles overcome and the more cheerful prospects. There is no reason why the work of the country should not go forward in orderly and sustained progress."

## DR. FRIDAY'S MILK QUIZ

**T**RUE to his promise, David Friday, busy president of the Michigan State Agricultural College, opened his investigation of the milk situation in Detroit area last week and incidentally raised the wrath of the daily press by refusing admittance to the session, not only to the public, but to the reporters.

The fact that the prices for the month of January, will remain unchanged from his prices set for the previous month, also caused some complaint, but it was hardly to be expected that in so short a space of time, Dr. Friday could determine whether or not the producer was getting a fair price or the public being robbed.

Obviously all are agreed that the spread in price between what the producer gets and what the public pays, is eaten up in the costs and profits of distribution and it is at this heart of the question that Dr. Friday's investigation aims. The average consumption of milk, per capita, in large cities is not one half what it should be, when measured in the food value of milk and its by-products. There are periods of the year when milk is actually wasted in Michigan and yet the price remains so high in cities that it is used only sparingly in homes which should have it in abundance.

The producer must have his cost of production plus a fair profit—and by the way, the producers

have never shown an inclination to even hope to "profiteer" on their product. The consumer on the other hand must be able to buy milk at a lower price than he now pays and be educated to use twice as much milk for his family as he now uses. These things are possible, practical and eventual.

We have great confidence in Dr. Friday's ability to conduct the first step in this plan and every farmer in Michigan is intensely interested in what will be the outcome. We do agree with the daily press that these meetings should be open at last to representatives of newspapers and farm papers. "Open covenants, openly arrived at!"—seems to be a beautiful theory, hard to put in actual practice. Secrecy never breeds confidence and seldom broods good. We do not believe that Dr. Friday was responsible for the fact that the first meeting was held secretly and we hope that he will insist upon the next being thrown open to the white light of publicity.

## MILO CAMPBELL ON RESERVE BOARD

**T**HAT a Michigan man should have been appointed to a place on the Federal Reserve Board by President Harding were honor for our state, but that the man appointed should be none other than Milo Campbell, of Coldwater, should be a real source of satisfaction to the farmers of Michigan.

Washington newspaper dispatches say that Mr. Campbell was appointed as a "dirt farmer" to represent agriculture on the board. There is some discussion in the same periodicals as to whether a man who has been insurance commissioner, Mayor, United States Marshall and a member of the state legislature, can in reality be called a "dirt farmer."

We, in Michigan, would prefer to call Milo Campbell a business farmer, and in that phrase we would consolidate the virtues of a man who knows farming, its problems, its discouragements and its present-day needs. A man who will see clearly, deal squarely, have the respect of his associates and fight to the last ditch for what he believes to be right.

Mr. Campbell has the biggest job of any man on the board, because he must represent the class who can be helped or hindered most by its immediate future acts. He goes to take up his work with all the well wishes of every good citizen in his home state and The Business Farmer joins with only one admonition—that he get back and rub shoulders with us often enough so that he can know what is actually happening on the farms and in the farmers minds.

## CAN MORE CREDIT HURT THE FARMER?

**M**OST critics of the general principle of an extension of credit to farmers point out that a man cannot be helped out of debt, by being able to borrow more and on easier terms. Obviously they would be right, but they do not, or apparently do not care, to know that what the farmer wants is not a means for getting further into debt, but a means of borrowing at such times in such amounts and for such periods which will allow him to conduct his business of planting, producing and selling in an orderly manner, as every other division of manufacture is conducted.

How many times must it be pointed out that the farm—each and every farm—is a factory, complex in itself? The farmer must, not only be, designer, mechanic and finisher of his product, but salesman as well. If you would force the manufacture of any line to all dump their products on a market at one time what would happen? Glutted market, no buyers, panic!

And yet that is just what has been going on and just what will continue to go on, unless some orderly manner of marketing farm products can be, designer, mechanic and finisher of his product of relief credit will accomplish the millennium, but we do sincerely believe that it is a far step in the right direction.

## CANADA GETS OUR HARD COAL

**I**T will doubtless make you feel warm, at least under the collar, to learn that one of the reasons why you cannot buy any hard coal for your base-burner right now is because a very large quantity of anthracite is being exported each week to Canada.

The average small town in Michigan has been without hard coal all of this winter, some fortunate ones have been doling out a car at a time in half-ton lots at prices which make us think all coal-dealers are highwaymen whether their alibis are founded on fact, or not.

We believe in charity and were our Canadian cousins going without fuel we would be the first to say give them all of the nice, soft coal they need to keep them warm, but when it comes to

supplying their rich with the cream and leaving us only the skim-milk, we think it is high time to tell our mine-owning coal barons that we, as humble citizens and taxpayers of these United States, have some interest in where our anthracite goes.

## BEWARE OF THE LAND SHARKS!

**N**EVER was a time when the land shark could gather in the shekels as he can today! There are a great many farms for sale in every state in the Union. These "mail-order" real-estate men, advertise usually in the want columns of farm paper and country weeklies, something like this:

Farm Wanted—Want to hear from owner of a farm for sale. No dealers or brokers. Must deal with the owner direct. John I. Gettun, Suckers Shoals, Anystate.

Naturally, when the owner of a farm for sale writes, he pictures Mr. Gettun as a substantial, serious farm buyer. Sometimes, the owner is so sure he has exactly the farm that Mr. Gettun wants, that no sooner has his letter gone in the mails, than he begins to look for the place in town or hurry mother off packing up the dishes and furniture.

What Mr. Farm Owner gets back is a nicely worded letter, with a circular explaining that Mr. Gettun, is really asking for a large number of prospective farm buyers and he asks only a small fee, a trifling ten dollar bill, most likely, for which he promises—well, he doesn't exactly promise, but he does not say that; in all probability he will be able to sell the farm, by listing it and doing his best to sell it!

Nowadays, every mail that comes to my desk contains one or more letters from readers of The Business Farmer asking about this grafter in Ohio, or that faker in Wisconsin. Some of these folks have read my repeated warnings NOT to bite on indefinite promises by mail. Read between the lines of every letter of this kind that comes to your mail-box. The postoffice department is very strict. Leavenworth is not so far away and it is the final resting place of all mail-order grafters. A sane man will not promise by mail what he cannot deliver. So read every promise, accept no "perhaps" or "maybe" or "we hope to"—if you do not understand thoroughly exactly what they promise to do for your money. Write them to put their promise in plain words. Then do not be surprised if you fail to get an answer. Plain words? Well, that's something else again!

## I. C. C. TO INVESTIGATE EXPENDITURES OF RAILROADS

**F**OLLOWING a petition to the Interstate Commerce Commission by President Johnston of the International Association of Machinists, for investigation by that body into the expenditures of the railroad companies of the country for maintenance and equipment, which was seconded by the Farmers' National Council, the Interstate Commerce Commission has ordered such an investigation to cover:

(a) whether expenditures by such carriers for the maintenance of equipment have been reasonable;

(b) the manner and method in which the business of such carriers is conducted, with especial reference to the furnishing of car service, and,

(c) whether the courses adopted by such carriers in the maintenance of equipment and in providing "car service" have been efficient and economical, and whether the service provided has been reasonably adequate.

This investigation will be of the greatest importance and throw light upon the conduct of the railroads in reducing equipment, upon their inter-locking directors, and the reasons for maintaining enormously high freight rates.

As the result of a recent successful radio test, it is predicted that radio-telephonic conversation across the Atlantic Ocean will be the usual thing before very long. Every word of a speech by H. B. Thayer, delivered in New York City, was distinctly heard in New Southgate, England.

The modern racing airplane of today moves faster than did the cannon ball used in the Civil War. The cannon ball of that time averaged but 200 feet a second and the airplane does 360 feet a second.

We smiled when we read the first article on increasing egg production by keeping electric lights burning, early and late. Now, wherever there is electricity one sees the poultry houses lit up.

## What the Neighbors Say

### EXPENDING PUBLIC FUNDS

THERE are strong indications which leads one to believe that public funds are not economically and wisely expended. In 1915 the Tawas City built a small iron bridge, length 40 feet, height 6 feet. The state trunk line crosses this bridge now. In 1921 the State Highway department sent 7 or 8 men to paint said bridge, said improvement cost \$784.00. Near the village of Whittemore a bridge about the same size a professional painter offered to furnish paint and good workmanship for \$240.00. His bid was rejected and said painting, cost nearly \$800.00.

In the village of Whittemore 160 rods of concrete road was built, said 160 rods cost \$40,000.00. A citizen from Genesee County stated that in his neighborhood, 8 miles of stone road was built, and when completed a man was hired to take care of said 8 miles for \$1,100 per year. At the end of the year a bill was presented for extra material in the amount of \$11,000.00. Does that not warrant an investigation on the part of the people to know how their funds are expended? We must unload the army of useless officials, which have feathered their nest under the high cost of living. They have the same effect on the tax payers, like lice on a fine blooded sheep, it must die.

The people must demand to oust the State Police. They are neither ornamental or useful. They must demand to abolish the State Tax Commissioners. They have done more harm than good. Unload the Utility Commissioners. They are only a bill of expense. Stop supporting the Northwestern Development Bureau that serves to advertise land corporation, their cut-over lands, and the people pays the bill. Repeal the Covert Act which sends the farmer to the Poor House. Abolish the power to fill offices by appointments. That will close the door on Easy Street. Let State Officials buy their own car, and all unreasonable salaries must be reduced. The people should select and elect three competent men, who's honesty can not be questioned to lift the lid, and report what they find. It's up to the people to demand what must be done. A public official is a public servant, and not a public master. The mastership belongs to the people. The November election proved the fact that Mr. Newberry made a swift jump for an old man. This wonderland must be closed, and the people must refuse to maintain a fools paradise for the oily tongued politician to live on the fat of the land. Farms after farms are needed under normal conditions. The farmers paid from \$20 to \$25 tax, now under this wild movement they pay two or three hundred or leave the farm.

If said reforms are carried out, it will remove a mountain of taxes, and we can build good roads just the same. What is good for the state, can be applied to the county also. Remove the drone. Let every citizen be useful and a producing member on the Public Body. This is like parking into a hornets nest.—C. H. A., Iasco County, Michigan.

### HOW ABOUT IT, HENRY?

AS I have been reading Henry Ford's talk in the Detroit News it makes me think that Mr. Ford knows very little about the average farmer and the men that buy his cars and are making the roads. Men that kept a hired man before the war are now glad to work on the road to pay their taxes as they are as high as rent for some farmers, as high as \$3.00 per acre.

Mr. Ford says that if it doesn't pay to run the business to let someone else run it and work for the other fellow. That is just what the farmers are doing as fast as they can have sales and move into the city.

Young men say they are getting as high as \$12.00 a day by working a few hours overtime.—Now who pays that? The men that buys the cars and mortgages their homes to pay for them.

I say if we don't get some help from the gasoline tax we farmers will buy less cars and Henry Ford

will not have to go over "the pond" to get help because the farm boys are going to the city sure. There was not enough produce raised in my township this year to pay this year's taxes.—J. S. F., North Branch, Michigan.

### HALF TAXED AND HALF UNTAXED

WE HEAR a lot these days about the U. of M. and M. A. C., wanting large appropriations and a great many are opposed to it, but I am not. I say, let Michigan have the best schools in the good old U. S., but this is what I am supposed to.

Let us consider our doctor for a few moments. Real estate pays 79% of the money at present, given by the state to the U. of M., now if it was not for the generous old farmers, many a young man would go without a college education, but, by the farmers furnishing a good share of the money to run these institutions, it enables them to get an education very reasonably.

Now, we must have doctors and we welcome them. We build stone roads, the cost of which real estate pays about 85%. Now what do they do? They buy a house and a lot in town, an automobile, and as much tax exempt, or nearly so, property as they can buy. This little problem not only applies to doctors, but lawyers, dentists, professors, salesmen, etc., or anybody who gets his education at an institution where real estate pays the largest portion of the running expenses, and when his education is completed, invests his earnings in property that pays at least to support such institutions. Why is it not fair to expect a man to pay his just share toward the running of the institution where he got his education, or in other words, I don't think an education should be for the purpose of enabling a man to make an easier living and getting out of paying his just share of taxes.

Let us consider two men, one with \$100,000 of non-taxable bonds, the other with \$100,000 worth of real estate, their valuation is the same. The man with real estate pays a tax, whether he makes a profit or not, and if a large profit is made, he pays a Federal income tax, while the man with the bonds pays the Federal income tax only, providing his profit is large enough. What is right about it?

I think we should have a gasoline tax until the wealth of Michigan outside the real estate pays its just share of taxes, and a state income tax, as long as we have non-taxable property that produce incomes.

Get these figures: real estate represents 35% of the wealth of Michigan and pays 79% of the taxes. If the other 65% of the wealth paid in proportion to real estate, we would receive over two times as much taxes and real estate would not have to pay a cent more than at present. What the farmer wants is equalization of tax burdens.

Abraham Lincoln said; "A nation cannot exist, half free and half slave." Do you think a state can exist half taxed, and half untaxed?—H. D. P., Riga, Michigan.

### PROTECT THE QUAIL

EDITOR M. B. F.—The farmers are almost unanimous in wanting the quail protected. Will you kindly give it a writeup in your editorial columns.—P. M. Baucher, Stanton, Michigan.

(Editor's Note)—If there is any good reason why the few remaining quail in Michigan should not be protected, we do not know what it is and we would be glad to have someone enlighten us. The good sportsmen of this and other states, want to see the quail protected. The poor sportsmen don't want the quail or wild fowl or fish protected. Luckily the good sportsmen make the laws and see that they are enforced.

### HELPS SOLVE HIS PROBLEMS

I appreciate reading your paper very much and find it a great help in solving many problems on my farm.—Emil H. Roberts, Chicago, Illinois.

### ENJOYS UNCLE RUBE

I like your paper real well. And I especially enjoy reading Uncle Rube.—Mr. Peter Stanek, Charlevoix County, Mich.



## Invest in a McCormick-Deering Manure Spreader for More Profitable Farming

The basis of profitable farming is a fertile soil. In farming, as in other businesses, there are poor years and good ones, but the farmer who keeps up the productivity of his soil will forge ahead.

No method of maintaining soil fertility has proved so efficient as the proper application of barnyard manure. It is a foresighted policy to build up crop yields with a McCormick-Deering Manure Spreader. Put manure on your fields finely, evenly, uniformly, and economically; the extra fertility will in a short time pay for the McCormick-Deering spreader.

Note again these features in McCormick-Deering construction: 1. Power delivered from both wheels. 2. Double ratchet drive with six feed speeds. 3. Short-turn front axle—no pole whipping. 4. Rear wheels track with front wheels. 5. Tight bottom. 6. Two beaters and wide-spread spiral. 7. All-steel main frame.

### INTERNATIONAL HARVESTER COMPANY

Chicago of America U S A  
[Incorporated]

93 Branch Houses and 15,000 Dealers in the United States

## RESULTS

are what you're after  
Get 'em with  
**SOLVAY**

Fertile fields make full purses. Solvay Pulverized Limestone sweetens the soil, and forces the release of all fertility to hasten and complete full crop development. Solvay is in fine, pure, soluble form—guaranteed high test 95% carbonates—easily spread through drill or lime sower. Non-caustic—will not burn. Uniform stands of sound, full-matured grain and other crops prove the superior qualities of Solvay at the first harvest.

Write for FREE Booklet.  
**THE SOLVAY PROCESS CO.**  
Sales Agent, WING & EVANS, Inc., 625 Book Bldg., DETROIT, MICH.

## A Better Way of Building

Learn how "The Kalamazoo Plan" is revolutionizing building methods. House your cattle, hogs and equipment under conditions that increase production, reduce expense and earn more profits. Learn about our complete building plan service.

### Kalamazoo Glazed Tile Buildings and Silos

Tile Buildings are beautiful, economical, practical, everlasting. Save repair and paint bills; warm in winter, cool in summer; decay, storm and vermin-proof; will not burn. Three dead air spaces make perfect insulation. Kalamazoo Tile is made from selected quality clay in our own plant located in the center of the finest tile clay district.



#### The Kalamazoo Plan

Before you plan any kind of a building or silo, get the Kalamazoo building service—plans and blue prints to fit your requirements. Write for beautifully colored illustration of the Modern Kalamazoo Plan and full information. Address Bldg. Plan Dept. Kalamazoo Tank & Silo Co., Dept. 444 Kalamazoo, Mich.

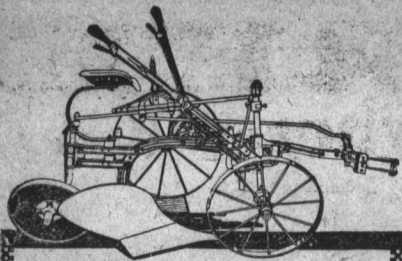


**NATURAL LEAF TOBACCO. CHEWING 5**  
pounds \$1.75; 10 pounds \$3.00; 20 pounds \$5.25. Smoking 5 pounds \$1.25; 10 pounds \$2.00; 20 pounds \$3.50. Send no money. Pay when received. TOBACCO GROWERS' UNION, Paducah, Ky.

**KENTUCKY NATURAL LEAF TOBACCO.**  
Chewing 5 pounds \$1.75; 10 pounds \$3.00; 20 pounds \$5.25. Smoking 5 pounds \$1.25; 10 pounds \$2.00; 20 pounds \$3.50. Send no money; pay when received. FARMERS CO-OPERATIVE TOBACCO UNION, Paducah, Ky.

**HOMESPUN TOBACCO. CHEWING 5**  
pounds \$1.75; 10 pounds \$3.00; 20 pounds \$5.25. Smoking 5 pounds \$1.25; 10 pounds \$2.00; 20 pounds \$3.50. Send no money; pay when received. CO-OPERATIVE TOBACCO GROWERS, Paducah, Kentucky.

**TOBACCO—EXTRA SMOKING 5 LBS. \$1;**  
10 lbs. \$1.50; 20 lbs. \$2.75. Chewing 5 lbs. \$1.50; 10 lbs. \$2.75. Quality guaranteed. O'CONNOR SMOKEHOUSE, Mayfield, Ky.



## More Acres of Good Plowing

It's an unusually long-lived plow—there are more acres of good plowing in it—that's the reputation the John Deere Stag has earned in many years of wide use. And note these other qualities:

### The Stag is Light Draft

—all weight carried on smooth running wheel bearings—no dragging friction. Genuine John Deere bottom scours, resists wear and does thorough work. Quick detachable share. Greater clearance than usual between beam and share-point, and between moldboard and front furrow wheels. Landing lever enables operator to maintain full width cut around curves and hold plow to work on hillsides. See the Stag at your John Deere dealer's.

**SEND TODAY** for free Stag folder. Also tell us of other implements on which you want information and we will send you free, "Bookkeeping on the Farm,"—useful for your farm accounts. Address John Deere, Moline, Illinois, and ask for Package SX633.

**JOHN DEERE**  
THE TRADE MARK OF QUALITY MADE FAMOUS BY GOOD IMPLEMENTS

## No Other Mixer Like It

**a Batch a Minute**  
As pioneer mixer manufacturers we have developed two features that put the **Gilson Mixer** in a class of its own. It is the only mixer with **Patented Reverse Unloading Gear and Curved Mixing Blades**, insuring thorough mixing in shortest time. Loads on one side, dumps on the other side.

**Gilson** 30 Days FREE Easy Terms  
Concrete Mixer

Due to the special **Curved Mixing Blades** the **Gilson** thoroughly mixes in  $\frac{1}{2}$  the time required by the ordinary type of mixer. Handles  $2\frac{1}{2}$  to 3 cubic feet of concrete at one time at the rate of one batch per minute. Turns out  $\frac{3}{4}$  cubic yards in ten hours. Mixes perfectly concrete, mortar or plaster. Any 1 H. P. Engine turns it easily.

**Only \$43.50 DIRECT TO YOU**  
The lowest priced, practical, improved mixer made. Built of iron and steel—lasts a lifetime. Ideal for farmer or contractor. Mixes concrete that requires no replacements, no repairs. Use this mixer 30 days at our risk. We guarantee it exactly as represented. Send your name today and get full description of this, the only Reverse Unloading Gear Mixer, and easy payment plan.

**FREE Circular Explains Two Greatest Mixer Improvements of the Age**  
**Gilson Mixer Co.**  
735 7th Avenue  
West Bend, Wisconsin

## Corrugated Metal ROOFING

Think of it. We can now sell **Excell Metal Roofing**, 23 gauge corrugated at only \$3.10 per 100 sq. ft. painted, galvanized, only \$4.30. If you have been waiting for metal roofing prices to come down, here they are—direct from factory prices—lower than you can get anywhere else. Send for our New Catalog covering all styles Metal Roofing, Siding, Shingles, Ridging, Ceiling, etc., will save you money. **PREPARED ROOFING ONLY \$1.05**

Don't buy Roofing, Paints, Fencing, Gas Engines, Tires—anything you need until you get our latest catalog. You can see and try our roofing before you pay. All sold on money back guarantee. Write for Money Saving Catalog today. **The United Factories Co.,** 704 Marion Bldg., Cleveland, Ohio

**MAKE YOUR OWN ROPE**  
All sizes including hay fork ropes. Wonderful saving. Send for free booklet, "Rope Making On The Farm," New Era Rope Machine Company, Minneapolis, Minn.

If you have poultry for sale put an ad in  
**The MICHIGAN BUSINESS FARMER**  
You'll get Results!

## HANDLING DYNAMITE ON THE FARM

**W**HILE the word "dynamite" has a rather dreadful sound, it is not nearly as wicked as is generously supposed. The stories about dynamite exploding when dropped are either figments of the imaginative story writer or refer to an entirely obsolete product made some thirty or forty years ago. Explosives manufacturers have spent a great deal of time and vast sums of money in perfecting their product, and today dynamite is safer to handle than ever before. Considering that in normal years 300,000,000 pounds of dynamite are made and sold, the proportion of accidents is very small indeed. Even in the manufacture (an admittedly hazardous operation) there is only a fraction of the number of fatalities that occur in a big machine employing the same number of men.

Dynamite is nowadays generally packed in cylinders of heavy paraffine paper to form cartridges or "sticks" usually 1-1 1/4 inches in diameter and 8 inches long. These cartridges are dipped in paraffin to make the paper still more water-proof, and this gives them a greasy feeling which is sometimes mistakenly supposed to be caused by the nitroglycerin which is the essential ingredient in all modern high explosives. Besides nitroglycerin, dynamite ordinarily contains nitrate of soda, sometimes called Chile saltpetre, and some substance to supply necessary carbon, such as wood meal. In addition about one per cent of alkaline material called antacid is put in as a corrective for any tendency of the nitroglycerin to decompose on account of insufficient purification. When you open the wrapper of a dynamite stick the contents look like slightly moist brown sugar.

For all around purposes on the average farm only two types of dynamite out of a great many are manufactured need be considered. One of these types is of relatively low strength and slow action and is adapted for practically every kind of work around the farm such as blowing out stumps and boulders; loosening up hard packed soil for tree planting; rejuvenating old orchard trees by shaking up the soil around their roots; breaking through impervious strat like hard pan or cemented gravel, which prevent free drainage into the sub-soil from the surface; and for sub-soiling to prevent erosion and washing away of the surface soil in rolling land. The other type of explosive is low freezing straight dynamite, the 50% strength being generally best for farm work. This is an exceedingly powerful, quick acting and shattering dynamite, which is used for blasting ditches through swampy ground where no other method of procedure would be possible. This ditching by the propagation method is a very fascinating subject and will be taken up in detail later.

Dynamite is a detonating explosive; that is, it cannot be fired by a spark alone but requires a device known as a blasting cap in order to detonate it. These blasting caps are small copper cylinders about half filled with a very powerful and sensitive composition, usually fulminate of mercury, which is fired by fuse. This fuse consists of a small and very uniform train of a special black powder tightly wound around with threads of jute or cotton more or less water-proofed. Most fuse burns at the rate of about ninety seconds per yard, and is very uniform in its burning speed, very seldom varying more than five percent either way.

Another kind of blasting cap made is called an electric blasting cap. This is similar to the one first described except that it has two copper wires running into it which are connected together in the explosive composition by another very fine wire which becomes heated to white heat by the passage of an electric current and thus fires the cap. Electric blasting caps are sealed up with water proof compound so that they can be used under water even when submerged for a considerable length of time. Electric blasting caps with

wires attached do not cost much more than the blasting cap with fuse of the same length as the wires of the electric blasting cap, and are much safer to have around on account of their being sealed up. They should be fired by means of a blasting machine, which is a simple dynamo conveniently built for transforming muscular energy into electric energy. The blasting machine is much safer to use than any kind of dry cell battery, or storage battery, for the reason that the contact points or binding posts are dead; that is, no current will flow through them except when the machine is operated purposely, whereas with the dry cell or storage battery, the connecting posts are always alive and there is considerable danger of their being inadvertently connected or even touched by the leading wires before it is safe to fire the blast. With cap and fuse, sufficient length of fuse must be used so that after lighting the free end the operator has time to run to a place of safety. With the electrical method the operator connects the two wires of the electric blasting cap with about two hundred-fifty feet of leading wire, which generally allows him to get to a place of safety, and connects the battery at the far end of the leading wire for firing the blast. One of the great advantages of electrical firing is the fact that it is instantaneous and that the time of the blast is therefore under control of the blaster. In shooting stumps along the roadway with cap and fuse, if some vehicle approaches after the fuse has been lighted at about the time the blast is due to fire there is no way of holding off the blast, whereas with the electrical method if anything happens which renders it desirable to delay the shot for a few minutes, the blaster simply waits until all is clear before firing.

All the above may sound a little complicated. However, it is nothing like as complicated as making a loaf of bread, for instance. Let us illustrate this by going through the process of blowing out a stump. With a crowbar we punch around under the stump until we find a place between the roots where we can get the bar down in the soil a couple of feet under the stumps and then we wiggle the crowbar around with a rotary motion in order to enlarge the hole. If the soil is very hard it may be necessary to drive the crowbar in with a sledge hammer or to use a dirt auger or a punch bar. Let us say this stump is about two feet in diameter and is four or five year old and is ordinarily stiff loam. Four cartridges of low strength and slow action dynamite is about the right charge. With a sharp knife we slit the paper shell of the first three cartridges down the length of the cartridge, drop one into the hole, and with a sawed-off broom stick press it firmly down so as to cause it to spread out and fill the bottom of the hole without leaving any air space there. We drop the second and the third cartridge in and press them in to position in the same way. Now we take a blasting cap out of its box, cut off about three feet of fuse and the oil, slip the blasting cap on the freshly cut end of the fuse in such a way that the fuse just touches the cap composition. Holding it in this position, we crimp the cap firmly on the fuse by means of a cap crimper. We then take the fourth cartridge, punch a hole about an inch from one end in a slanting direction with the pointed leg of the ap crimper, insert the cap in this hole, and tie a piece of string about ten inches long first around the fuse about half an inch above the cap and then around the cartridge so that the cap cannot be pulled out of the dynamite. This cartridge with the cap in it is called the primer. It is not generally slit or, if it is slit, only about half its length, beginning at the end opposite the cap. After placing the primer in the hole we fill the remaining space with clay, loam or sand, packing it down carefully with the broom stick, which is known as a tamping stick. Then with a sharp knife, we slit the exposed end of the fuse half way through to a length of one inch, take a match (a

box of safety matches is the best kind to use) and, holding the box loose to the fuse, strike the match and, while its head is still flaming put it quickly into the powder exposed in the fuse. We now retire to a safe place and in about ninety seconds the charge explodes. If the amount of dynamite has been gauged correctly, the stump is blown clear and clean out of the ground leaving very few, if any, roots in the earth.—Arthur La Motte, Manager Technical Section, Explosives Department, E. I. duPont de Nemours & Company.

## RUNNING ELECTRIC LIGHT PLANT

I would like to know if it is possible to run an electric plant with water without storage batteries by running the wheel when I am using lights, and what would be required for such a system? Also how much power would it require to run twenty lights? Would a man have to get lights?—W. W., Glennie, Michigan. —Whether or not it is possible to run an electric light plant from water without storage batteries would depend entirely upon the power available in the stream, and whether this stream flow is great enough to furnish this amount of power whenever it is needed. If the stream is large enough this would be thoroughly practical.

You have in mind one water power installation where about 35 horse power is available in the stream and where a one-half horse power generator is connected by means of a friction pulley to the rim of a 15 horse power turbine. The excess power going through this turbine is, of course, simply wasted.

Assuming that 20 50 watt lamps are to be used, they will require 20x50 or 1000 watts which is equal to 1 kilowatt and which is equal to about 1 1/3 horse power. Since some power is lost in all the transmission equipment it will be necessary to have 2 2/3 horse power in the stream to supply this amount, of course if this amount of light is the minimum or the least that can be used then it can easily be seen that it will be necessary to have this amount of power when the stream is at its lowest, to supply power.

For an ordinary small stream a turbine or water wheel is necessary, where the fall is very little then probably the turbine would be found most satisfactory. The turbine is a wheel through which the water passes to produce power. The governor which controls the speed of this wheel is an important part of the equipment and involves some expense in addition to the turbine. It is very likely, however, if no storage batteries are to be used that a governor would be especially important. H. H. Musselman, Professor of Farm Mechanics, M. A. C.

## IMPROVED WHEAT VARIETIES AMONG YEAR'S ACHIEVEMENTS

**T**HE Office of Cereal Investigations in the Bureau of Plant Industry, U. S. Department of Agriculture, is working steadily to improve the varieties of wheat and other cereals grown in this country. In the annual report of the bureau recently made public are listed among the significant accomplishments of the past fiscal year, two new wheats named Forward and Honor that have been developed in the breeding experiments in cooperation with the agricultural experiment station of Cornell University. These are now being grown commercially, and seed is offered for sale by seedsmen and farmers in New York State.

Kota, a bearded, hard red spring variety, discovered in 1918 to be especially resistant to stem rust, was grown in 1921 at 30 experiment stations to determine its value in comparison with adapted commercial varieties of both common and durum wheats. During the past three years its resistance to stem rust has proved nearly equal to that of the most resistant durum varieties. The commercial stocks of Kota seed were increased to about 6,000 bushels in 1921, and nearly all of this was sown in 1922.

A number of other varieties developed by the department have continued to give good satisfaction with the result that their commercial production has been increased considerably.

## PRUNING FRUIT TREES

(Continued from page 4)

period but we are chiefly concerned with the three more commonly accepted systems.

The Central Leader of Pramidal Tree system has long been in use, and since it is the easiest to develop, it will receive first consideration. The central branch is allowed to ascend year after year with little or no cutting back, while the lateral scaffold or main branches are kept somewhat shorter by greater or less heading. As a result, the lateral branches are considerably smaller than the central axis, and crotches are formed which seldom split. Strong trees result, but it is very difficult to keep them opened sufficiently to permit light to penetrate to the inner parts, and the tops usually become too high to permit orchard operations to be conducted economically. This system is not favored by many present-day fruit growers.

The Open Center Type of tree usually has three to five scaffold branches well distributed around the trunk and extending outward and upward from it to form the framework. The leader or upright branch is removed, usually the first year. These three to five branches are cut back to approximately the same height after the first season's growth, and this equal heading of all branches is continued until the framework is completed. In other words, each of the scaffold branches is given equal prominence, and any tendency of one to outgrow the others is suppressed. The center is kept sufficiently open to permit the penetration of light throughout the tree. The result is a spreading tree, sufficiently open to permit good coloring of the fruit, and low enough to allow economical handling. This type of tree is easily maintained after it is once started.

The open center tree is structurally weak, due to the fact that, in general, the scaffold branches issue from practically the same point, thus forming weak crotches. Frequently one of the scaffold branches splits off and the tree is practically ruined. Many trees trained in accordance with this system, have met this fate. Artificial supports must be resorted to in many orchards with trees trained in such a manner. In spite of these defects, however, this system of training is recommended and very generally adopted for some kinds of fruits.

The Modified Leader or Delayed Open Center is the third type of tree. As the terms indicate, it is a modification of the leader tree or is intermediate between the open center and leader types. It combines the more important advantages and eliminates some of the disadvantages of each. The resulting tree is low headed, spreading, and has from six to ten scaffold branches distributed along and about a central axis, thus forming a strong framework with well-formed crotches. It is not possible to secure the several scaffold branches from one season's growth of the main axis and have them properly distributed; so the selection must extend over some three or four years, starting two or three new scaffold branches each year. After the desired number of well-distributed scaffold branches has been obtained, the tree should be opened by discontinuing (removing) the leader.

At this point, attention should be called to the fact that the system of training employed during the first four or five years of the tree's life definitely determines its form, and later attempts to change the form are very frequently accompanied by disastrous results. An established leader should not be removed, after

the second or third year, with the idea of developing a strictly open center tree, and, in like manner, attempts should not be made to change an open center tree to a modified leader or leader type. Well trained trees may be developed along any of the above lines and no one system is best for all species, varieties and conditions.

Since many fruit growers are not familiar with the modified leader type of tree, and since it is recommended for most varieties of apples, pears, cherries and European plums, a more detailed description and development of a theoretically ideal tree may be in order.

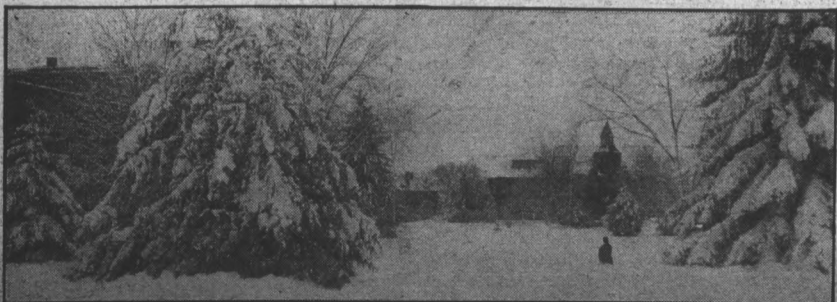
Assuming that a one-year-old tree has been planted and headed at the desired height, the growth the season after planting will usually consist of an almost upright branch produced from the uppermost bud, and of four or five shorter ones arising from lower buds. If so, two or three of them, well distributed about the trunk, should be selected in addition to the uppermost one, and the others removed. In cutting or heading back these branches, it should be borne in mind that the longest branch of a group has the advantage and will make correspondingly more growth the following season. Since it is desirable to develop the uppermost branch into a leader for several years, it must be left a little longer than the scaffold branches. The amount of cutting back depends upon the amounts of growth produced. Usually in Michigan it will simply consist in cutting back sufficiently to give the leader some advantage in length. If a good, vigorous growth has been produced the first year, one should leave the lateral scaffold branches 15 to 24 inches long, and the central upright one 20 to 30 per cent longer.

The following winter the leader should be treated in much the same manner as just described for one year previous. The scaffold branches will probably have produced several laterals. Two or three of these should be selected and headed back, if necessary, sufficient to avoid "leg-giness." Care should be taken, as previously described, to prevent the formation of weak "Y" shaped crotches.

This system should be continued throughout a third and possibly to the fourth year, after which the leader should be suppressed or discontinued. This system of training results in a tree with a central axis or leader about five to six feet in height, with from six to ten scaffold branches extending outward and upward in all directions and spaced along the main axis for three to five feet.

The pruner should develop the several scaffold branches carefully. The heading back should not only be done from the standpoint of the tree as a whole, but also with regard to the relation of the main branches to each other. If certain ones are outgrowing others, the stronger should be headed back more than the weaker ones. If the lower scaffold branches are not developing sufficiently, the upper ones must be cut back more heavily, or the lower ones may be entirely suppressed as real scaffolds and the tree actually becomes high headed. Thus all main branches of the tree must be properly dominant.

(Editor's Note—This article is taken from Special Bulletin No. 118 issued by the Experiment Station, Michigan Agricultural College. If you are interested and desire further information regarding the work you can secure a free copy of this bulletin by writing to the Business Farmer. The illustrations on page 4 are used through the courtesy of the Experiment Station.)



The Campus, Michigan Agricultural College.



## FREE Strawberry Book

## Just Out

The finest Book on Strawberry growing ever published. Written by America's foremost grower. Gives his secrets of growing the big crops. Beautifully illustrated in colors and describes the world-famed

## Kellogg Thorobred Plants

This Free Book shows how families everywhere are getting big crops and big profits from early summer until snow flies from Kellogg's new Strawberry Sensation, the

## NEW \$50,000 EVERBEARER

America's greatest Everbearing Strawberry. Find out Where it came from—Who brought it—and Why it cost \$50,000. Free Book tells all. Also offers Six Special Strawberry Gardens at Bargain Prices—a garden to fit every need and every pocket book. Here's one of them. You can order direct from this ad if you wish.

## Send for FREE Book

But whether you order this garden or not, don't fail to write for our Free Book, which tells all about Kellogg's great crops of Strawberries and how to grow them.

## Kellogg's Sure-Crop Garden

This is a wonderful garden for farmers and other busy folks. Plants will root deep and bear well in spite of neglect, weeds, or adverse conditions. Covers space about 25 ft. x 30 ft. Consists of 250 plants from our hardest and strongest standard varieties.

50 Senator Dunlap.....\$ .60  
50 Warfield.....\$ .60  
50 Gibson.....\$ .60  
50 Big Wonder.....\$ 1.05  
50 Marvel.....\$ 1.25

Regular Price \$4.10. Our Special Reduced Price, only \$3.75, delivered all charges paid. Order direct from this ad. Send check, draft or money order and this Sure-Crop Garden will be delivered to you at planting time.

R. M. KELLOGG CO., Box 4604, Three Rivers, Mich.

## MAKE MORE MONEY ON YOUR CROPS

The work of preparing the land and planting is the same whether you use unknown seed or pedigreed seed. But the crop tells the story; often double or triple the profit comes from using

## Isbell's Seeds

44 years of improvement are back of Isbell's seeds. Every ounce is tested stock, true to strain and of high germination—pure bred seeds, selected for hardiness and yield, and scientifically cleaned by Isbell. 200,000 buyers find them money-makers.

## Get This Book—FREE

Isbell's 1923 Seed Annual is an authoritative treatise on seed selection, planning and planting crops, and quotes direct-from-grower prices. The coupon brings it, FREE.

S. M. ISBELL & COMPANY  
30 Mechanic St., Jackson, Mich.

Send your 1923 Seed Annual quoting direct-from-grower prices on Quality Seed.

Name \_\_\_\_\_  
Address \_\_\_\_\_

PROFIT SHARING SALE

**FREE To You**

Book of Factory Bargains in Stoves, Ranges, Furnaces, Furniture, Refrigerators, Farm and Home Needs.

Let me send you my new free catalog and show you how to make great savings at wholesale—direct from factory, at money saving prices. Everything guaranteed—set in your home on 30 Days Trial—Don't Risk a Penny Your money back without question or quibble. More than 500,000 satisfied customers.

Easy Terms—Write at Once Just send name and address. A postal will do. W. C. Dewing, "The Stove Man."

Kalamazoo Stove Company  
7777 Rochester Ave.  
Kalamazoo, Mich.

A Kalamazoo Direct to You

## VICTORY PLANTS

TREES—SHRUBS—EVERGREENS—FLOWERS  
100 Everbearing and 100 Gibson strawberry plants postpaid for \$1.00. 1 Spirea or 2 Concord grapevines free with every order of \$4.00 or over. 25 choice mixed Gladioli postpaid for \$1.00. 12 Concord grapevines postpaid for \$1.00. 1,000 choice Strawberry plants our selection for \$3.50. 1,000 fine Concord grapevines for \$40.00. Bargains in peach trees and cherry trees. Live and let live prices on everything I plant. Free catalogue worth seeing too. Order now.

THE ALLEGAN NURSERY  
Box G, Allegan, Mich.

## YARD LONG BEANS

This is an excellent variety, as well as being an interesting curiosity. The vines are rampant growers and produce an enormous crop of long, slender pods, many of which grow to three feet or more in length, having the thickness of a lead pencil. Produce late in the summer, very productive, excellent quality for snap beans, tender and of fine flavor. Packet of seed, 10c; 3 for 25c.  
Japanese Giant Radish, 10 to 30 lbs. each; Mammoth Prize Watermelon, 50 to 150 lbs. each; Jumbo Pumpkin, 100 to 300 lbs.; Vine Peach, fine for canning, ripe fruit in 80 days after seed is planted; Garden Huckleberry, a big crop of fruit the same season seed is planted; Groun diamonds, delicious coconut flavor, grow anywhere, plant in spring or early summer and harvest a big crop of nuts the following September; Early Giant Rhubarb, produces large, marketable stalks next year after planting; Japanese Climbing Cucumber, fine variety that can be trained to fence, trellis or poles and save garden space; Chinese Celery Cabbage, celery flavored, fine for salads; String Beans, cook like string or snap beans; Burgess' Earliest and Best Tomato, earliest and best tomato on earth, large, smooth, free from blight and the equal of any late variety; Giant Ruffled Feather Aster, handsome, large, fluffy flowers; Giant Ruffled Spencer Sweet Peas, finest sweet peas grown; Red Sunflower, very attractive, grown; Red Sunflower, very attractive, grown; Red Sunflower, very attractive, grown.

Take your choice of these varieties at 10c per packet; 3 for 25c; 7 for 50c; or 15 for \$1.00, postpaid.

**FREE** With each order we will give a free trial package of our wonderful Lima Peas (similar in shape and as large as Lima Beans) and a copy of our new book, which tells all about other rare, scarce, curious and valuable fruits, vegetables and flowers and medicinal plant crops that yield from \$3,000.00 to \$20,000.00 per acre.

**GRAPE VINE or HANDSOME EVERBLOOMING HARDY ROSE BUSH FREE with every dollar order.** State your choice. Order today. BURGESS SEED & PLANT CO., 213 Floral St., Galesburg, Mich.



## For Healthy Orchards Plant Michigan Grown Trees

Buy handsome, thrifty trees, grapevines, berry bushes, roses and shrubs from your own state and insure prompt receipt in vigorous condition. Kalamazoo County is famous for hardy, well-rooted stock. We guarantee healthy and true to name. You ought to plant more fruit trees this season. Special rates if you order now. Our handsome catalog of dependable trees free for the asking.

Celery City Nurseries,  
Box 202 Kalamazoo, Mich.

Direct to You, At Wholesale Prices

## CLOVER AND TIMOTHY

Greatest Grass seed value known. Investigate, Alaska Clover and Timothy mixed—finest grass known for hay and pasture. The cheapest seedling you can make, grows everywhere. Buy on will save one-third on your grass seed bill by writing for FREE SAMPLES and Big Seed Guide offering Field Seeds of all kinds. Write today. American Field Seed Co., Dept. 27, Chicago, Ill.

## A BETTER JOB NOW!

Learn good trade in a few weeks. 12 million autos, trucks and tractors need service. Repairmen needed. Write today for FREE catalog giving full particulars. Michigan State Automobile School, 2262 Auto Bldg., Detroit, Mich.

**STRAWBERRY PLANTS \$3.00 per 1000.** History and valuable illustrated book free. You will learn. Address **MAYER'S PLANT NURSERY, Merrill, Mich.**

**CHOICE STRAWBERRY PLANTS, \$3.75 Per 1,000.** All standard varieties at \$3.75. Guaranteed first class or money refunded. Catalog. **MRS. FILENA WOLFF, ALLEGAN, MICH.**

**FREE** To introduce our Pedigreed Everbearing Strawberries we will send 25 fine plants free. **MASON NURSERY CO., Piedmont, Mo.**

# Aspirin

Say "Bayer" and Insist!



Unless you see the name "Bayer" on package or on tablets you are not getting the genuine Bayer product prescribed by physicians over twenty-two years and proved safe by millions for

Colds	Headache
Toothache	Lumbago
Earache	Rheumatism
Neuralgia	Pain, Pain

Accept "Bayer Tablets of Aspirin" only. Each unbroken package contains proper directions. Handy boxes of twelve tablets cost few cents. Druggists also sell bottles of 24 and 100. Aspirin is the trade mark of Bayer Manufacture of Monoacetic-acidester of Salicylic acid. (1)

## Nature's Own Remedy Indian Herb Tea

Made of roots, barks, seeds and leaves from forests, mountains and meadows.

No alcohol or narcotics

Take steaming hot for colds and grippe. Relieves constipation, headache, bad breath and sour stomach.

Large Package, \$1.00, by Mail.

Money refunded if not satisfied.



**American  
Herb Co.,**  
Pittsburg, Pa.

## FARM AND LANDS

ADS UNDER THIS HEAD 10c PER WORD

**FARMING BUSINESS FOR SALE—A PURE-** bred business in Duroc Jersey Hogs, Short Horn Durhams, Delaware Merino Sheep, Buff Leghorns, Buff Plymouth Rocks, Bronze Turkeys, White Pekin Ducks, Toulouse Geese, which I have built up with the hope of keeping my boys on the farm is for sale, including the farm of 200 acres within fifty miles of Detroit, 20 acres under timber, balance all under plow. Equipped with tractor, truck and all machinery. Stocked with registered stock, mail orders coming in every day as the result of three years building a real business. I hope the right man, who wants a big opportunity will get this farm and the business. I am ready to take a smaller farm as part payment. If you are ambitious do not hesitate to write me. I own this farm and I am ready to listen to every proposition. I am sincere in every statement I have made in this advertisement. I am known to the publisher of the Business Farmer and he has advised me to thus lay all the facts before the readers of this publication hoping that I may find the right man, who is looking for just what I have to offer. Write me fully, at once, if you are interested, address BOX 231, in care of The Michigan Business Farmer, Mt. Clemens, Mich.

**60-ACRE S. E. MICHIGAN FARM, FURNI-** ture, 3 horses, 3 cows, 8 hogs, poultry, tools, cream separator, implements, 50 cords wood included; prosperous neighbors, schools, stores, churches, handy to city and college; all tillable, adapted alfalfa; pasture, woodland, apples, pears, cherries, berries, nuts; good 2-story 10-room house on beautiful lawn, large hip-roof barn, poultry house, pigsty, etc. To settle affairs \$5,800 gets all, only \$2,000 needed. Quick possession. Details and photo page 64 illus. Catalog 1,200 Selected Farms, 160 pages. Copy free. STROUT FARM AGENCY, 814BE Ford Bldg., Detroit, Mich.

**60 A. GOOD SOIL LAND 1/2 MILE FROM** Hesperia. 8 room cement block house, furnace in basement; 44x40 basement, barn. A bargain for some one, part down. Cause of sale, man and wife both dead. Administration sale. Write or call on PARKER PRICE, Hesperia, Mich.

**IF YOUR FARM OR COUNTRY HOME IS** for sale. Write us. No commission charged. CLOVERLAND FARM AGENCY, Powers, Mich.

**80 ACRES, GOOD HOUSE, 40 FARM LAND** 40 swamp, Grass and water good for muskrat raising. Rent or sell. Inquire BOX 282, care Michigan Business Farmer.

**WANTED TO HEAR FROM OWNER OF** rm. for sale. Address BOX 101, Deckerville, Mich.

**160 ACRE FARM FOR SALE. WRITE.** Good buildings. FRANK GLAW, Okequo, Mich.

## CAR SHORTAGE CAUSES LOSS TO POTATO GROWERS

(Continued from page 3.)

spring months. Only about half of the 1922 crop has been shipped to date, which means that the railroads must supply practically every loading point in the state with about one car a day in order to get the tubers into consumers hands.

An illustration of how serious the car situation is is available at Remus. Shippers at that point are about the hardest hit of any point along the Big Rapids-Grand Ledge division of the Pere Marquette. On Jan. 1, 1923 Remus had loaded out 57 cars of potatoes as compared with 159 cars on the same date a year ago.

### Many Speak at Meetings

Speakers at the series of meetings which have been in progress for the last three days included Clark L. Brody, general manager of the Michigan State Farm Bureau; C. C. Wells, of Cadillac, general manager of the Michigan Potato Growers' exchange; Gifford Patch, marketing specialist of the Michigan Agricultural college; Dr. Eben Mumford of M. A. C., and Attorney W. B. Fast of Big Rapids, County Agent M. F. Jackson and O. S. Wood, Barryton banker and director of the Michigan Potato Growers' exchange, arranged the meeting.

Meetings were held at Remus, Weldman, three in Barryton territory, Rodney, Mecosta and Standwood.—D. L. Runnells.

## THE TRUTH ABOUT HENRY FORD

(Continued from page 13.)

There are three more paragraphs attacking Mr. Ford on this score, which I shall omit—not wishing to weary the reader. The advertisement continued:

"Sacrifice? What about the sacrifice of American soldiers if this German pet of Henry Ford's sees fit to delay the production of Liberty motors and the making of aeroplanes, as he is in a position to do? How many American lives have already been sacrificed in aeroplanes tampered with by German agents? If Henry Ford puts so much faith in the German Emde after all he knows about him, is there any reason why he should not put the same faith in the German Hohenzollern? Since Henry Ford is so fond of this German pet of his, is there no place in his large establishment where he can give Emde work to keep him out of the way of temptation to serve his fatherland, as many other Germans have already served in this country? As Mr. Hughes says:

"THERE HAS BEEN A LAXITY AT THE FORD PLANT WITH RESPECT TO THOSE OF GERMAN SYMPATHIES WHICH IS NOT AT ALL COMPATIBLE WITH THE INTERESTS OF THE GOVERNMENT."

The advertisement went on at much length along these lines, emphasizing various paragraphs with heavy type. Then it said:

"It is now plain to every voter in Michigan that Henry Ford is no more wary of Hun agents than he was when he followed Rosika Schwimmer to Europe on the peace ship three years ago. He is as innocent as ever.

"If Carl Emde wishes to make plans and photographs of the Ford plant or the Liberty motor for use by the enemies of the United States, Henry Ford is willing to give him a chance to do it, just as he fell for Madame Schwimmer's pro-German peace plans.

"Henry Ford loves the Huns too much to be trusted with a seat in the Senate of the United States and help make peace with them. Commander Newberry knows them for what they are and is helping to fight them at every stage of the game.

"There can be but one choice for wide-awake American in this election."

The Ford campaign managers were taken completely by surprise. The Liberty motor work, the particular department attacked, was the best piece of work that Henry Ford had accomplished, and the Republican letter was a staggering blow. The only hope of offsetting the damage done lay in an immediate reply through the Monday papers so that as many as possible of the voters, especially in the rural

districts, could be reached before they went to the polls Tuesday morning. Mr. Pipp, who had resigned as editor-in-chief of the Detroit News and who had been government inspector in seven Detroit factories engaged in war work, was in charge of all the Ford campaign statements given to the press.

(Continued in Feb 17th issue.)

## "THE HUNTED WOMAN"

(Continued from page 8)

tion of herself. He described the events lightly, not omitting those parts which appealed to him as being very near to comedy.

In spite of his effort to rob the affair of its serious aspect his recital had a decided effect upon Joanne. For some time after he had finished one of her small gloved hands clutched tightly at the pommel of her saddle; her breath came more quickly; the color had ebbed from her cheeks, and she looked straight ahead, keeping her eyes from meeting his. He began to believe that in some way she was convinced he had not told her the whole truth, and was possibly displeased, when she again turned her face to him. It was tense and white. In it was the fear which, for a few minutes, she had tried to keep from him.

"They would have killed you?" she breathed.

"Perhaps they would only have given me a good scare," said Aldous. "But I didn't have time to wait and find out. I was very anxious to see MacDonald again. So I went through the window!"

"No, they would have killed you," said Joanne. "Perhaps I did wrong, Mr. Aldous, but I confided—a little—in Peggy Blackton last night. She seemed like a sister. I love her. And I wanted to confide in some one—a woman, like her. It wasn't much, but I told her what happened at Miette: about you, and Quade, and how I saw him at the station, and again—later, following us. And then—she told me! Perhaps she didn't know how it was frightening me, but she told me all about these men—Quade and Culver Rann. And now I'm more afraid of Culver Rann than Quade, and I've never seen him. They can't hurt me. But I'm afraid for you!"

At her words a joy that was like the heat of fire leaped into his brain. "For me?" he said. "Afraid—for me?"

"Yes. Why shouldn't I be, if I know that you are in danger?" she asked quietly. "And now, since last night, and the discovery of your secret by these men, I am terrified. Quade has followed you here. Mrs. Blackton told me that Culver Rann was many more times dangerous than Quade. Only a little while ago you told me you did not care for riches. Then why do you go for this gold? Why do you run the risk? Why—"

He waited. The color was flooding back into her face in an excited, feverish flush. Her blue eyes were dark as thunder-clouds in their earnestness.

"Don't you understand?" she went on. "It was because of me that you incurred this deadly enmity of Quade's. If anything happens to you, I shall hold myself responsible!"

"No, you will not be responsible," replied Aldous, steadying the tremble in his voice. "Besides, nothing is going to happen. But you don't know how happy you have made me by taking this sort of an interest in me. It—it feels good," he laughed.

For a few paces he dropped behind her, where the overhead spruce boughs left but the space of a single rider between. Then, again, he drew up close beside her.

"I was going to tell you about this gold," he said. "It isn't the gold we're going after."

He leaned over until his hand rested on her saddle-bow.

"Look ahead," he went on, a curious softness in his voice. "Look at MacDonald!"

The first shattered rays of the sun were breaking over the mountains and reflecting their glow in the valley. Donald MacDonald had lifted his face to the sunrise; out from under his battered hat the morning breeze sweeping through the valley of the Frazer tossed his shaggy hair; his great owl-gray beard swept his

breast; his broad, gaunt shoulders were hunched a little forward as he looked into the east. Again Aldous looked into Joanne's eyes.

"It's not the gold, but MacDonald, that's taking me north, Ladygray. And it's not the gold that is taking MacDonald. It is strange, almost unbelievably strange—what I am going to tell you. Today we are seeking a grave—for you. And up there, two hundred miles in the north, another grave is calling MacDonald. I am going with him. It just happens that the gold is there. You wouldn't guess that for more than forty years that blessed old wanderer ahead of us has loved a dead woman, would you? You wouldn't think that for nearly half a century, year in and year out, winter and summer alike, he has tramped the northern mountains—a lost spirit with but one desire in life—to find at last her resting place? And yet it is so, Ladygray. I guess I am the only living creature to whom he has opened his heart in many a long year. A hundred times beside our campfire I have listened to him, until at last his story seems almost to be a part of my own. He may be a little mad, but it is a beautiful madness."

He paused.

"Yes," whispered Joanne. "Go on—John Aldous."

"It's—hard to tell," he continued. "I can't put the feeling of it in words, the spirit of it, the wonder of it. I've tried to write it, and I couldn't. Her name was Jane. He has never spoken of her by any other name than that, and I've never asked for the rest of it. They were kids when their two families started West over the big prairies in Conestoga wagons. They grew up sweethearts. Both of her parents, and his mother, died before they were married. Then, a little later, his father died, and they were alone. I can imagine what their love must have been. I have seen it still living in his eyes, and I have seen it in his strange hour-long dreams after he has talked of her. They were always together. He has told me how they roamed the mountains hand in hand in their hunts; how she was comrade and chum when he went prospecting. He has opened his lonely old heart to me—a great deal. He's told me how they used to be alone for months at a time in the mountains, the things they used to do, and how she would sing for him beside their camp-fire at night. 'She had a voice sweet as an angel,' I remember he told me once. Then, more than forty years ago, came the gold-rush away up in the Stikine River country. They went. They joined a little party of twelve—ten men and two women. This party wandered far out of the beaten paths of the other gold-seekers. And at last they found gold."

Ahead of them Donald MacDonald had turned in his saddle and was looking back. For a moment Aldous ceased speaking.

"Please—go on!" said Joanne.

(Continued in Feb. 17th issue.)

## LIKES IT FROM COVER TO COVER

Enclosed find renewal. You have made no mistakes, my paper has been regular and I have on many occasions received more than my money's worth by one article published in each issue. Your paper is instructive and educational from cover to cover. Wishing you success, Edwin Cordery, Kent County.

## NEW LAMP BURNS 94% AIR

Beats Electric or Gas

A new oil lamp that gives an amazingly brilliant, soft, white light, even better than gas or electricity, has been tested by the U. S. Government and 35 leading universities and found to be superior to 10 ordinary oil lamps. It burns without odor, smoke or noise—no pumping up, is simple, clean, safe. Burns 94% air and 6% common kerosene (coal oil).

The inventor, A. R. Johnson, 609 W. Lake St., Chicago, Ill., is offering to send a lamp on 10 day's FREE trial, or even to give one FREE to the first user in each locality who will help him introduce it. Write him to-day for full particulars. Also ask him to explain how you can get the agency, and without experience or money make \$250 to \$500 per month. (Adv.)

# RADIO DEPARTMENT

EDITED BY J. HERBERT FERRIS

## FOR YOUR PROTECTION!

**T**HE following Fire Insurance Underwriters rules should be preserved and studied. The proper installation of a radio set is not a fire hazard—but if the rules are not followed, you may lose your insurance, no matter what the cause of fire may be!—Radio Editor.

### Radio Rules—National Electric Code

The following requirements governing the installation of radio receiving and transmitting apparatus were placed in effect on April 29, 1922.

#### For Receiving Stations Only

##### Antenna:—

a. Antennas outside of buildings shall not cross over or under electric light or power wires of any circuit of more than six hundred (600) volts or railway or trolley or feeder wires nor shall it be so located that a failure of either antenna or of the above mentioned electric light or power wires can result in a contact between the antenna and such electric light or power wires.

Antennas shall be constructed and installed in a strong and durable manner and shall be so located as to prevent contact with light or power wires by sagging or swinging.

Splices and joints in the antenna span, unless made with approved clamps or splicing devices, shall be soldered.

Antennas installed outside of buildings are not covered by the above specifications.

##### Lead-in Wires:—

b. Lead-in wires shall be of copper, approved copper-clad steel or other approved metal which will not corrode excessively and in no case shall they be smaller than No. 14 B. & S. gage except that approved copper-clad steel not less than No. 17 B. & S. gage may be used.

Lead-in wires on the outside of buildings shall not come nearer than four (4) inches to electric light and power wires unless separated therefrom by a continuous and firmly fixed non-conductor that will maintain permanent separation. The non-conductor shall be in addition to any insulation on the wire.

Lead-in wires shall enter buildings through a non-combustible, non-absorptive insulating bushing.

##### Protective Devices:—

c. Each lead-in wire shall be provided with an approved protective device properly connected and located (inside or outside the building) as near as practicable to the point where the wire enters the building. The protector shall not be placed in the immediate vicinity of easily ignitable stuff, or where exposed to inflammable gases or dust or flyings of combustible materials.

The protective device shall be an approved lightning arrester which will operate at a potential of five hundred (500) volts or less.

The use of an antenna grounding switch is desirable, but does not obviate the necessity for the approved protective device required in this section. The antenna grounding switch if installed shall, in its closed position, form a shunt around the protective device.

##### Protective Ground Wires:—

d. The ground wire may be bare or insulated and shall be of copper or approved copper-clad steel. If of copper the ground wire shall not be smaller than No. 14 B. & S. gage, and if approved copper-clad steel, it shall not be smaller than No. 17 B. & S. gage. The ground wire shall be run in as straight a line as possible to a good permanent ground. Preference shall be given to water piping. Gas piping shall not be used for grounding protective devices. Other permissible grounds are grounded steel frames of buildings or other grounded metallic work in the building and artificial grounds such as driven pipes, plates, cones, etc.

The ground wire shall be protected against mechanical injury. An Approved ground clamp shall be used whenever the ground wire is connected to pipes or piping.

##### Wires Inside Buildings:—

e. Wires inside buildings shall be securely fastened in a workmanlike

manner and shall not come nearer than two (2) inches to any electric light or power wire unless separated therefrom by some continuous and firmly fixed non-conductor making a permanent separation. This non-conductor shall be in addition to any regular insulation on the wire. Porcelain tubing or approved flexible tubing may be used for encasing wires to comply with this rule.

##### Receiving Equipment Ground Wire:

f. The ground conductor may be bare or insulated and shall be of copper, approved copper-clad steel or other approved metal which will not corrode excessively under existing conditions and in no case shall the ground wire be less than No. 14 B. & S. gage except that approved copper-clad steel not less than No. 17 B. & S. gage may be used.

The ground wire may be run inside or outside of building. When receiving equipment ground wire is run in full compliance with rules for Protective Ground Wire, in Section d. it may be used as the ground conductor for the protective device.

## RADIO PHONE AID TO CROPS

**D**EVELOPMENT of the radio telephone broadcasting service will save the country millions of dollars in the saving of crops that might be lost through lack of knowledge of unfavorable weather conditions approaching.

Heretofore the farmer has gone ahead more or less blindly in the harvesting of the crops, only to have them destroyed in the fields by rain, snows, etc. Many of these farmers, more or less isolated from the centers, were unable to get the information in any time to be of use.

Farmers, however, like many others, are getting radio sets in their homes, and listen intently to the broadcasting stations. With the co-operation of the weather bureau, both government and private broadcasting stations are sending out the weather reports twice daily, so that the farmer by his fireside and many miles from the cities can sit in his home at night with some degree of certainty as to what kind of weather he will meet with.

Radio telephony as a medium for the dissemination of weather forecasts, warnings and information to agricultural interests became a reality during the past year. With the introduction of radio telephony the interior has increased enormously. On July 7 of this year there were 98 stations in 35 states broadcasting weather forecasts and warnings daily by radio telephone.

It has come to the attention of the government that thousands of farmers, realizing the importance of these forecasts, have installed radio sets to catch this information, because they realized that knowledge of what to expect in the way of weather would save them many times hundreds of thousands of dollars.

The weather bureau does not own or operate any wireless equipment. The radio distribution work is accomplished through plants operated by other government agencies, by corporations and by private individuals, and without expense to the weather bureau.

Be careful that you trace every connection through carefully, and that your connections are correct before you turn on your current. A burned out vacuum tube is no good, and a new one will cost you \$5 to \$6.50 each. With care a tube will give from 500 to 1000 or more hours of service.

There are bed-time stories from some broadcasting station every night for the children. Are you enjoying them?

### WELL PLEASED WITH M. B. F.

I am sending you my check for \$1 for two years subscription. I have taken your paper one year and am well pleased with it.—Robt. B. Nicholas, Lapeer County, Michigan.

### LIKES M. B. F. BEST OF ALL

We take four farm papers, but we like the M. B. F., better than all the rest of them.—Dall Sleeper, Calhoun County, Michigan.



## Prepare YOUR HORSES for Spring Work

Time will mean money to you, Mr. Farmer, one of these days

—when spring comes on, when the sun begins to shine.

The acres you plow, or harrow, or sow, each day will depend entirely upon the good condition of your team.

Condition them now with a course of

## DR. HESS STOCK TONIC

You can feel it on the lines

It helps them shed their winter's coat, whets their appetite, tones up their digestion, cleans out the bowels and kidneys, drives out the worms.

Feed your workers Dr. Hess Stock Tonic and you will soon discover that you have a team before you that can do an honest day's work, without a pant or a tremble of the muscle. They will be there for business—and willing.

Excellent for mares in foal—and colts of any age. GUARANTEED.

Tell your dealer how many horses or mules you have; he has a package to suit.

25 lb. Pail, \$2.25 100 lb. Drum, \$8.00

Except in the far West, South and Canada.

Honest goods—honest price—why pay more?

DR. HESS & CLARK Ashland, O.



I spent 30 years in perfecting this Tonic  
GILBERT HESS  
M.D., D.V.S.

## Dr. Hess Dip and Disinfectant

Keeps the Dairy and Stables Healthful and Clean Smelling

### Send no money

## BUILD YOUR OWN LONG RANGE RADIO!

Pay Advertiser's fee and Postage on arrival

### WE HAVE A SURPLUS OF FINE PARTS ON HAND AND IN ORDER TO RAISE MONEY QUICKLY WE ARE GOING TO SLASH PRICES

PICK OUT YOUR REQUIREMENTS FROM THE LIST BELOW AND ORDER BY MAIL AT ONCE AS WITH THE AMOUNT OF CASH WE MUST HAVE IS REALIZED THE PRICES GO UP WHERE THEY BELONG!

Study the list carefully. It contains every thing needed to make a radio outfit that will reach out and bring in concerts from all over the country, from Van Couver, B. C. to Havana, Cuba, and from Los Angeles, Cal. to Portland, Maine. If you cannot afford so powerful a set, you can obtain the material for a very few dollars that will reach 1,000 to 1,400 miles bringing in REMEMBER WE MANUFACTURE MUCH OF THIS MATERIAL OURSELVES, SO YOU ARE NOT PAYING JOBBERS, WHOLESALEERS NOR RETAILERS PROFITS ON THAT MATERIAL

Price	Price
1—Handsome Rabbated Cabinet for 6X21 in. panel, finished in light, golden, dark or flammish oak, mahogany, stained maple (red) or black walnut stained gray elm—securely packed. \$ 3.10	17—23 Plate Variable Condenser.... 2.00
2—Same as above for 9X21 in. panel 4.20	18—Grid Leak Condenser..... .25
3—Same as No 1, knocked down so you can put together and stain in just 15 minutes. Solid oak only.... 2.00	19—Phone Condenser..... .25
(This comes so much cheaper because of the saving in packing expense.)	20—Large Gold Bronze Power Horn 11 in. Bell..... 22.50
4—Same as No 2, knocked down.... 3.00	21—Western Electric Head Phones... 10.00
5—Large size Perfection Variometer 6—Parts complete to make same (except wire)..... .84	22—Good 3000 Ohm Headphones... 5.10
7—Large, sure contact, long range variometer—12 taps..... 2.50	23—Seal Finish Panels—genuine horn fibre—absolutely dielectric—built in section to prevent warping—3-16 in. thick—handsome, unbreakable, won't show finger marks: 5 1/2 X 9 1/2 in.—1 piece..... .55
8—Variometer balls—3 1/2 in.—genuine wild cherry..... .20	5 1/2 X 21 in.—Built in 3 sections... 2.00
9—Variometer balls—3 1/2 in.—genuine wild cherry..... .20	9 1/2 X 21 in.—Built in 4 sections... 3.00
10—Variometer stators—mates to above balls, per set of 2..... .30	24—Handsome 3 in. dials—3-16 in. or 1-4 in. shaft hole..... .40
11—Variometer hardware complete... .30	25—Handsome 15 cent Black binding posts..... .05
12—Audio Frequency Transformer... 3.10	26—Handsome 10 cent black binding posts..... .03
13—Radio Frequency Transformer... 4.00	27—Handsome black 1 in. knobs—worth 20 cents..... .08
14—Rheostat..... .75	28—Handsome black 13-16 in. knobs—worth 15 cents..... .06
15—V. T. Socket..... .50	29—Perfection panel switch..... .35
16—43 Plate Variable Condenser... 3.00	30—Phone jacks—double circuit—\$1 value..... .75
	31—Phone jacks—single circuit—85c value..... .50

We also have about 2,000 handsome, glass enclosed crystal detectors that we will close out cheap, as we are going out of the crystal set business. Price .50

**Michigan Rod and Lever Company,**  
CORNER FRONT AND CLINTON STREETS  
MT. CLEMENS, MICHIGAN  
SEND—NO—MONEY  
PAY POSTMAN PRICE PLUS PROPER PARCEL POSTAGE

### PLANTS AND SEEDS

**STRAWBERRY PLANTS—\$4 PER THOUSAND**—and Guaranteed strictly first class. 17 years experience. Our free catalog illustrates and describes fourteen best varieties, including three best raspberries. A valuable book for the grower. J. E. HAMPTON & SON, Bangor, Mich.

**RED CLOVER, NICE PURPLE SEED, \$12.50** per bushel. SHULTZ SEED CO., Olney, Illinois.

**FOR SALE—NORTHERN GROWN HUBAM** Sweet Clover cleaned. Price \$18.00 bu. Write for samples. HENRY BAUKNECHT, R. 4, Midland, Mich.

**STRAWBERRY PLANTS FOR SALE.** SENA-tor Dunlap, Gibson and Dr. Burrill, 60 cts. per hundred, \$4.00 per thousand. Postpaid. Progressive Everbeaters, \$1.00 per hundred. Postpaid. Cuthbert Red Raspberries, \$1.00 per hundred, \$9.00 per thousand. Postpaid. ROBERT J. DeCURSE, Ovid, Mich.

# STYLES SPRING & '23 SUMMER '23

## IMMENSE VARIETY

*Yours at World's  
Lowest Prices!*



## 33rd Anniversary Style Book FREE!

Forget all you know about mail order catalogs—for there never was one like this! PHILIPSBORN'S 312-page 33rd Anniversary Style Book beats anything you ever saw!

The immense variety of newest styles—the vast extent of the savings—are simply overwhelming! It breaks all records for sensational bargains! Get your copy—FREE—and you will save more money than you ever dreamed would be possible.

### Styles Have Changed! Ours Approved by IRENE CASTLE!

So different are this year's styles that the woman who doesn't want to be a "back number" owes it to herself to be posted on the styles. Irene Castle, famous movie star and dancer and America's fashion authority, says—  
"PHILIPSBORN'S 33rd Anniversary Style Book excels them all and offers wonderful savings. I advise every reader of this magazine to send for a copy."

### We Serve 3 Million American Families!

3 million families save money by shopping here. We want to serve 1 million more in 1923. We have just completed new buildings giving us 40 per cent increased space, so that we today are equipped to give THE BEST MAIL ORDER SERVICE IN THE WORLD—EVERY ORDER WILL BE PROMPTLY, CAREFULLY AND ACCURATELY FILLED.

### 1 Million Dollars Annually to Prepay Delivery Charges!

We don't want to put our customers to the trouble and inconvenience of figuring express or mailing charge, so we pay it ourselves. It costs us one million dollars a year to prepay. Be sure to share in these savings!

### Our "Money-Back" Guarantee!

We not only guarantee complete satisfaction or return your money but we also refund return delivery charges. And don't forget we guarantee Lowest Prices in the World.

### Send Coupon or a Postal Today!

Write or send coupon today for this Book of Wonder Bargains. You just can't afford to be without it. Remember, Easter is Early—April 1—Send coupon or postal TODAY!

**PHILIPSBORN'S**  
Founded 1890  
Department - 201 - Chicago, Ill.

Philipsborn's, Dept. 201, Chicago, Ill.

Please send copy of PHILIPSBORN'S Style and Shopping Guide for Spring and Summer.

Name \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Local Address \_\_\_\_\_

PLEASE WRITE PLAINLY

## The Farm Home A Department for the Women

Edited by MRS. GRACE NELLIS JENNEY

### DON'T SAY DON'T

A MOTHER writes and asks me how it is possible to keep from saying, "don't" to children. We agree that it is annoying to have some one, any one continually saying it—just naturally sets up a feeling of irritability and a desire to do the very thing we are told not to do. It is a perfectly natural trait of character and that is why educators say, "Don't say don't." We are dealing with human nature and must take it as it is. If we can say, do this, instead of don't do that, we are taking a step in the right direction, do not seek to take away without filling the gap. Nature abhors a vacuum and children abhor to be idle and idleness is not safe either for children or adults. You have heard how Satan seeks idle hands to carry out his purposes.

Management is always better than discipline, managing is preventing the wrong, discipline is managing after the wrong is done. Children must have many things to interest them, and we must in some way get the best of the situation by planning things out for them and keeping just a step ahead. Make their occupation legitimate but let them play in their own way, we may give them the opportunity but can not and should not supervise their play, they know how much better than we do.

When my children were very young I tried to teach them respect for all material for all their possessions, toys, clothes, furniture, not only their own but other peoples, to allow a child to wantonly destroy anything not wise, in the first place everything has some use, there is no "junk" these days, and a habit of destructiveness or carelessness is apt to stick to one thru life.

I do not believe in punishing a child because he has offended you, nor in showing anger toward a child, that is not judicial, just let the wrong deed come back on the doer, do not interfere between the breaking of the law and the penalty. Nature never does. If you put your hand on a hot stove, it will be burned, if you read in a poor light for long, you will have a headache, the penalty for straining your eyes—we soon learn to be careful. Let a child learn that if he breaks the laws laid down by a kind and understanding parent that he will surely in one way or another suffer for it and he will soon reason out for himself that it is much pleasanter and safer to keep the regulations of the household, especially when he realizes that father and mother and all the rest come under discipline as well as himself. The laws of God; the laws of our country, the laws of our state all must be obeyed, for only by that method do we any of us have peace, security or liberty.

Here is a question, Do you, dear Reader, believe in giving the reason for a rule or do you just say "because I say so?" It would be interesting and perhaps profitable to get an expression of opinion from some thoughtful mothers.

### THE STORY OF DENTAL DECAY

IT is difficult to explain how teeth decay without using names and words that are hard to understand, but every intelligent adult should have a reasonably correct idea about it, in order to help the children to have sound teeth.

Decay of the teeth always starts from the outside surfaces, never from the inside. The surfaces that decay most frequently are first, those between the teeth, where one tooth touches the other, second, in the fissures or rough surfaces on the tops of the teeth where you chew, and third, close to the gums where food clings to the border of the gums. Meat will not cause the teeth to decay, because, when it is decomposed by germs, an alkali is produced and the enamel of the teeth is not affected by an alkali,—an alkali is just the opposite of an acid. The enamel of the tooth is made of crystal-like rods and between them is a cementing substance which holds them tightly in place. This can be

dissolved by acids, especially by lactic acid which is very easily formed from sugar. When milk becomes sour it is caused by germs decomposing the sugar in the milk, producing lactic acid which gives the milk its sour taste. Starchy foods if allowed to remain in the mouth, can be changed to sugar by an ingredient in the saliva. The sugar can then be acted upon by the germs in the mouth and can be changed into lactic acid, so that it can be easily seen that to leave starches and sugars on the teeth for any length of time is to produce some lactic acid which can dissolve out the cementing substance between the enamel rods. But in order that the acid be strong enough to actually dissolve the enamel it has to be held against the tooth surfaces for some time.

Using silk dental floss and a good tooth paste or powder every day will do much toward preventing decay by keeping the teeth clean. Both of these cleaning materials are rather expensive and on that account I wrote to Dr. Gibson of the Michigan Department of Health for directions for making a cheap and good powder. Here it is I have tried it and found it splendid. The cost was 65 cents and the quantity about a pint.

Place in a quart Mason jar the following: Finest grade English precipitated chalk, ½ pound; powdered castile soap, 1 ¼ ounces; light carbonate of magnesia, 1-3 ounce; oil of cloves, 46 drops; oil of wintergreen, 35 drops; oil of sassafras, 35 drops; oil of peppermint, 18 drops; saccharin, finely powdered, 4 grains. The glass top should be securely fastened and the contents vigorously shaken. Let stand 24 hours, shaking from time to time to hasten the mixing process.

### PARENT TEACHERS AGAIN

HOW are the Parent-Teachers meetings coming along in the rural schools?

Not so many years ago American

## AIDS TO GOOD DRESSING

For Simplicity, Service and Style

Address orders to Mrs. Jenney, Pattern Department, M. B. F.

Watch for our new Spring styles, order your catalog now.  
Catalogs 15c. Patterns 12c.

### FASHION BOOK NOTICE

Send 12c in silver or stamps for our UP-TO-DATE SPRING and SUMMER 1923 BOOK OF FASHIONS, showing color plates, and containing 500 designs of Ladies', Misses' and Children's Patterns, a CONCISE and COMPREHENSIVE ARTICLE ON DRESSMAKING, ALSO SOME POINTS FOR THE NEEDLE (illustrating 30 of the various, simple stitches) all valuable hints to the home dressmaker.



**A New and Stylish Frock**  
4256. With the waistline gracefully normal, and with simple pleasing lines, this style features a very attractive frock. It may be of wool crepe, or of crepe de chine. In linen, and other wash fabrics it is also desirable. The sleeve is a new close fitting model, that may be finished in wrist or elbow length.

The Pattern is cut in 7 Sizes: 34, 36, 38, 40, 42, 44, and 46 inches bust measure. 38 inch size requires 4 7-8 yards of 26 inch material. The width of the skirt at the foot is about 2 3-4 yards.

**A Popular Style**  
4009. This is a very serviceable model. It may be made of linen, voile or batiste or of flannel or silk. It is nice in net, or chiffon, as a gumpie, for "jumper" or "sleeveless" dresses.

The Pattern is cut in 7 Sizes: 34, 36, 38, 40, 42, 44, and 46 inches bust measure. A 38 inch size requires 3 1-8 yards of 32 inch material.

**A Jaunty Top Garment for "The Boy"**  
4248. Here is just the coat to make a boy comfortable and to keep him warm. The fronts are double breasted. The sleeve is in raglan style, with roomy armholes. Serge, cheviot, tweed, and other coat materials may be used for this design.

The Pattern is cut in 4 Sizes, 4, 6, 8, and 10 years. A 6 year size requires 2 1-8 yards of 54 inch material.



### A Simple Popular Style

4239. This is a pretty suit model, and one that may be worn with a separate skirt. Crepe, satin, tricolette, and crepe de chine could be used, with braid or bands of embroidery for decoration. The side closing and pretty neck line are youthful, and becoming to most figures.

The Pattern is cut in 7 Sizes: 34, 36, 38, 40, 42, 44, and 46 inches bust measure. A 38 inch size requires 2 1-2 yards of 36 inch material.



### "IT'S ONLY ME."

I thought myself indeed secure,  
So fast the door, so firm the lock;  
But, lo! he toddling, comes to lure  
My parent ear with timorous knock.  
My heart were stone could it withstand

The sweetness of my baby's plea,  
That timorous, baby knocking, and  
"Please let me in—it's only me!"  
I threw aside the unfinished book,  
Regardless of its tempting charms,  
And, opening wide the door, I took  
My laughing darling in my arms.  
Who knows but in eternity  
I, like a truant child, shall wait  
The glories of a life to be  
Beyond the Heavenly Father's gate?  
And will the Heavenly Father heed  
The truant supplicating cry,  
As at the outer door I plead,  
" 'Tis I, O Father, only I!"  
Eugene Field.

society was largely rural and simple in its organization, and in that day the school was nearer home. The teacher was most frequently a son or a daughter of the neighborhood or of an adjoining neighborhood and knew and was known to practically every home from which the children came. The school curriculum was elementary and well within the knowledge of the average patron. The parents knew what the school was aiming at.

How great the change. Today in by far the majority of our communities teachers drop out of the unknown. They are strangers in a foreign, frequently indifferent and sometimes hostile land. They neither know the homes nor are known to the homes which they serve. The curriculum is complex and often well-meaning with the purposes and methods of the schools which they support and their children attend. These things ought not to be.

The school is the biggest collective undertaking of our communities, by law every tax payer must contribute to its support and parents are legally compelled to send their children to school. In some communities from twenty to forty per cent of every dollar paid in taxes goes to the support of the schools.

The combined intelligence of parents, patrons and teachers is necessary to the wise expenditure of the people's money and the children's time. School superintendents and teachers do not pretend to omniscience but on the contrary they are painfully aware of their limitations, and good parents too feel their inefficiency to deal wisely with the boys and girls that bless their homes. Each group needs the encouragement and help which the other can render. The Parent-Teacher Club is an effective agency for the dissipation of ignorance, the thawing of iciness and the creation of sympathy and understanding between the parents and teachers and it all works for the benefit of those concerned.

#### A PRACTICAL SUGGESTION

**Y**E farmers wives, can earn extra money by selling your eggs, butter, etc., to private parties living in town or city and get retail prices for same. The women are pleased to get nice fresh produce and in no time you will have a nice trade.

About two weeks before Thanksgiving I took my little book and pencil and started down one city block and in less than one hour I had orders for 9 dressed chickens and 2 live ones, I dressed them this way. Scalded and picked the feathers off, then weighed them, figuring them at 30 cents per pound. Then I singed them inside and out in fact scrubbed them with a brush using warm water and soap, then quickly rinsed them in cold water, washed the liver, heart, and gizzard and put inside and hung up to drip, and dry. They were all ready for the oven when delivered and oh, how pleased the women were, I delivered them the day before Thanksgiving and they gave orders for Christmas the same day and they kept on wanting more and still more.

Those I sold were all young roosters about six months old. I am a woman 60 years old and any woman could do as I did. My customers are all in one block. I sell eggs at the same time or any other articles I have to spare, I drive to the city in an auto and have time to shop. Try it sisters.

I should like to hear from some readers who like to piece quilts. I have some pieces that I do not need, percale, gingham and plush and would be glad to exchange for any thing useful.

Here is my recipe for Liver Sausage: 1 pork liver, 1 heart, and any bony fat and lean meat, usually the head, wash and boil all together until the meat falls off the bones, then put thru the grinder, salt, pepper, and sage, if you like. Mix thoroughly with your hands and pour a little of the strained liquor over but just enough to moisten, not enough to make it sloppy. Then pack it in small bowls or cups until almost full, melt some lard and pour over the dishes of meat. The lard hardens and keeps the meat sweet, sausage may be done this way, it will keep for months. Then take off the lard and slice for sandwiches or table use, can be served with salad dressing. Hope others will try this. —Mrs. G. W. Morgan, R. 3, Vicksburg, Michigan.

#### CARING FOR A FERN

I have raised wonderful ferns, a Boston fern that was 12 feet in circumference, I always gave it all the sun there was, in the corner of my living room I had a south window and an east window, just a nice place for a fern. I always kept it in that place and turned it around so that it would grow evenly, I turned it

about twice every year. Every one who came said it was the nicest fern they ever saw. I always water it with cold tea, I have made tea when the family were drinking milk, on purpose to water my fern. During the cloudy weather of November and December the plants do not require as much water but when the sun shines I usually water them once a day. —Mrs. H. C.

#### CORRESPONDENCE COLUMN

Dear Readers—I want to acknowledge many letters that lie upon my desk, some I want to answer personally, others I want to print but cannot get them in this issue, each one is appreciated and each one is read over carefully, I think in a near issue we will have the whole department given up to letters and comments on them, it would make interesting reading and perhaps bring us all a little closer in touch with one another; You can be editors pro tem. How do you like the idea? —Mrs. Jenney.

I noticed that a reader asks how to remove ink stains from cloth sacks; if she will soak them in kerosene oil before she washes them, then wash with soap and boil with some good washing powder the marks will all come out. If the reader wants a quick pan-cake recipe will use 1 level teaspoon of soda to 2 cups of sour milk adding flour enough for a thin batter or use a little less soda and a teaspoon of baking powder, will find them good. —Mrs. I. C. B. —I use this recipe but add 2 eggs and a tablespoon of melted lard or butter adding the whites of the eggs last, beating them very stiff. This makes the cakes very light, the proverbial pinch of salt is always necessary. —Mrs. Jenney.

Readers have been very kind in sending in the poem, Lasca, copying it by hand. If it were not so long I would be glad to publish it. As it is I have several copies and will send them to those first asking for them. —Mrs. Jenney.

Mrs. J. D. B.—As each sewing machine company makes its own attachment for hem-stitching it would be necessary for you to write to the company that makes your machine, they could undoubtedly give you all the information you wish.

Who can tell us something about Patron's Day organization, how long leaders are elected for and whether there are programs to be obtained. —G. A.

Mrs. Celia A., Gobles, Michigan.—If you will write to the United States Department of Agriculture, for Department Circular 207, it will give you full instructions for making a paper dress form. Address your letter to Washington, D. C. There is no charge for these bulletins. The making of these dress forms has been taken up by the extension workers in the various States.

We should like to know whether sausage that is to be canned by the cold pack method should be made into patties ready for serving or should it be packed into cans in a mass?

Do you know a better method for canning sausage? We should be pleased to have this question answered in your paper. —Mrs. J. M. —I have sent for the latest method for meat canning and will publish the directions as soon as received. Mrs. Jenney.

In answer to Mrs. J. A., Honor, Mich., issue of Jan. 20th, I wish to state that the most convenient way of labeling maple syrup cans is to use a small portion of the syrup itself to paste on label. This method is recommended. —E. E. Pauli.

The New Spring Catalog will be issued about February 1st. As soon as it comes out I will fill the orders that are on hand. It would be wise to send immediately for this splendid new book, look it over well, choose the patterns you are going to need and order promptly. Then you will have your patterns all ready to use when you want them. It always takes a week to get the patterns thru. But our patterns sell so cheaply that one can well afford to wait a few days for them.

## Baking Powder— that's the big thing in successful baking

It determines failure or success in baking, more than any other ingredient.

If you do not *always* have satisfactory bakings, change to Calumet for just one trial.

It is pure: containing only such ingredients as have been officially approved by U. S. Food Authorities.

Within the Calumet factories — the largest and most sanitary on earth — hundreds of skilled workers clad in white are busily engaged in producing the baking powder that is used by millions. Human hands never touch it. Its sale is  $2\frac{1}{2}$  times as much as that of any other brand. Pure in the making — pure in the baking.

A pound can of Calumet contains full 16 ounces. Some baking powders come in 12 ounce instead of 16 ounce cans. Be sure you get a pound when you want it.



BEST BY TEST

# CALUMET

The Economy BAKING POWDER

THE WORLD'S GREATEST BAKING POWDER



## 82¢

Buys All the  
Wall Paper  
for An Entire Room

Here is a big Montgomery Ward offer! A DOUBLE LENGTH roll of wall paper for only 6¢. Enough to paper an entire room 10x12 for as little as 82¢! This includes side wall, border and ceiling paper.

Send for our new book of Wall Paper Samples and see the MANY OTHER big values we have ready for you. It shows you our complete new assortment — grass-cloths, tapestries, oatmeal papers, leather patterns, fabrics. And all at prices to suit your pocketbook. Among the better grades, we have a big variety for only 50¢ and up per DOUBLE LENGTH roll. And remember, you get twice as much wall paper in one of our 16-yard DOUBLE LENGTH rolls as in the ordinary 8-yard single roll.

## This Wall Paper Book FREE

Contains over 100 Actual Samples

Be sure to get a copy of this book before planning your Spring decorating. It is made up of actual large-sized samples. With each side wall is shown a sample of the border to match. Easy and pleasant to select your wall paper this way.

Send for this interesting and valuable book today. Ask for Wall Paper Sample Book, No. 1923DD Address our House nearest you.

## Montgomery Ward & Co.

CHICAGO FORT WORTH KANSAS CITY PORTLAND ORE. SAINT PAUL

Hill's acts at once  
checks Colds in 24 Hours

At the first sign of a cold take Hill's Cascara Bromide Quinine. Quick to act. Safest and most dependable cold remedy known.



W.H. HILL COMPANY  
DETROIT

Ask for  
Hill's Cascara Bromide Quinine



## Demand Polar Bear Flour

Positively Best Flour Money  
Can Buy.

A Trial Bag will prove it!

Manufactured by The New Era Milling Co., Arkansas City, Kans.

## J. W. HARVEY & SON,

Central States Managers,  
MARION, IND.



## Just how does Kow Kare increase the milk yield?

Maybe you have been a regular user of Kow-Kare in treating cow diseases, but you may have never fully realized that this famous cow medicine is being used regularly in thousands of dairies to increase the winter milk yield.

Both uses are equally logical. Cow Diseases—nearly all of them—arise from a lowered vitality of the genital and digestive organs. Kow-Kare removes the cause by reaching these very organs and restoring vigor. The milk yield is controlled by the same set of organs. Dry winter feeds put a greater strain on their functions and produce a lowered vitality and yield.

Kow-Kare, fed moderately and regularly, gives to the milk-making organs the added strength they need to offset winter feeding conditions. A greater milk yield cannot fail to result.

The expense of this Kow-Kare treatment is decidedly small. Most dairymen give a tablespoonful morning and evening in the feed, one week out of each month. The increased milk-profit pays for this a hundred-fold.

No cow medicine can equal Kow Kare for the treatment of actual disease. For twenty-five years it has been the standard remedy for *Barrenness, Abortion, Retained Afterbirth, Scours, Bunches, Milk Fever, Lost Appetite.*

Sold in two sizes—large package \$1.25; medium 65c, at feed dealers, general stores, druggists. If your dealer is not supplied, we will mail, postpaid, on receipt of price.

**DAIRY ASSOCIATION CO., Inc.**  
Lyndonville, Vt.

### FREE Cow Book

We publish a very valuable book on cow diseases called, "The Home Cow Doctor." We will gladly send you a copy free if you give us your dealer's name.



## BREEDERS DIRECTORY

Advertisements inserted under this heading for reputable breeders of Live Stock at special rates to encourage the growing of pure-breds on the farms of our readers. Our advertising rates are Thirty Cents (30c) per agate line per insertion. Fourteen agate lines to the column inch or \$4.20 per inch, less 2% for cash if sent with order or paid on or before the 10th of month following date of insertion. **SEND IN YOUR AD AND WE WILL PUT IT IN TYPE FREE.** (You can see how many lines it will fill. Address all letters, BREEDERS DIRECTORY, MICHIGAN BUSINESS FARMER, MT. CLEMENS, MICH.

### CLAIM YOUR SALE DATE

To avoid confusion and without cost, list the date of any live stock sale in Michigan. If you are considering a sale advise us at once and we will claim the date for you. Address, Live Stock Editor, M. B. F., Mt. Clemens.

- Feb. 6—Poland Chinas, Shorthorn, Percherons, J. M. Hicks & Sons, Williams-ton, Mich.
- Feb. 9—Durcas, J. C. Barney, Coldwater, Mich.
- Feb. 16—Poland Chinas, E. J. Mathewson, Burr Oak, Mich.
- Feb. 17—Poland Chinas, Witt Bros., Adrian, Mich.
- Feb. 21—Duroc Jerseys, Clyde Godfrey, Jonesville, Mich.
- Feb. 28—Poland Chinas, Charles Wetzel & Sons, Ithaca, Mich.
- Mar. 1—Poland Chinas, Archie Ward, Breck-enridge, Mich.
- Mar. 7—Holsteins, E. E. Butlers, Coldwater, Mich.
- Mar. 8—Chester Whites, Alexander & Bod-mer, Vassar, Mich.
- Mar. 13—Duroc Jerseys, Schaffer Bros., Ox-ford, Mich.
- Mar. 21—Aberdeen-Angus, Russell Bros., Merrill, Mich.

### CATTLE

#### HOLSTEIN-FRIESIAN

**32 LB. SIRE—30 LB. DAM—HERE'S A BULL** Bargain that will be snapped up quick. Born Nov. 3rd, 1921, ready for light service, nicely marked, more white than black. His dam, a great grand-daughter of King Segis and Pontiac Komdyke, was 2nd Prize Junior 4 yr. old in both 7 and 30 day divisions, State of Michigan in 1918; her records being 30.79 lbs. butter and 653.10 lbs. milk in 7 days and 124.21 lbs. butter and 2779.90 lbs. milk in 30 days. His 32 lb. sire is by a son of Pontiac De Nil-lander, a 35.43 lb. Michigan champion. The 32 lb. dam of his sire is also a 2nd Prize Michigan cow in the Senior 4 yr. old 7 day division in 1918 and her dam a 29.43 lb. cow. First check for \$250.00 gets him f. o. b. White Pigeon, Mich. Pedigree and photo on request. **ALBERT G. WADE,**  
130 N. Wells Street, Chicago, Ill.

**OCT. CLEARANCE SALE, WE ARE OFFERING** 20 heifers and bulls. Heavy producing dams. Sire has 7 dams averaging nearly 1,100 lbs. on yearly test. Free from T. B., \$50.00 and up. **WOLVERINE DAIRY FARM**  
Prop.—H. G. Booth Gladwin, Mich.

## CROSS EYES STRAIGHTENED!

In One Visit, Without Discomfort, Glasses, Hospital, Chloroform or Ether and Facial Defects Corrected By A Simple Method

In Detroit, Michigan

**DR. W. C. WILLIAMS**

Chicago's Eminent Specialist in Diseases of the  
Eye, Ear, Nose and All Facial Deformities

who for 20 years has practiced in the leading hospitals of Europe and America—former United States Surgeon, correcting deformities and defects of the eyes and face in the largest government hospital in this country—is com- ing to straighten cross eyes and correct facial deformities, and will be in a position to take care of a few more cases while in Detroit.

Write to his Chicago office for an appoint- ment, including a free examination while in this city which places you under no obligation.

**DR. W. C. WILLIAMS**

Specialist in Eye, Ear, Nose and Facial Deformities.

Suite 200, State-Lake Bldg., Chicago, Illinois

# DAIRY and LIVESTOCK

### PROBABLE INCREASE IN SPRING PIGE INDICATED

**T**HE number of sows bred dur- ing the first six months of 1923 will be 13 per cent more than the number of sows which actually farrowed in the spring of 1922, provided farmers carry out their intentions as indicated in the December 1, 1922, pig survey made by the United States Department of Agriculture. For the 11 Corn Belt states the survey shows an intention to breed 15.6 per cent more sows than a year ago. Most of the south- ern states show an actual decrease in prospect for 1923.

The probable increase in farrow- ings in the spring of 1923 over 1922 compares with an increase of 22.8 per cent in the spring of 1922 over 1921 in the 11 Corn Belt states. The spring pig crop of 1922 in the south- ern states was about the same as in 1921. Comparisons for other states are not available.

Whether or not the expressed in- tentions of farmers with regard to the number of sows to be bred to farrow next spring will be carried out will depend largely on the rela- tive prices of hogs and corn, the De- partment says.

An actual increase of 16 per cent in the number of pigs in 1922 over 1921 is shown in the December sur- vey as compared with the estimated increase of 14.5 per cent shown in the May survey. The number of pigs saved per litter up to July 1, 1922, in the Corn Belt states is placed at 5.8 as compared with 5.7 saved up to May 1. This increase in num- ber of spring pigs in 1922, the De- partment says.

The number of litters farrowed in the United States in the fall of 1922 shows an increase of 18.6 per cent over the fall of 1921. An increase of 27.8 per cent is shown for the 11 Corn Belt states as compared with an intended increase in these states of 49 per cent in the number of sows to be bred for fall farrowing, as reported last May. The survey shows that in the Corn Belt states 6.1 pigs per litter were saved in the fall of 1922 as compared with 5.9 pigs saved from the 1921 fall litters. For the entire United States a saving of 6.1 pigs per litter in the fall of 1922 as compared with 6 pigs per litter in 1921 is shown.

The decrease in actual number of pigs produced last fall as compared with intentions of farmers the pre- ceeding May is attributed to the de- cline in hog prices, increased corn prices, increased losses from hog cholera and other diseases, and of the publicity given the results of the spring pig survey made by the De- partment of Agriculture. Losses from hog cholera and other diseases in the 11 Corn Belt states for the year show an increase of 22.6 per cent over losses in 1921.

The Department received for this report more than 200,000 replies to questionnaires distributed and gathered by rural mail carriers in all sections of the United States where pigs are produced for market. The survey is but the second of its kind that has been made and there has not yet been opportunity to check any differences that may exist between the figures shown for the farms reporting and those for all farms. It is pointed out, however, that the forecast made last spring of an increase of 14.5 per cent in the number of spring pigs over the pre- ceeding year is being borne out by the increased volume of receipts at the principal stockyards during the past three months. The surveys also show that the production of fall pigs in proportion to spring pigs has increased materially during the past two years, thus making a more sta- bilized supply of pigs throughout the year.

The Department points out that increased production does not nec- essarily mean an over-supply or de- cline in prices. Total receipts of hogs at all public stockyards during the first 11 months of 1922 were 5 per cent more than in 1921. Dur- ing the last four months of 1922 the increase totaled nearly 20 per cent. The number of hogs slaughtered under Federal inspection during the same period was 7.7 per cent more than in 1921 and the total carcass

weight of pork and lard resulting from this slaughter shows an in- crease of 461,246,000 pounds for the 11 months. Despite these in- creases old storage holdings of pork and lard averaged considerably less than during 1921 and prices showed a substantial advance over 1921. The Department's explanation for this situation is that improved industrial and economic conditions resulted in an increased consumptive demand and a much freer, current movement of pork and lard into trade channels.

### MILK PRODUCTION LOW

I have a full blood Jersey cow, eight years old, fresh the 4th of November. She gives only about nine quarts of milk a day, but a wonderful amount of cream. Should she give more milk? We just purchased her two weeks before she came fresh and she was recommended highly. Now, when I churn the butter will not gather and I can do nothing with it, which is a loss. We feed her cornstalks, carrots with ground oats and cornmeal. Would be grateful indeed if you can advise me through your paper.—F. B., Frankfort, Mich.

—It is very difficult matter to tell why your Jersey cow does not give more milk this year without knowing more about the cow that you have in your inquiry. I cannot tell whether she ought to give more milk or not. If she has given more milk in the past, perhaps she is simply taking a year off and cows do this now and then. The fact that the cow is eight years old may account for the fact that she is gradually giving less milk. Some cows are old when eight years old while others are not old until 12 years. It all depends upon how they are fed and cared for in early life.

There is no reason why the cream should not churn well, if you have all the conditions right for churn- ing. The feed that you are feeding would not affect the churnability of the cream in any way. The cream always churns better if allowed to sour first and during cold weather we know that it takes longer to sour than in warm weather. So if you have been making sour cream butter you should see that the cream is just as sour as it is in summer time or any other time when you had no trouble in making butter. This can be accomplished by putting it near the stove to give the bacteria souring. It may be too that your cream is too cold when you start in to churn and it will only foam or whip. The temperature for churn- ing at this time of year should be around 55 to 60 degrees, but is very easy to have the cream from 30 to 40 at this time of year and at this temperature you need not ex- pect the butter to gather very fast. Place the can containing the cream in a but of hot water or allow it to stand near a stove for a while be- fore churning until the temperature is right. These are the principal things that you have to guard against in overcoming difficult churning at this time of the year.—O. E. Reed, Professor of Dairy Husbandry, M. A. C.

### RATION FOR MILK COWS

Would you please tell me a bal- anced ration for my milk cows. I have plenty of good corn silage. I would consider it had just about the right amount of corn in it. I also have plenty of good timothy hay but no clover, this will be their main feed with a little bean straw and shelled corn stalks. I have plenty of oats. What should I buy to go with it and what amount and how much shall I feed? Is buck- wheat bran good?—T. S., Sterling, Mich.

—It is very difficult to make up an economical ration for your milk cows with the feeds you have on hand. Any ration that has for its base as a roughage, timothy hay and corn fodder without clover hay or alfalfa in it, is always expensive. As a ration, however, for your cows, I would suggest the following: Give them all the hay and silage that they will clean up twice a day. Then feed one pound of the following mix- ture for each three pounds of milk produced per day: four parts ground

corn, four parts ground oats, two parts bran, two parts cottonseed meal, two parts oil meal, mixed by weight. You will find this is a very expensive ration, but if you are going to make one that will give the cow the nutrients she must have, where you haven't alfalfa or clover hay, you will find that the ration will always be expensive. The feeder will undoubtedly cut this amount of grain down, but in so doing the cows will either cut down their milk flow or the good cows will take off a lot of flesh from their bodies to produce milk and come out in the spring in very poor condition.

Buckwheat bran makes a comparatively good feed. As compared to wheat bran it only contains 2.4 pounds protein while wheat bran contains 12.2.—O. E. Reed, Professor of Dairy Husbandry, M. A. C.

#### CHEMICAL ANALYSIS OF CARROT AND ONION

What is the chemical analysis of a carrot, also an onion? Are carrots a good dairy feed? How many should be fed at one meal and how many meals a day? I have been told they would kill a cow if given carrots twice daily.—H. E. H., Alma, Mich.—The analysis of the digestible nutrients contained in carrots and onions is as follows:

Carrots: Total dry matter in 100 pounds, 11.7; crude protein, 0.9; carbohydrates, 8.6; fat, 0.2; total 9.9.

Onions: Total dry matter in 100 pounds, 12.4; crude protein, 0.8; carbohydrates, 9.6; fat, 0.2; total, 10.8.

Carrots make an exceptionally good feed for dairy cows. They can be fed in quantities of 30 to 35 pounds per day in two feeds along with plenty of good roughage, preferably clover hay or alfalfa and with what grain the animals require.

I would not advise onions as a dairy feed, while cows do eat wild onions in the spring and seem to crave them, very largely because they are one of the first things that is green in the spring, we find that the milk is tainted with the odor of the onions and as market milk is very undesirable and is not at all desirable when the cream is going to be made into butter.—O. E. Reed, Professor of Dairy Husbandry.

#### POLLED SHORTHORNS AND RED POLLED

What is the difference between a Polled Shorthorn and a Red Polled? I would like to know how they compare in size, milk, etc., with Durhams.—L. O. T., Johannesburg, Michigan.

—The Polled Shorthorn and Red Polled cattle are two distinct breeds, the Polled Shorthorn having been developed in the United States and the Red Polled breed in England.

The Polled Shorthorn and the Shorthorn, sometimes called Durham cattle, are of one and the same breed. The Polled Shorthorn is red, white, red and white, or roan in color, whereas the Red Polled is always red. The Shorthorns are larger, somewhat quicker maturing and of better conformation, as a rule, than the Red Polled. I would say also that the Red Polled is perhaps a somewhat better milker than the Polled Shorthorn, although there are strains of dual purpose Shorthorn cattle that are fully as good milkers as the Red Polled.—Geo. A. Brown, Prof. of Animal Husbandry, M. A. C.

#### COW TESTING ASSOCIATIONS TELL TRUTH TO DAIRYMEN

The study of production records of large numbers of cows, made possible by the work of the many cow-testing associations that have been organized in almost every part of the country, has brought out a grist of information on the possibilities of dairy-cow improvement and on the efficiency of various methods and practices. The records of many thousands of cows have been gone over in the last few years by the United States Department of Agriculture.

From the lowest-producing group of cows to the highest-producing group every jump of 50 pounds in annual butterfat production was accompanied by an increase of about \$16 in income over cost of feed. The more fat produced, the bigger this income. A few heavy producers of the 21,234 cows whose 12-month records have been studied were 6,077 pounds of

milk and 248 pounds of butterfat, or about 50 per cent more than the average of all the dairy cows in the country. The records show that selection of animals and better methods of feeding raise average production rapidly during the first year or two that the cow-testing association is in operation, but the figures for subsequent years show small gains. This is proof enough that there is still much room for improvement in the breeding of cow-testing association cows.

Each year more farmers realize the value of the testing association as a basis for herd improvement. On July 1, 1922, there were in operation 513 associations, including 12,458 herds and 215,321 cows, as compared with 452 associations the previous year. Wisconsin and Minnesota, two of the greatest dairy States, showed great gains in testing associations. During the year the number in Wisconsin grew from 103 to 127, and Minnesota from 23 to 37.

#### MILKING AND FEEDING TIME

It has long been a rule on well-managed dairy farms to milk and feed the cows at the same hours every day. Regularity was always thought to have a beneficial effect on production. However, experiments carried on by the United States Department of Agriculture on the Government farm at Beltsville, Md., have shown that cows of average production milked at the same hours every day produced but slightly more milk and slightly less butterfat than those milked at random, provided the feeding was done at regular times. When the feeding as well as the milking was done at random hours the cows produced about 5 per cent less of both milk and fat.

#### VETERINARY DEPARTMENT

**CURE FOR LICE**  
Would you please tell me what to use on cattle for cattle lice?—M. E., Empire, Michigan.

During moderate weather when cattle will not be injured by being wet, an excellent remedy for lice is any one of the coal tar dips. We have used both Kreso and Zenolium with very satisfactory results, using about one part of the dip to sixty parts of luke-warm water; applying it to the cattle with either a spray pump or brushing it in with a brush. Two applications at intervals of two or three weeks are necessary to eliminate the lice and this will not do it unless pains are taken to cover all parts of the animal's body which the lice frequent.

For use during real cold weather, an excellent lice powder can be made by combining equal parts of powdered naphtha flakes, finely powdered tobacco dust and sulphur, which can be sprinkled onto the cattle.—George A. Brown, Prof. of Animal Husbandry, M. A. C.

An Irishman working for a Hebrew asked for an increase in pay. The Hebrew replied: "If you are worth it, I would be pleased to give it to you. Now, let us see what you do in a year, Pat."

"We have 365 days in a year; you sleep 8 hours every day, which makes 122 days you sleep, taken from 365 days leaves 243. Now you have 8 hours' recreation every day which makes 122 days taken from 243 days leaves 121 days. We have 52 Sundays in a year which you have off, leaving you 69 days. You have 14 days' vacation; take this off and you have 55 days left. You don't work Saturday afternoon; this makes 26 days in a year. Take this off and you have 29 days left. Now, Pat, you allow 1 1/2 hours for meals, which totals in a year 28 days. Take this off and you have 1 day left. I always give you Yom Kippur off, so I ask you, Pat, if you are entitled to a raise?" Pat then answered, "Well, what have I been doing, then?"

**BIGGER AND BETTER**  
Dear Mr. Slocom—I am enclosing \$1.00 for which please enter my subscription for the Michigan Business Farmer for 2 years as per your offer in this week's issue. I saw a copy today and it was so much bigger and better than when I was a subscriber before that I could not resist subscribing for it again.—Edward Finley, Calhoun County, Michigan.

## How do you account for this?



Why is it that there are approximately as many De Laval separators in use today as all other makes of separators combined? For one reason, which is based on the actual experience of several millions of users over a period of forty years, who have found it the most satisfactory, in that it skims cleaner, lasts longer and is easier to operate and clean than any other.

98%



#### Of the best creameries use De Laval Separators

The creameryman knows the best cream separator. Practically all of them use De Laval. Why? Because they have found by testing the skim-milk, and by experience, that the De Laval is the most profitable. They know that a poor separator can soon waste all their profit and that a De Laval soon pays for itself. The De Laval you use is built on the same principle as the creameryman's.

86%



#### Of the exhibitors at the National Dairy Show use De Laval Separators

At the 1922 National Dairy Exposition an investigation among the exhibitors of purebred dairy cattle disclosed the fact that 86% of them use De Laval Separators. These exhibitors of purebred dairy cattle are the cream of the world's best dairymen—they know the best separator and use it. Butter made from De Laval cream also won first place in every class.

64%



#### Of the Separators in the leading butter state are De Laval

More butter is made and more cream separators are used in Minnesota than in any other state. According to an investigation by a prominent farm paper, 64% of the cream separators in Minnesota are De Laval—almost two out of every three. A remarkable record—which simply drives home the fact that the more people know about separators, the more they appreciate De Laval.

51%



#### Of all cream Separators are De Laval

—according to an investigation by a group of prominent farm papers of wide circulation. There are, still, many inefficient and worn-out separators in use today which are wasting enough butter-fat to pay for new De Laval. Get the most out of your butter-fat with a new De Laval. See your De Laval Agent or write us.

#### The De Laval Separator Company

NEW YORK, 165 Broadway CHICAGO, 29 E. Madison St. SAN FRANCISCO, 61 Beale St.

**FOR SALE—REG. HOLSTEIN BULLS FROM**  
A. R. O. dams ready for service.  
WM. GRIFFIN, R. 5, Howell, Mich.

**FOR SALE—SEVERAL REGISTERED HOLSTEIN**  
cows, bred to my Rag Apple sire, Tubereulin tested. Geo. H. Schlader, R. 2, Freeand, Mich.

**FOR SALE—REGISTERED HOLSTEIN COWS**  
give from 60 lbs. to 88 lbs. milk, \$160 to \$250. Would like to place where would be tested.  
BACON BROTHERS, Pittsford, Mich.

#### FASCINATION FARM

For sale—20 head Registered Holsteins T. B. tested, 1 Registered Percheron stallion, 1 Registered Percheron mare, J. F. Glad, Vassar, Mich.

#### SHORTHORNS

GLADWIN COUNTY SHORTHORN BREEDERS offer the best in beef and milk strains. All ages, both sexes. W. S. HUBER, Sec'y, Gladwin, Mich.

#### RICHLAND SHORTHORNS

We offer one red, low down, thick bull calf fifteen months old, also one roan calf fifteen months old. A bargain if taken at once. Also a few young cows with calves at foot.

#### C. H. Prescott & Sons

Office at Tawas City, Mich. Herd at Prescott, Mich.

**A POLLED SHORTHORN HERD BULL 2**  
years old, Scotch Orangeblossom Family. Fit to head any herd. Younger ones for sale.  
L. C. KELLY & SON, Plymouth, Mich.

**FOR SALE—ENTIRE HERD OF SHORTHORN**  
Cattle, Cows, heifers, and cows with calves by side. Priced to sell. Satisfaction guaranteed. T. B. tested. Write now.  
H. E. LIVERMORE, Romeo, Mich.

## Auction Duroc Jersey Swine

ON Tuesday, March 13, 1923, 12 o'clock

We will sell Registered Duroc Jerseys consisting of

**7 BOARS--35 SOWS and GILTS**

Bred to "SENSATION MARSI"

AT

Farm 6 miles east of Oxford on Rochester Road.

Catalog on request free. Mail bids to Mr. R. Clark, Our care.

**SCHAFER BROS., R. 4, Oxford, Mich.**

## If Ruptured Try This Free

Apply it to Any Rupture, Old or Recent, Large or Small and You are on the Road That Has Convinced Thousands

### Sent Free to Prove This

Anyone ruptured, man, woman or child, should write at once to W. S. Rice, 408B Main St., Adams, N. Y., for a free trial of his wonderful stimulating application. Just put it on the rupture and the muscles begin to tighten; they begin to bind together so that the opening closes naturally and the need of a support or truss or appliance is then done away with. Don't neglect to send for this free trial. Even if your rupture doesn't bother you what is the use of wearing supports all your life? Why suffer this nuisance? Why run the risk of gangrene and such dangers from a small and innocent little rupture, the kind that has thrown thousands on the operating table? A host of men and women are daily running such risks just because their ruptures do not hurt nor prevent them from getting around. Write at once for this free trial, as it is certainly a wonderful thing and has aided in the cure of ruptures that were as big as a man's two fists. Try and write at once, using the coupon below.

#### Free for Rupture

W. S. Rice, Inc.,

408B Main St., Adams, N. Y.

You may send me entirely free a Sample Treatment of your stimulating application for Rupture.

Name .....

Address .....

State .....

## Rheumatism

### A Remarkable Home Treatment Given by One Who Had It

In the year 1893 I was attacked by Muscular and Sub-Acute Rheumatism. I suffered as only those who are thus afflicted know for over three years. I tried remedy after remedy, but such relief as I obtained was only temporary. Finally I found a treatment that cured me completely and such a pitiful condition has never returned. I have given it to a number who were terribly afflicted, even bedridden, some of them seventy to eighty years old, and the results were the same as in my own case.

I want every sufferer from any form of muscular and sub-acute (swelling at the joints) rheumatism to try the great value of my improved "Home Treatment" for its remarkable healing power. Don't send a cent; simply mail your name and address, and I will send it free to try. After you have used it, and it has proven itself to be that long-looked-for means of getting rid of such forms of rheumatism, you may send the price of it, One Dollar, but understand I do not want your money unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer when relief is thus offered you free. Don't delay. Write today.

MARK H. JACKSON

265J Durston Bldg., Syracuse, N. Y.  
Mr. Jackson is responsible. Above statement true.

## A FINE FUR COAT

Made from Your Own Horse or Cow Hide.

We make this coat to measure from the hide you send. Write us for special low price.

Any Kind of Skin We make up any kind of skin to suit your needs.

Also Ladies' Coats and Furs, Robes, etc.

We have been in the tanning business since 1878 and guarantee satisfaction.

FREE Book of styles of Men's and Women's furs.

Write for it today

Reading Robe & Tanning Co.

116 East St. Reading, Mich.

## HEAVES

Is your own horse afflicted? Use 2 large cans. Cost \$2.50.

Money back if not satisfactory.

ONE can at \$1.25 often sufficient. In powder form.

Most for cost



THE NEWTON REMEDY CO., Toledo, Ohio

## FREE WRISTWATCH

Handsome, guaranteed time keeper, given for selling only 40 packs of vegetable or flower seeds (mention which) at 10c per large pack. Easily sold—EARN BIG MONEY OR PREMIUMS. Get sample lot today. Send no money. We trust you till seeds are sold. Box A-104, AMERICAN SEED CO., Lancaster, Pa.

## Ear Tags FOR STOCK

Tag your stock—best and cheapest means of identification for Hogs, Sheep and Cattle. Name, address and number stamped on tag. Catalog mailed free on request. F.S. Burch & Co. 279 W. Huron St. Chicago



### PAYING MOTHER'S BILL

A TEN-YEAR-OLD Oxford lad heard a conversation about certain bills to be paid and conceived the idea of making out a bill for his own services. So next morning he laid this statement of account on his mother's breakfast plate:

"Mother owes Willie for carrying coal six times, 20c; for bringing water lots of times, 30c; for going errands, 15c." His mother read the bill, but said nothing about it. That evening Willie found on his plate the 75c and also another bill, which read as follows: "Willie owes mother for his happy home for ten years, nothing; for nursing him through a long illness, nothing; total, nothing."

When Willie saw the 75c he was pleased, but when he read his mother's bill his eyes grew dim and his lips quivered. Then he took the money to his mother, threw his arms about her neck and begged that she would let him do lots of things for her. Mother's bill is rarely presented, but it will pay each one of us to think it over ourselves, and then settle in love and service.

### DEAR Nieces and Nephews:—

The above was sent to me by Nephew Lee Valentine of Oxford, Michigan. It is so true that I want all of you to read it.

Many times you feel that your folks ask you to do so many things, and particularly when you are playing some game that is very interesting. I know just how it is. When I was a boy I was no better. I used to think that I did most of the work around home while all the work I did in one day did not amount to more than two or three hours and sometimes not that much. It seemed that mother always wanted me to run some errand for her just at the time I always wanted to play, and I felt just like asking for pay for the work I was doing. I never ask but mother often gave me money when I did something for her and I greedily accepted it believing she owed it to me for my labor. Mother never presented her bill and it was not until I was nearly grown-up that I realized fully what she had done for me.

Father will do all that he can but it is mother that does most of the sacrificing. It is she who shares more closely all your joys and sorrows. Do not be impatient and rude when she asks you to help her. Remember that many, many times mother sacrifices in more ways than one to give you some pleasure, like a new toy or doll, or a party, etc. Do not present your bill to mother because it will keep you busy half way out of debt to her.

What great man was born 114 years ago the 12th of this month? You have guessed it. I hope the day is observed at your schools in a manner fitting. If you are not going to have a program why not ask your teachers to discontinue classes the last two hours of school and read about Lincoln to the pupils. I am sure if you get together and ask that, your teachers will be pleased to do this.

St. Valentine's Day will also come and go before you hear from me again. I hope you all get many valentines. UNCLE NED.

### OUR BOYS AND GIRLS

Dear Uncle Ned:—I have written to the M. B. F., before and I saw my letter in print. I have 5 brothers and one sister. My youngest brother is 19 years old. He is in the Navy at the Submarine Base in Panama. I had a brother older than him in the World War. He died from the effects of diphtheria. He enlisted when only 17 years old. We have lived in Michigan since I was small. We lived in Iowa before we came here. I am in the 8th grade at school. We have a fine teacher. Your niece.—Myrtle Neumann, Glenzie, Michigan.

Dear Uncle Ned:—I am a girl 13 years old, and in the 7th grade. I

like my teacher. We had two weeks vacation. I had some fun the last week. I went over to my cousins and stayed from Tuesday until Friday. Will some of the girls write to me?—Ruth Ream, R. No. 1, Clayton, Michigan.

Dearest Uncle Ned—I have written before, but as you know, I have told you in my last letter, that I have no dear mother, as I lost her last July 15, and it is very lonesome without her, so I am writing again. We have been playing in the snow today, to keep me from being lonesome. It is very windy tonight. Last night it was cold and frosty and today it looked like spring had begun. My birthday comes on the 18th of November. I am 16 years old and I wish many of the boys and girls would write.

I haven't written many stories but will try and write one today which I heard a long time ago. My mother has told me. Valentine Day will soon be here.

### Saint Valentine

Here is one of the stories that have been told about Saint Valentine.

Father Valentine was a priest who lived a long time ago. He spent his time in nursing the sick people and children, and comforting the sorrowing. As he went among his people, the children, too, found a kind and helpful friend. The children liked to talk with him and run by his side as he went from one house to another. Father Valentine loved all the little creatures of the woods and streams, and they seemed to love him in return. The birds would come at his call and the squirrels would scamper down the trees to take food from his hand. Years went by, and at last the good priest became too old to visit his people. How they wished to hear the sound of his footsteps at the door, again. How the children have missed their kind teacher and the stories that he told them! Father Valentine was very sad because he could no longer go about from home to home. Father Valentine soon found a way by which he could still be of use to those he loved. As he sat in his room he wrote the kind words which had always made his visits so full of good cheer. Every day he sent loving messages near and far. They were carried by boys and girls who had learned from him to be happy in helping others. Soon his friends began to watch for the kind words that were sure to come to them whenever they were in need of help. Even the little child-

ren, when they were ill would say, "I am sure Father Valentine will send me a letter today." After a time the good father passed away from earth. But he was not forgotten. Each year, when the fourteenth of February comes around, we still keep his birthday.

Well as my story is getting long so will close with a little verse: Think of the lonely, remember the sad,

Be kind to the poor, make every one glad,

On good old Saint Valentine's day. —Miss Elizabeth Kleido, Elkton, Michigan.

Dear Uncle Ned—I have been reading the Children's Hour for a few years. We had frosty weather for a few days. Today it is warmer and the snow is melting. We have made about six snow men today. Two are about six feet tall or taller. We have been out with our pony for a ride. We have a new pony cutter and my sister Elizabeth hitches the pony to the cutter and away we go for a ride. I am 13 years old today, January 18. I have three sisters and four brothers. The oldest is 17 years old. As my letter is getting long and wish many of the boys and girls would write to me. I will close with best wishes to Uncle Ned and all the rest.—Miss Virginia Kleido, Elkton, Mich.

Dear Uncle Ned:—I have been a silent reader of the M. B. F., for some time, and am very much interested in the Children's Hour. I thought I'd write for the first time. I am a girl 13 years of age, and a blond. I am in the eighth grade and I like to go to school. There are 40 pupils in our school. I have 2 brothers, both younger than I.—Lucille Richards, Bad Axe, Michigan.

Dear Uncle Ned:—I would like to join your merry circle. I never have written before. My father takes the M. B. F., and I like to read the Children's Hour very much. I am a girl 12 years old and I am in the 6th grade. I live on a 100-acre farm, one-half mile from town and I go to high school. My birthday is the 6th of July. Good-bye Uncle Ned.—Wilma McTaggart, Silverwood, Michigan.

Dear Uncle Ned:—I am a farmer's boy 4 feet and 1 inches tall, I weigh 80 pounds and am 10 years old. I am in the 5th grade at school. I think Evelyn Grundy is about 13 years old. I have 40 rods to go to school. There are 20 pupils in my school. I enjoy reading the M. B. F. I have one sister, she is in high school. I hope to hear from the boys and girls. I will say good-bye, from your nephew.—Thomas D. Blair, R. No. 1, Box 64, Vestaburg, Michigan.

## ADDITION

BY WALTER WELLMAN

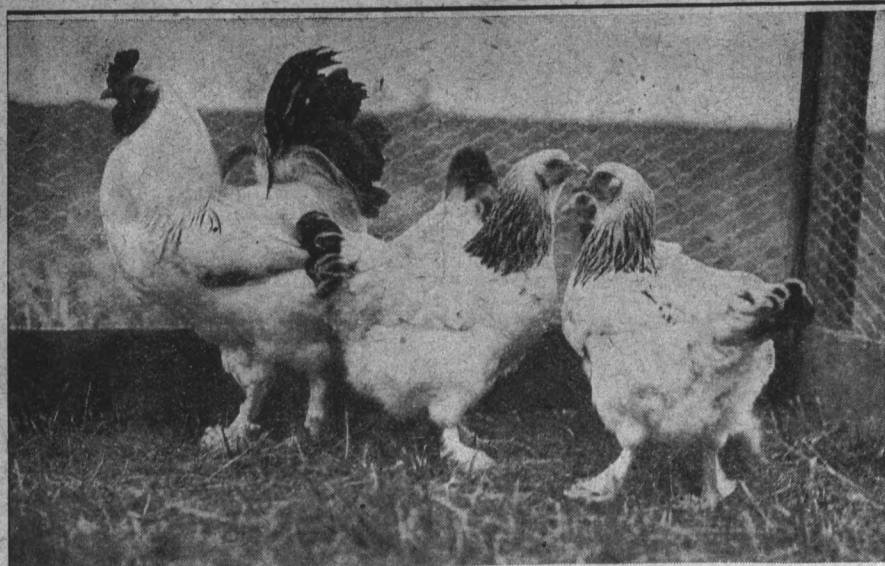
THAT DOESN'T LOOK SO HARD.

I (—) der if K(—)  
(—) the dog on me  
with in(—)tion of  
scaring me? I will  
have (—) (—)fy  
myself with a st(—)  
when I pass her g(—)  
al(—) l(—) at night.



See if you can use numbers where dashes appear, and complete the sense of what is written on the blackboard. After you have submitted numbers, add them all together, and give the sum.

Answer to last puzzle: There are seven—Flea, Beetle, Waterbug, Bee, Ant, Hornet, Roach.



A pen of pure-breds, no matter what the breed, are about the best investment any business farmer ever makes.

## Keeping Up the Egg Production

THE farm flock commences laying in the fall and early winter and gradually increase the monthly production until in April and May they may average two dozen eggs per hen. After the spring flow the average per hen begins generally to drop very fast unless special care is given the flock.

The flocks roam about the farm and are supposed to find their living about the farmstead. They may for a very short time, soon the proper food for egg-making has been consumed, worms and bugs become scarce, hot weather comes on, mites multiply and inevitably the hens stop laying, just as the cows go down in milk when the grass gets short, flies are plentiful and the weather is hot and they seek the shade.

There should always be egg-mash, or ground feed in a hopper to supplement the food that may be found about the farm. Skim milk, or buttermilk, should be supplied, or meat scraps to take the place of the departed worms that burrow deep in the ground when the weather is hot and air is sultry.

Grit, oyster shells and charcoal must be supplied just as in the winter when the flock is confined.

Many poultry houses are uncomfortable day and night. Filthy, hot, with air fouled by accumulated droppings, poorly ventilated, full of mites, swarming with lice, how can the flock do otherwise but quit laying in self respect?

A flock of 90 hens laid 53 eggs on July 14th, but they were properly fed and kept busy during the day and comfortable at night. The flock had a grove with plenty of shade to work in during the day seeking the scratch feed that was scattered in every nook and corner for them to find. A well balanced egg mash in a hopper, a moist, crumbly mash feed in a trough at noon day, plenty of cool, fresh water and buttermilk to drink, and grit, shell and charcoal always at hand.

It is easier perhaps, to keep a yarded flock up to a high percentage of production, but a farm flock may be so managed as to avoid the heavy slump that is common with the ordinary farm flock. The dairyman can keep his milk flow by the use of soiling crops when the grass gets short and the flies pester the herd day and night.

The farmer can so feed and house as to keep the egg flow up to 50 per cent and by systematic culling continue the high percentage thru the summer months. With such feed and care mentioned eggs of splendid quality can be produced throughout the season until the molt begins in earnest.

Hoppers for egg mash are not found on many farms. Some flocks are not fed out of hand for three or four months in summer, some flocks must find all the water they have and spend the nights in a house that is as hot as—well, hot enough, while the cows are let out of the barn after milking and they seek a high hill where the breezes blow.

Can't you do something to make

your flock more comfortable day and night? They will repay you in more eggs to eat and sell.—Farm, Stock and Home.

### ENORMOUS WASTE IN EGGS

THE waste in eggs in the United States every year amounts to nearly \$50,000,000. It is estimated that 17 per cent of all the eggs produced in this country become unfit for human food before reaching the consumer because of careless methods of handling.

We should help to prevent this loss by producing infertile eggs, by not letting hens nest on the damp ground, by keeping the nests clean, by not washing the eggs, by being careful not to crack them while handling, by gathering eggs daily, by storing them in a cool, dry place and by marketing them at least once a week—twice a week if possible.

Few people understand that eggs are almost as perishable as meat or milk. They belong to the same class of food, but because they are enclosed in a hard shell, many of us think they will stand any kind of treatment.

We will need poultry and eggs. We must produce and conserve them.

### CHICKEN POX (AVIAN DIPHTHERIA) AND ROUP

CONTAGIOUS epithelioma, chickenpox, avian or fowl diphtheria, canker, contagious catarrh, roup, cold, simple catarrh, swelled-head, etc., are terms used to designate various diseased conditions of fowls, the most prominent symptoms of which appear about the head. This array of names is very confusing and is due to the practice of naming pathological manifestations according to symptoms without taking the underlying cause into consideration. Leaving aside non-infectious diseases and using the etiology (the cause) as a basis for our nomenclature, we find that the list of names given above represents only two distinct diseases, namely: (1) contagious epithelioma, commonly called sorehead, chickenpox or fowl diphtheria, and (2) roup, which also has various synonyms such as colds, swelled-heads, etc. Some authors distinguish between chicken-pox on one side and diphtheria on the other as if the latter ones were etiologically identical, but no experimental data support this view, while there is abundant evidence to show that chicken-pox and avian diphtheria are caused by the same organism, and that roup, which in its name resembles colds in man and higher animals, is etiologically distinct from the former. Chicken-pox and avian or fowl diphtheria are simply two different forms of the same disease the scientific name of which is contagious epithelioma, epithelioma meaning a tumor of epithelial cells.

Cause—This disease is caused by a so-called filterable virus, i. e., the organism is so small that it will pass through a dittonaceous earth filter, and cannot be seen under the most highly magnifying microscope. The virus may be found in the scabs, in

(Continued on following page)

## Here's My Greatest Offer on World Famous Detroit Incubator

HERE it is—my world-beating low price offer on a high-grade guaranteed hatcher. I've cut my usual low prices right to the bone. Why worry along with your old makeshift machine, when you can now get a new Detroit at rock-bottom price?

Look where you will, you won't find hatching equipment that has higher quality than I build into Detroit Incubators. Compare prices and see what you save. You waste money to pay more. Satisfaction or money back.

The Detroit is equal in every way to incubators costing twice my price—yes, and even more. The Detroit has double walls, hot water heat, copper tank, no cold corners, big nursery, automatic regulation thermometer that can be easily read without opening door and held in horizontal position so chicks cannot break or knock it down when hatching. Many other features that insure big hatches of strong, healthy, vigorous chicks. Capacity 140 eggs. Equally successful on duck and turkey hatches.

### DETROIT INCUBATORS and BROODERS

represent the accumulated experience of 18 years devoted to perfecting a hatching outfit that would be as near 100% efficient as money and brains can make it. My low prices are possible only because of big production and my direct-to-you selling plan that cuts out all unnecessary expense.

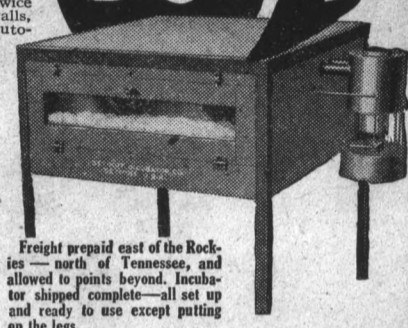
Why wait and wish for big poultry profits when I place guaranteed equipment within easy reach? This is the year for you to start. Egg and poultry prices are still high. Act Now.



My 140-chick brooder is another big bargain. Double walls, hot water heat, strong and durable, yet light and easily handled. A practical brooder in every detail. Will prove a big help in raising your brood and increasing poultry profits.

DETROIT INCUBATOR COMPANY Dept. 10 Detroit, Mich.

\$12.45



Freight prepaid east of the Rockies—north of Tennessee, and allowed to points beyond. Incubator shipped complete—all set up and ready to use except putting on the legs.

### Big Combination Offer

I make it easy for you to get started in the poultry-raising business. My record-smashing combination offer is the talk of the country. Think of it! A complete hatching and chick raising outfit—Detroit Incubator and Brooder—worth \$25.00 of anybody's money for only \$17.50. You can't duplicate this value anywhere else in America. Order direct from this ad, or send for catalog containing complete descriptive information on both incubator and brooder. Write today—sure.

\$17.50 Both

### Sale of Men's 15-inch LACE ARCTICS at



Sizes 6 to 12  
Order No. 443

\$2.98 PLUS POSTAGE



Just about HALF PRICE

almost knee high

ONLY A LIMITED SUPPLY—SO GET YOUR ORDER TO US QUICK! Before you turn this page write out your order. A half a dozen cold winters will come and go before you get another bargain that can equal this.

SEND NO MONEY—PAY ON ARRIVAL

Just write and tell us what size to send. Pay the postman on arrival—and WE INVITE you to return them to us and get every penny back at once if you are not completely pleased.

GORDON BATES CO., Dept. 232 Minneapolis, Minn.

### Costs Less To Hatch



Cut Prices Now on Famous Radio Round Radio Round Incubator has 16 wonderful, patented features; practically self-operating. 3 minutes a day takes care of everything. One filling of lamp to hatch. Big tank holds quarts oil. Saves time, saves oil, saves money. Big book about Radio Round Incubator sent free with new, low, Direct from Factory prices. Freight or express prepaid. Write NOW. RADIO ROUND INCUBATOR CO. 322 Woods St., Wayne, Neb.



### SAVE BIG MONEY

I guarantee you a clear saving of 25 to 30% on Fence, Roofing and Paints and I pay the freight. Get my

CUT PRICE CATALOG Learn how half a million farmers save big money by buying their Fence, Roofing and Paints direct from my big factories at prices way below others—send for catalog NOW—You'll save money. THE BROWN FENCE & WIRE CO. Dept. 3908 CLEVELAND, OHIO



### Raise Silver Foxes

Most Profitable Livestock.

We sell outright or for monthly payments within your reach. Write NOW.

SILVERPLUME FOXES

Box B-31, Keeseeville, N. Y.

### BOWERS Colony Brooder

#### More Chicks—Less Cost

This brooder is a chick-saver and a money maker. It raises more and better chicks, at less cost than other brooders. Stove is best in the world to hold fire—air-tight and self-regulating. It burns soft coal—the cheapest brooder fuel—perfectly. Cuts fuel costs in half. Stove will also burn hard coal, wood, coke, etc. Regulator maintains even heat night and day. No trouble. Sizes for 500 or 1000 chicks. Low priced Write TODAY.



F. M. Bowers & Sons Co. 1416 W. Wash. St.

INDIANAPOLIS, IND.

### 140 Egg Incubator \$13.25 30 Days Trial

Freight Paid east of the Rockies. Hot water, copper tanks—double walls—dead air space—double glass doors—a real bargain at \$13.25. Shipped complete, set up ready to use.

140 Egg Incubator and Brooder - \$17.75  
180 Egg Incubator Alone - 15.75  
180 Egg Incubator and Brooder - 22.00  
250 Egg Incubator Alone - 22.75  
250 Egg Incubator and Brooder - 31.00

Made of California Redwood—last a lifetime. Positively the best value on the market today. Order the size you want direct from this ad. 30 days trial—money back if not pleased. If not ready to order now, don't buy until you get our new 1923 catalog.

WISCONSIN INCUBATOR CO. Dept. 138 Racine, Wis.

### Only \$2 DOWN ONE YEAR TO PAY

\$44 Buys the New Butterfly Jr. No. 23

Light running, easy cleaning, close skimming, durable. NEW BUTTERFLY Separators are guaranteed a lifetime against defects in material and workmanship. Made also in four larger sizes up to No. 5 shown here; sold on

30 DAYS' FREE TRIAL and on a plan whereby they earn their own cost and more by what they save. Postal brings free Catalog Folder. Buy from the manufacturer and save money.

ALBAUGH-DOVER CO. 2260 Marshall St. Chicago

(1)



## BABY CHICKS \$12 per 100 and UP

From selected, heavy laying, vigorous hens. White and Brown Leghorns, Anconas, 50, \$7; 100, \$13; 500, \$60. Barred Rocks, 50, \$8.50; 100, \$16; 500, \$75. Extra Select, \$2 per 100 higher. Mixed Chicks, 50, \$6.50; 100, \$12; 500, \$55. Well hatched in modern machines. Carefully and correctly packed and shipped. Postpaid, full live arrival guaranteed. Bank reference and this guarantee makes you perfectly safe in ordering direct from this ad NOW. Get them when you want them. All orders have our careful personal attention. WE WANT YOUR BUSINESS. Catalog Free.

WINSTROM FARM & HATCHERIES, Box H 5, Zeeland, Michigan

## GUARANTEED CHICKS

Hatched from High Laying Quality Fowls on free range, properly fed and housed to insure strong chicks.

BARRED ROCKS, S. C. REDS, MINORCAS, ANCONAS, 50, \$8; 100, \$15; 500, \$74  
WHITE WYANDOTTES, BUFF, 50, \$8.50; 100, \$16; 500, \$78  
WHITE, BROWN and BUFF LEGHORNS, 50, \$7.50; 100, \$14; 500, \$65

Postpaid to your door. 100% live delivery guaranteed. Catalog free. Bank Reference.

MORENCI HATCHERIES, Box B, Morenci, Mich. Member I. B. C. A.

## GUARANTEED CHICKS

Full 100% live arrival guaranteed. Postpaid. Personally inspected and hatched from STATE INSPECTED Flocks. PURE TOM BARRON STRAIN WHITE LEGHORNS, 50 \$8.50; 100, \$16; 500, \$77.50; 1,000, \$150. HEAVY LAYING BROWN LEGHORNS, 50, \$8; 100, \$15; 500, \$72.50; 1,000, \$140. SELECT ANCONAS, 50, \$9; 100, \$17; 500, \$82.50; 1,000, \$160.

10% OFF THESE PRICES ON ORDERS RECEIVED BEFORE FEBRUARY 15th. Get our fine new catalog, it's free. We want your business and will give it our most careful attention. Reference, Zeeland State Bank.

RURAL POULTRY FARM, Route 1 B, Zeeland, Michigan

## MEADOW BROOK FARM



CHICKS—ENGLISH WHITE LEGHORNS, BROWN LEGHORNS (Holland Importation Strain), 50, \$7; 100, \$13; 500, \$62.50; 1,000, \$120. BARRED ROCKS, REDS, BUFF LEGHORNS, 50, \$8; 100, \$15; 500, \$72.50; 1,000, \$140. WHITE WYANDOTTES (Heavy Laying Flocks), 50, \$9; 100, \$17. Postpaid, full live delivery guaranteed. All flocks composed of Selected Heavy Layers. Order now from this advertisement and get them when you want them. I have been producing good chicks successfully for the past 20 years and KNOW HOW. I want your business and will try hard to please you. Free Catalog. Bank Reference. MEADOW BROOK FARM, Henry De

Preo, Proprietor, Route 1 H, Holland, Mich. Member Michigan B. C. A.

## HARDY, HEALTHY MICHIGAN CHICKS



From heavy laying well selected, well-fed and housed fowls in best vigorous breeding condition, insuring VIGOROUS CHICKS FOR OUR CUSTOMERS. Prices: WHITE and BROWN LEGHORNS, 50, \$7; 100, \$13; 500, \$62.50; 1,000, \$120. ANCONAS, 50, \$7.50; 100, \$14; 500, \$65; 1,000, \$127.50. Postpaid, full delivery guaranteed.

We want your business and WANT TO HOLD IT when we do get it and will endeavor to treat you right. Order now right from this ad and GET THEM WHEN YOU WANT THEM. Reference, Holland City State Bank. CITY LIMITS HATCHERY, Box M, Holland, Mich. Only 5 hours to Chicago. Can reach any point in Illinois or Wisconsin in 24 hours.

## CHICKS \$12.00 per 100 and Up

100% SAFE ARRIVAL GUARANTEED

PRICES—WHITE, BROWN and BUFF LEGHORNS, 50, \$7; 100, \$13; 500, \$60. BARRED ROCKS, S. C. and R. C. REDS, ANCONAS, B. MINORCAS, 50, \$8; 100, \$15; 500, \$70. WHITE WYANDOTTES, WHITE ROCKS and BUFF ORPINGTONS, SHEPHERDS 331 EGG STRAIN ANCONAS, WHITE MINORCAS, 50, \$8.50; 100, \$16; 500, \$75. MIXED, 50, \$6; 100, \$11; 500, \$50.

Hatched from selected heavy laying flocks that are well fed and cared for, insuring strong, livable chicks that will make a profit for you. POSTPAID TO YOUR DOOR. ORDER DIRECT FROM THIS AD and SAVE TIME. Catalog free. Reference, Geneva Bank.

THE GENEVA HATCHERY, Box 505, Geneva, Ind.

## HILLVIEW HATCHERY

GUARANTEED TO ARRIVE



Strong and Healthy. Chicks from selected heavy laying, Hogan tested flocks. ENGLISH WHITE LEGHORNS and BROWN LEGHORNS, 50, \$7; 100, \$13; 500, \$62.50; 1,000, \$120. Heavy Laying EXTRA GOOD BARRED ROCKS, 50, \$8.50; 100, \$16.50; 500, \$80; 1,000, \$155. Postpaid to your door and full live delivery guaranteed. Our flocks are kept on free range, properly fed and cared for insuring the vigor necessary in the chicks to live and MAKE A PROFIT. Give us a trial and you will come again.

HILLVIEW HATCHERY, Route 12 E, Holland, Michigan

## QUALITY CHICKS

10 years careful breeding for heavy egg production. Winners at leading shows. Big, strong, vigorous, well-hatched chicks at following prices: WHITE and BROWN LEGHORNS, SELECT, 50, \$8.50; 100, \$16; 500, \$77.50. ANCONAS, SELECT, 50, \$9; 100, \$17; 500, \$82.50. WHITE and BROWN LEGHORNS, SELECT, 50, \$7; 100, \$13.50; 500, \$65. ANCONAS, SELECT, 50, \$7.50; 100, \$14.50; 500, \$70. Postpaid to your door and 100% live delivery guaranteed. Order direct from this ad early and get them when you want them. Also breeding stock and special mating Chicks. Get Our Catalog. Reference 2 Banks.

TOWNLINE POULTRY FARM, Box 27, Zeeland, Michigan

## SAVE MONEY

Returns commence on your investment in 4 1/2 to 5 months from the time you receive your strong Pure Bred Chicks from our own free range farms of S. C. English White Leghorns, Anconas, Barred Rocks. All breeders inspected and approved. Years of good egg breeding back of them. Our catalog for guaranteed terms, delivery, etc. it's free. Write today. Riverview Poultry Farm, Route 2, Box T, Zeeland, Mich.



## Hardy Northern Bred Chicks

Baron S. C. W. LEGHORNS Parks Strain BARRED ROCKS The greatest egg producers known. Heavy winter layers. See record of our pen 16 now at the Michigan International Egg Laying Contest. Get Quality chicks at reasonable prices from Holland's pioneer poultry farm. Catalogue free.

Pine Bay Poultry Farm, Box 56, Holland, Mich.

BABY CHICKS White and Brown Leghorns, Single and Rose Comb Reds, Buff Orpingtons, Barred and White Plymouth Rocks, Anconas, and White Wyandottes, \$15 per 100 and up. P. W. STONE HATCHERY, Lock Box 44, Fenton, Mich. P. W. Milliken, Mgr.

## Cured Her Rheumatism

Knowing from terrible experience the suffering caused by rheumatism, Mrs. J. E. Hurst, who lives at 608 E. Douglas Street, C-489, Bloomington, Ill., is so thankful at having cured herself that out of pure gratitude she is anxious to tell all other sufferers just how to get rid of their torture by a simple way at home.

Mrs. Hurst has nothing to sell. Merely mail your own name and address, and she will gladly send you this valuable information entirely free. Write her at once before you forget.

## Attention Guaranteed BABY CHICKS World's Greatest Egg Producers

Tom Barron Imported White Leghorn



Sheppard Famous Anconas Direct

From grand selected flocks on free range built direct from laying contest winners. Strong, vigorous chicks that will prove great layers. Flocks culled by poultry experts and headed with vigorous pedigreed males. Send for catalog and prices on our wonderful egg producers, it's free. Reference, two banks.

SILVER WARD HATCHERY Box 420, Zeeland, Mich.

## CHICKS KERLIN QUALITY

English-American S. O. White Leghorns



Chicks from 265-270 Egg Strain stock and Pedigreed Stock from 280 to Over 300 Egg Hens. Postpaid. Free Feed with each order. One hundred percent Safe Arrival Guaranteed. A Special Discount of \$3 per 100 Chix on orders placed promptly. Book of valuable information to poultry raisers Free for the asking. We Want you to have it. Drop us a card right now before you forget it and let us tell you more about this truly wonderful strain of layers.

Member International Baby Chick Association

KERLIN'S GRAND VIEW POULTRY FARM

Box 45, Center Hall, Pa.

A Breeding Institution of merit since 1900

CHICKS—WE HAVE SHIPPED THOUSANDS each season since 1904. Different breeds, free booklet with guarantee and delivered prices. Freeport Hatchery, Box 10, Freeport, Mich.

the exudate and, in acute cases, in the blood and internal organs. Besides affecting chickens it is pathogenic to turkeys, pigeons, geese, ducks, and guinea fowls. Wild birds, such as pheasants, quail and some others, are also susceptible.

**Mode of dissemination**—Within the flock the disease may be spread by direct contact between diseased and healthy fowls. As the virus is contained in the scabs and discharges of infected birds it is clear that water, feed, litter, etc., form ready means of dissemination. The infection may be carried from coop to coop or from farm to farm by the introduction of birds from a diseased flock no matter whether they show signs of disease or not. The disease is very often brought from poultry shows, in fact this is one of the most common ways of disseminating chicken-pox from one territory to another. The infection may be spread from place to place by the people carrying the virus on their shoes, clothes and hands. It is also possible that dogs, cats, rats or wild birds may act as mechanical carriers and means dissemination.

**Characterization and Symptoms**—This disease may appear in three forms, namely (1) A pure skin disease, in which wart-like tumors or scabs appear on the combs, wattles, ears and skin of the head, and in some instances on the skin or other parts of the body. These tumors begin as whitish spots or elevations gradually growing larger until they appear as distinct papilla-like growths. As time goes on these lesions change from white to gray, to brown, and finally to an almost black color. The development of these scabs may take as long as three weeks.

(2) A pure mucous membrane disease. In this case grayish or yellowish white cheesy masses develop on the mucous membrane of the oral cavity and eyes. Sometimes the lesions are confined to the larynx or mouth alone, at other times only one eye may be affected, and so on. In the mouth these patches of so-called pseudomembranes may vary from the size of a pinhead to large areas involving the larynx and almost the entire oral cavity. The eye effection begins with a thin discharge which if not taken care of will thicken and accumulate under the eyelids which finally become glued together preventing the escape of the discharge thus producing a more or less marked bulging.

(3) A combination of the affections described under 1 and 2. The virulence of the organism and the resistance of the fowls are the factors which determine the severity of the disease. In many cases of pure skin affection the general condition of the birds may remain apparently undisturbed. However, when the mucous membranes affected signs of general distress become evident. Such cases the following symptoms may be observed: more or less of a thin, clear, mucous discharge from the mouth, sometimes from one or both eyes, accompanied by difficult breathing, very light at first but usually increasing gradually until the bird dies of asphyxiation due to accumulation of mucopurulent or cheesy exudate in the larynx, or from starvation due to occlusion (closing) of the eyes which prevents the fowl from feeding. In the early stages one may detect the disease by a rattling sound in the larynx of affected fowls. Sneezing and the so-called bird cough may be observed. Concomitant symptoms are dullness, emaciation, cessation of egg production and diarrhea.

**Cause and Mortality**—The disease may be acute or chronic. Sometimes the birds may die suddenly without having shown any noticeable sign of a disease due to a toxemia or in other cases the cause of death may be occlusion (closing) of the larynx. Chronic cases may go on for weeks. In some outbreaks as many as 80 per cent of the exposed birds contract the disease, in others only 10 per cent may become ill. The death rate is also variable, sometimes reaching 50 per cent of those affected.

**Diagnosis**—A correct diagnosis of the disease is of paramount importance in order to handle the outbreak intelligently. Where the typical scabs and diphtheritic patches are present there is no need of any doubt as to the identity of the trouble, but

in some cases the symptoms may be such as to make it very difficult to arrive at a diagnosis. Scabs on the combs, wattles and skins may be due to mechanical injury.

**Canker of the eye and cheesy masses in the mouth** may be due to foreign bodies lodging in the conjunctival sac or cleft of the palate causing inflammation of the mucous which, in appearance, resemble some lesions of chicken-pox (diphtheritic form). Conditions of this kind are called mechanical canker and disappear promptly when the irritant is removed.

Roup may be mistaken for the diphtheritic form of chicken-pox due to the bulging of the nasal sinuses which will resemble canker of the eye. However, on closer examination one will find that in the case of roup the eye proper in unaffected and that the closing of the eye is due to the accumulation of discharge in the nasal sinuses which bulges the bone and forces the eyelid upward. The nasal passages may not be involved in contagious epitheloma.

Malignant canker may also be mistaken for the diphtheritic form of chicken-pox. This disease is characterized by small pustules on the base of the tongue and side of the pharynx. They penetrate deeply and may be so numerous as to coalesce forming masses similar to the pseudomembranes of chicken-pox. Malignant canker is rare, does not spread will not yield to treatment and is always fatal.

**Prevention**—The following points are essential in keeping the disease within due bounds:

(1) Caution in introducing fowls from strange flocks.

(2) Quarantining of newly purchased birds, or birds brought home from shows or fairs for at least one month.

(3) Prevent undue communication at shows and fairs.

(4) Prompt and complete isolation of diseased fowls.

(5) Good hygienic quarters.

(6) A sufficient knowledge of hygiene to be able to practice sanitation intelligently and efficiently.

Attempts at sanitation are often made, on account of lack of knowledge of the fundamental principles of hygiene, all that is gained is a lot of wasted labor.

## How to Handle

Complete isolation of diseased individuals is essential to prevent dissemination of any contagious disease. Suitable facilities for this purpose should therefore be provided for on all up-to-date farms. The mere closing up of diseased birds in a room immediately adjacent to one containing healthy birds is of little or no use. Walls in chicken-houses, as the author has seen them, are not generally "infection-proof" in some cases they are hardly "chicken-proof" so they cannot be depended upon to keep infection from spreading. To keep fowls affected with contagious disease in wire cages placed in killing rooms, feeding rooms, some part of the stables or in any other place where people, cats, and dogs walk to and fro is also bad practice because of the possibility of infected litter, feathers or droppings, which have fallen out of the cages, being carried away on shoes or the feet of animals.

One fairly satisfactory way of providing for isolation is to put the diseased birds in a room at one end of the chicken house keeping the adjacent room empty. In the latter a pair of old rubbers, a duster, or suit of overalls should be kept for use only in the isolated room. Other facilities necessary for the handling of diseased birds should also be kept in this room if possible. This latter room is just as important as the isolation room itself so some such arrangement as the one suggested should be made available in order to check the infection. After handling diseased fowls one should always carefully wash the hands in plain soap and water or some mild disinfectant before touching anything else. The entire flock should be gone over once or twice daily for the purpose of detecting any diseased birds, and their immediate removal is imperative. If they are too sick to justify treatment they should be killed and burned or buried very deeply. Throwing dead birds on the manure pile is an excellent way of spreading disease. It is well to put

## POULTRYBREEDERS' DIRECTORY

Advertisements inserted under this heading at 30c per agate line, per issue. Commercial Baby Chick advertisements 45c per agate line. Write out what you have to offer and send it in. We will put it in type, send proof and quote rates by return mail. Address The Michigan Business Farmer, Advertising Department, Mt. Clemens, Michigan.

### PULLETS, HENS AND COCKERELS

S. C. White Leghorns and S. C. and R. C. Black Minorcas. Must make room before cold weather. About ready to lay.

LAPHAM FARMS, Pinckney, Mich.

S. C. ANCONA COCKERELS HATCHED FROM SHEPPARDS very best, order early, \$5.00 each. H. CECIL SMITH, Rapid City, Mich., R. 2.

### LEGHORNS

#### LEGHORNS

S. C. Buff Leghorn Hens, Pullets and Cockerels. Hens and pullets \$2.50 each; cockerels \$3.00 to \$5.00 each. Show birds a matter of correspondence. LAPHAM FARMS, Pinckney, Mich.

S. C. W. L. PURE BRED COCKERELS FOR sale at two prices \$1.50 and \$2.00. Write JOHN BUCHNER, R. 1, Box 29, Morley, Mich.

### WYANDOTTES

WHITE WYANDOTTES—MARTIN STRAIN Michigan State Fair winners, 1922. Cockerels and pullets, \$3 to \$7. WAYNE CHIPMAN, Washington, Mich., Route 2.

FOR SALE—HEIMBACH'S WHITE WYANDOTTES—Few A1 cock birds and cockerels. Hatching eggs in season. Write for prices. C. W. HEIMBACH, Big Rapids, Mich., R. 5.

FOR SALE—CHOICE WHITE WYANDOTTE cockerels. Fishel strain at \$3. Also hatching eggs. MRS. TRACY RUSH, R. 7, Ithaca, Mich.

### PLYMOUTH ROCK

BUFF ROCK COCKERELS—BIG HUSKY, healthy, uniform color, the result of years of careful breeding. J. C. CLIPP & SONS, Box M, Salt Lake, Ind.

BARRED ROCK COCKERELS. BRED FROM Holtermans' Pedigreed Aristocrats direct. Price \$4—two for \$7 until Feb. 15. N. AYERS & SON, Silverwood, Mich.

BARRED ROCK COCKERELS. Sired by Detroit and Grand Rapids 1st and 2nd prize winners. W. C. Coffman, Benton Harbor, Mich., R. 3.

CHOICE PARKS STRAINED BARRED ROCK cockerels. \$2.75 each until Feb. 15. REESE BROS., Williamston, Mich.

THOMPSON STRAIN BARRED ROCKS. PURE bred stock. Large cockerels \$3, pullets \$2. MRS. FRED KLOMP, St. Charles, Mich.

BARRED ROCK COCKERELS FOR SALE \$3 each. MRS. E. BELLEN, Whittemore, Mich.

BARRED ROCK COCKERELS. NORMAN Strain, shipped on approval, express paid. MRS. JESSIE C. DEAN, R. 1, Mason, Mich.

### ORPINGTONS

BUFF ORPINGTON COCKERELS. Cooks strain. A. J. BREWBAKER, Elsie, Mich.

### RHODE ISLAND REDS

RHODE ISLAND REDS, TOMPKINS STRAIN 1st comb. Stock for sale after September 15th. WM. H. FROHM, New Baltimore, Mich. R. 1.

FOR S. C. RHODE ISLAND RED Cockerels, dark red, good undercolor, good type. Aztec Strain. G. W. VAN FOSSEN, Hillsdale, Mich.

HIGH CLASS EXHIBITION S. C. RHODE Island Red, Barred Rock and American White Leghorn Cockerels. \$5.00-\$7.50-\$10.00 each. 21 years an exhibitor. Satisfaction guaranteed. JNO. CARROLL, Jr., Bay City, Mich.

### TURKEYS—DUCKS—GEESSE

BOURBON RED TURKEYS UNRELATED STOCK. Eggs in season. THOS. G. O'CALLAGHAN, Fenton, Mich.

MAMMOTH BRONZE TURKEYS. START right by buying strong, vigorous, pure bred stock. Write for prices. MRS. PERRY STEBBINS, Saranac, Michigan.

I HAVE A FEW MORE MAMMOTH BRONZE turkeys for sale. Gobblers \$10, hens \$7. MRS. WILBUR SPIDLE, East Jordan, Mich.

FOR SALE—MAMMOTH BRONZE TURKEYS. Beautiful birds. MRS. WILL DILLMAN, R. 5, Cassopolis, Mich.

ORDERS ENTERED NOW AT \$1.50 PER setting for eggs from the largest and whitest Mammoth Pekin Ducks raised in Michigan. Deposit required for sure delivery. A few choice ducks yet to arrive. Cedar Bend Farm, Okemos, Mich.

FOR SALE—GIANT BRONZE TURKEYS FROM Michigan's best strains. Large healthy birds. MRS. LAVERNE BROWNELL, R. 1, Belmont, Mich.

WHITE HOLLAND TURKEYS OF QUALITY. Toms, \$15.00, hens, \$10.00, trio, \$30.00. Toulouse geese \$8.00, gander \$10.00, trio \$20.00. Order direct from this ad to insure filling order. We ship nothing but No. 1 stock. ALDEN WHITCOMB, Byron Center, Mich.

GRAY AFRICAN GANDERS, EXTRA LARGE \$3.50 each. Choice cockerels, S. C. Buff Orpingtons, uniform color, Silver Laced Wyandottes, \$2 each. Big Husky S. C. Black Minorcas, \$1.75. Maple Wood Poultry Farm, Bannister, Mich.

HIGHEST PRICES PAID FOR LIVE and Dressed Poultry, Veal, Eggs, Rabbits. A square deal always. C. E. McNEILL & CO., 325 W. 50, Water St., Chicago, Ill.

HAVE YOU POULTRY FOR SALE?  
AN AD IN THE MICHIGAN BUSINESS FARMER  
WILL SELL IT!

enough potassium permanganate in the drinking water to give it a purple or wine colored appearance. One may use sufficient to make one-half per cent solution for this purpose. Frequent cleaning of the coops with burning of the litter and thorough spraying of the walls, roosts, floors, etc., using a 3 per cent cresol solution or something similar, is advisable. Meat scraps should be reduced to a minimum during the outbreak. Buttermilk may be used rather freely.

Treatment of Individuals—As soon as symptoms of chicken-pox appear the heads of the affected birds should be dipped in a 2 per cent potassium permanganate or 3 per cent boric acid solution once or twice daily for 30 seconds. In dipping the head the mouth should be kept open and the beak elevated so as to allow the air escape and be replaced by the solution. Removing scabs from the combs, wattles or skin, and then applying salves or other preparations to the raw surface is unnecessary and inadvisable as it will never hasten the recovery but on the contrary lowers the birds vitality and often results in early death. Cheesy masses in the eyes should be removed by carefully pressing on the eyelids or by picking them out with a pair of forceps. A cotton swab may also be used to remove exudate from the eye. As eye wash one may use a 3 per cent boric acid or a 0.9 per cent cooking salt solution which may be applied with a medicine dropper or syringe and should be lukewarm when applied. Having removed the exudate and washed the eyes with one of the above-mentioned solutions, 2 drops of a 20 per cent solution of argyrol should be deposited directly on the eyeball. The latter solution should be applied twice daily in most cases while once daily will suffice for the remainder of the eye treatment. Cheesy membranes should be removed from the mouth and larynx and if raw surfaces are left they should be touched with a mixture of tincture of iodine and glycerin equal parts.

Immunization—Lack of space prevents a discussion of this subject. Suffice to say that vaccination against chicken-pox has not proved uniformly successful.

A general discussion on Roup, its symptoms, treatment, immunization, how to prevent, etc., will be published in our February 17th issue. The above article and the one to appear in our next issue are written by Prof. H. J. Stepseth, Bacteriology Section, Michigan Agricultural College.

### BUY CHICKS FROM WELL ADVERTISED HATCHERIES

LAST spring at Cleveland, Ohio, operating under the name of "Kings Hatchery," H. H. Mason, an old offender in the mail-order fraud, put out post cards covering the states of New York, Pennsylvania, Ohio, Indiana, and Illinois offering bargain prices on chicks on orders received before a certain date, in some instances, April 18th, and in others, April 25th. Mason obtained information as to the number of Routes out of each small Post Office in the States above mentioned and the number of Boxes on each Route. Then the post-cards were simply addressed: "THE POULTRY RAISER, ROUTE BOX JONESDALE, OHIO," or whatever State and Post Office was necessary. The responses to these post cards were of great volume and so many Money Orders were presented to the Post Office that the authorities became suspicious and started an investigation, but before an arrest could be made Mason disappeared taking with him \$25,000 or more, which he had received thru the mails in a few weeks and leaving a considerable sum in Cleveland Banks. Those who sent him money for Chicks of course lost their money. He evidently had no intention of filling the orders at all. We are giving this information so that the public may be warned against patronizing any Chick-selling schemes or offers which come to them in this or similar manner from unknown parties. To play safe buy Chicks only from real Hatcheries who come out in the open through legitimate advertisements in reliable Journals and which present to you good Bank references. The operations described above are the third time that Mason has succeeded in defrauding the Chick-buying public. (Continued on following page)



## BABY CHICKS

Guaranteed Chicks From Select Approved Flocks

Kept on free range. Carefully fed and cared for to insure the best of health and vigor. WHITE and BROWN LEGHORNS, ANCONAS, 50, \$7.50; 100, \$14; 500, \$65. BARRED ROCKS, REDS MINORCAS, 50, \$8.50; 100, \$16; 500, \$75. EXTRA SELECT from Approved Flocks, \$2 per hundred higher. Postpaid to your door, full live count guaranteed. Bank Reference. Free Catalog. We want your business not only this year but for years to come and we will certainly endeavor to handle your orders so as to merit your continued patronage. COLONIAL POULTRY FARMS, Box B, Zeeland, Michigan

## GOOD CHICKS—FAIR PRICES

Pedigreed and Utility Grades on Barron Type White Leghorns, also Barred Rocks and S. C. R. I. Reds. Customer report Pullets laying at 4 months and 20 days. Pedigreed Chicks from flocks headed by males bred by Mich. Ag. College from trap-nested hens of 200 to 300 egg record. Leghorns, 25, \$5.50; 50, \$10; 100, \$20. Rocks and Reds, 25, \$6.75; 50, \$12.75; 100, \$25. Utility Chicks from selected, free range, flocks, pure-bred, heavy egg strain hens. Great value in Medium Priced Chicks. White Leghorns, 25, \$4; 50, \$7.50; 100, \$15; 500, \$70; 1,000, \$136. Barred Rocks and Reds, 25, \$5; 50, \$9; 100, \$18; 500, \$88. All prices hold until May 1st, discount of one cent per chick on all orders placed before March 1st. 97% live delivery guaranteed by prepaid Parcel Post. Instructive catalog free. Bank Reference. MICHIGAN HATCHERY & POULTRY FARMS, Box A, Holland, Michigan

## Michigan Chicks

Guaranteed Michigan Bred and Hatched

WHITE and BROWN LEGHORNS, ANCONAS, 50, \$7; 100, \$13; 500, \$80. BARRED ROCKS, R. and S. C. REDS, 50, \$8.50; 100, \$16; 500, \$75. 1,000 Orders at 500 rate. RHODE ISLAND WHITES, 100, \$18; 200, \$35. Postpaid, full live delivery guaranteed. Strong, vigorous Chicks from select, heavy laying flocks. Order NOW right from this ad. Get them when you want them. I want your business and will try to hold it. Catalog free. Reference, Holland City State Bank. KNOLL'S HATCHERY, Box L, Holland, Michigan

## CHICKS WITH PEP, \$11 per 100 and up

Selected Hogan Tested Flocks. Postpaid, full live delivery guaranteed. BUFF ORPINGTONS, WH. and SIL. WYANDOTTES, 50, \$9.25; 100, \$18; BARRED and WH. ROCKS, S. and R. C. REDS, MINORCAS, 50, \$8.25; 100, \$16; ANCONAS and HEAVY BROILERS, 50, \$7.25; 100, \$14. WH. BR. and BUFF LEGHORNS, 50, \$7; 100, \$13. MIXED ALL VARIETIES, \$11 per 100 straight. On 500, 5% off; 1,000 10% off. Ready February 26th. Free Catalog. Member I. B. C. A. HOLGATE HATCHERY, Box B, Holgate, Ohio.

## SUNBEAM HATCHERY

The Chicks that I sell are produced under my personal supervision in a good, modernly equipped hatchery which is kept in best possible condition. The parent stock is carefully selected and of best heavy laying strains, kept on free range, well housed and handled. Free from disease and properly fed. This enables me to produce strong, growing Chicks which will mean PROFIT to my customers. PRICES: WHITE BROWN and BUFF LEGHORNS, 50, \$7; 100, \$13; 500, \$62.50. BARRED ROCKS, R. and S. C. REDS and ANCONAS, 50, \$8; 100, \$15; 500, \$72.50. WHITE and BUFF ROCKS, WHITE WYANDOTTES, AND B. MINORCAS, 50, \$8.50; 100, \$16; 500, \$77.50. WHITE and BUFF ORPINGTONS, CAS, 50, \$8.50; 100, \$16; 500, \$77.50. I guarantee full live delivery by prepaid post. Get your order in now and I will ship when you want them. Bank Reference. Catalog Free. H. B. TIPPIN, Box E, Findlay, Ohio. Member I. B. C. A.

## Chicks That Make Profit

Strong, vigorous, well-hatched Chicks from Heavy laying flocks of SINGLE COMB WHITE, BROWN and BUFF LEGHORNS, RHODE ISLAND REDS, WHITE WYANDOTTES, WHITE ROCKS, BARRED ROCKS, BUFF ORPINGTONS and ANCONAS. 100% live delivery guaranteed. Postpaid. Catalog giving particulars also price list on request. BLUFFTON HATCHERY, Box L, Bluffton, Ohio

## BABY CHICKS

\$10.50 PER 100 AND UP

From Hogan tested, well-kept and housed heavy laying flocks. Barred and White Rocks, Reds, Anconas, Minorcas, 50, \$5.50; 100, \$10; 500, \$77.50. Buff Orpingtons, White Wyandottes, 50, \$5.91; 100, \$11.82; 500, \$85. White, Brown and Buff Leghorns, 50, \$7.50; 100, \$14; 500, \$87.50. Mixed: Postpaid, full live delivery guaranteed. Order NOW from this ad. and get them when you want them. Catalog free. ALSO EGGS FOR HATCHING. Reference, 4 Banks. TRI-STATE HATCHERIES, Box 511, Archbold, Ohio

## BABY CHICKS

Bargain Prices—Write Quick. Best paying, highest quality, Pure Bred Tom Barron and Hollywood White Leghorns—Egg Records 270 to 300 eggs in one year—Brown Leghorns, Anconas, Barred Rocks, Rhode Island Reds, White Wyandottes. Book orders now—get liberal discount. Valuable catalog free.

We guarantee to save you money—give you strong, healthy, perfect chicks, the best that money can buy, guarantee live delivery, and absolute satisfaction. Write today sure. SUPERIOR POULTRY FARMS Box 104 Zeeland, Michigan

## Egg Bred White Leghorn CHICKS

Double your poultry profits with our Famous Improved Winter Egg Basket Strain S. C. White Leghorns. They are the selected, long, deep-bodied typical hens with large lopped combs, mated to the famous Hollywood and Beal 250-300 EGG Fertility sires. All our breeders are selected, and mated by poultry specialists and inspected and approved as to their laying ability and health.

Our Leghorns are winners at LEADING Egg Laying Contests and Poultry Shows. Thousands of customers all over the U.S. are reaping a golden harvest of eggs the year round from our egg bred layers. You, too, can make big money with them. FREE Valuable Catalog tells all about EGG FARMING FOR PROFIT and What and How to feed for results. Worth many dollars to you. Get our prices on chicks and eggs before you buy. Write AT ONCE. Q. DEVRIES, Grandview Poultry Farm, Box 1, Zeeland, Mich.

BABY CHICKS SELECTED CHICKS FROM the heart of the baby-chick industry. Leading pure breeds from heavy egg-producing strains. Alive delivery guaranteed. Send for catalogue and prices. L. VAN HOVEN & BRO., Zeeland, Mich.

## Rosewood Farm Healthy, Hardy Chicks

Well-hatched, carefully packed, and shipped. Select, heavy laying WHITE LEGHORNS, 50, \$7; 100, \$13; 500, \$62.50. ANCONAS, 50, \$7.50; 100, \$14; 500, \$67.50. BARRED ROCKS, 50, \$8.50; 100, \$16.50; 500, \$80. Postpaid, full live delivery guaranteed. Our chicks will render you the best of satisfaction and you will COME BACK TO US. We have had long experience in producing good Chicks and our flocks are second to none. Catalog free. ROSEWOOD FARM, R 12 A, Holland, Mich.

## TIMMER'S HATCHERY

Hardy, healthy Chicks from selected heavy laying flocks. WH. and BR. LEGHORNS, 50, \$7; 100, \$13; 500, \$62.50. ANCONAS, 50, \$7.50; 100, \$14; 500, \$67.50. BARRED ROCKS and REDS, 50, \$8.50; 100, \$16.50; 500, \$80. Postpaid, full live delivery guaranteed. Bank reference. Free Catalog. TIMMER'S HATCHERY Route 3 A, Holland, Mich.

## DeKoster's Hatchery

Strong, vigorous Chicks from selected heavy laying ENGLISH STRAIN WHITE LEGHORNS and BROWN LEGHORNS, 100, \$12.50; 500, \$60. THOMPSON & HOLTERMAN STRAIN BARRED ROCKS and ANCONAS, 100, \$18; 500, \$87.50. Postpaid, full live delivery guaranteed. Catalog free. Bank Reference. DE-KOSTER'S HATCHERY, Box X, Zeeland, Mich.

BABY CHICKS Hatched from strong and vigorous flocks of ENGLISH WHITE LEGHORNS and ANCONAS. BRED FOR HIGH EGG-PRODUCTION. We guarantee 100 per cent chicks on arrival. Postage PAID. Instructive Catalog and price list on request. QUALITY HATCH-ERY, Zeeland, Mich.

## CHICKS

THAT GROW, LAY AND PAY  
Barron English White Leg-  
horns, Brown Leghorns and  
Anconas.

PURCHASE THIS YEAR'S CROP  
OF CHICKS from tested layers, headed  
by large vigorous 260 to 285 Pedigree  
Males.

CUSTOMERS REPORT BIG PROFITS  
with these wonderful layers. Write today  
for our large illustrated catalogue. It  
tells all about them, it's free.

WYNGARDEN HATCHERY  
Box B, Zeeland, Mich.

## 400,000 Chicks

Big, strong, Well-hatched  
Chicks from selected to  
lay stock on free range,  
properly fed and housed to  
insure health and vigor.  
WHITE, BROWN & BUFF  
LEGHORNS, 50, \$7;  
100, \$13; 500, \$62.50;  
BARRED & WHITE  
ROCKS, S. C. & R. C.  
RED, ANCONAS, 50, \$8;  
100, \$15; 500, \$72.50.

WHITE WYANDOTTES, 50, \$8.50;  
100, \$16; 500, \$77.50.  
BUFF ORPINGTONS, SILVER WYAN-  
DOTTES, 50, \$9.50; 100, \$18; 500,  
\$87.50. POSTPAID.

We guarantee full 100% live arrival.  
Reference, Citizen's Bank. Order direct  
from this ad. and save time. Free circular.

MODERN HATCHERY  
Box F, Mt. Blanchard, Ohio

## CHICKS

\$10 per 100 and Up

From good heavy laying flocks on free  
range. WHITE LEGHORNS, 50, \$7;  
100, \$13; 500, \$62.50. BARRED  
ROCKS AND REDS, 50, \$8; 100,  
\$15; 500, \$72.50. From Extra Select  
flocks headed by Mich. Ag. College  
Cockerels. WHITE LEGHORNS, 50,  
\$8.50; 100, \$15; 500, \$72.50.  
BARRED ROCKS AND REDS, 50, \$9; 100,  
\$17; 500, \$82.50. Postpaid and full live delivery  
guaranteed. Order now from this ad. Catalog Free.  
LAKE VIEW POULTRY FARM,  
Route 8, Box 3, Holland, Michigan

## OVIE'S BABY CHICKS

HEAVY LAYING  
breeding stock or real quality helps  
producers. Ovie's strong healthy and  
husky chicks.

25,000 Thrifty Chicks Weekly  
Write for catalog, 14c and up, prepaid.  
12 leading breeds. Delivery guaranteed.

Ovie's Poultry Farm and Hatchery  
132 Boots Street, Marion, Indiana

## QUALITY CHICKS

GET THE PROFITABLE  
AND LAYING KIND  
They will pay you big. Free  
range. Selected. Hogan test. Or-  
pingtons, W. & Sil. Wyandottes,  
50, \$9.25; 100, \$18. Rocks,  
Reds, Minorcas, 50, \$8.25; 100,  
\$16. Anconas, heavy broilers, 50,  
\$7.25; 100, \$14. Leghorns, 50,  
\$7.25; 100, \$13. Mixed, all vari-  
eties, \$11 per 100 straight. Post-  
paid. Safe delivery. Circular free. Bank reference.  
Middlepoint Hatchery, Middlepoint, Ohio, Dept. B.

## Day Old Chicks

Strong, sturdy, S. C. White Leghorns (English  
strain) from large, vigorous, yearling hens, raised  
on our own farms. That lay and pay. Bared Rocks  
and Rhode Island Reds, from best laying strains.  
Send for our illustrated catalog, free.

Hillcrest Poultry Farms and Hatchery  
R. R. 2, Holland, Michigan

## BABY CHICKS

Barred Rocks Hardy free range stock—a Pure  
White Rocks Breed Practical Poultry especially  
Rhode I. adapted to the farmer poultry-  
man; stock that has proved of  
Wyandottes exceptional practical value on  
Orpingtons Michigan farms as high as 173  
Leghorns eggs a year flock average. Send  
Anconas for price list.  
Minorcas

STATE FARMS ASSOCIATION  
202 Chase Block, Kalamazoo, Michigan

CHICKS Low prices. From selected  
heavy laying flocks. English  
White Leghorns, Brown Leghorns, An-  
conas, Bared Rocks. Postpaid, full live  
delivery guaranteed. Catalog free. Bank  
Ref. THE BOS HATCHERY, R. 2,  
Zeeland, Michigan. John Bos, Prop.

CHICKS Barron Strain Selected  
White Leghorns. Produced  
under my personal care. Strong, vig-  
orous chicks carefully packed to go  
safely. Postpaid, full live delivery  
guaranteed. 50 chicks, \$7; 100, \$13;  
500, \$62.50. Get your order in early.  
Egan Hatchery, Box 317 A, Zeeland, Mich.

BABY CHICKS White English Leghorns, Tom  
Barron Strain. White and  
Bared Plymouth Rocks, S. C. R. I. Reds, Buff  
Orpingtons. All pure bred from selected stock.  
Live arrival guaranteed. Postage paid. We do cus-  
tom hatchery. Durand Hatchery, Fenton, Mich.

WHITTAKER'S R. I. REDS—Michigan's  
Greatest  
Color and Egg Strain. Bred from winter layers  
for 13 years. Chicks and eggs. Write for free cat-  
alog. Interlakes Farm, Box 4, Lawrence, Mich.

BABY CHICKS—PUREBRED BARRED ROCKS,  
Buff Wyandottes, Black Minorcas, R. I. Reds,  
Brown and White Leghorns. 12c and up shipped  
postpaid. THOS. G. CALLAGHAN, Fenton, Mich.

KNIGHT STRAIN WHITE PLYMOUTH ROCK  
cockers \$5.00 each. Baby chicks \$20.00 per  
100. ROBERT E. KNIGHT, New Baltimore, Mich.

lic. The first was at Des Moines  
and the following year at Kansas  
City. All told he probably defrauded  
the public out of \$100,000 or more.  
As we have said before, buy Chicks  
only from firms or individuals who  
can and do present proper creden-  
tials and references to you.

## MANAGEMENT OF GROWING CHICKS

THE care of growing chicks, es-  
pecially during the very warm  
weather, is most important, you  
should give them the best of care  
at this time if you wish to succeed.  
The baby chicks may be smart little  
fellows from strong, vigorous parent  
stock, and they may have been  
brooded carefully for the first two  
or three weeks, but unless they re-  
ceive proper care and management  
during their later growing period  
they will not develop properly, and  
many of them will be lost by sickness  
or disease.

The chief essentials to proper  
growth are good coops or houses,  
cleanliness, proper feed and water,  
shade, and free range.

### Coops and Houses

Growing chicks should be provided  
with large, roomy coops or houses  
which will give them a comfortable  
place to stay at night and during  
stormy weather. No particular kind  
of house is necessary, but it should  
be so built that it will provide the  
chicks with lots of light, pure air,  
and sunshine, and protect them from  
dampness and storms of all kinds.  
It also should be arranged so that  
it can be cleaned easily and frequent-  
ly, which is very important.

If brood coops are used, do not  
let too many chicks go into one coop  
at night, as crowding will cause them  
to become overheated, resulting in  
improper growth and sometimes in  
dead chicks. As the season advances  
and the chicks become larger, some  
should be removed and placed in  
other coops to prevent crowding.  
When possible it is best to provide  
larger quarters.

A good house can be built from  
dry-goods or piano boxes at a small  
cost.

Every coop and poultry house used  
for growing chicks should be kept  
clean at all times. Sickness or di-  
sease usually starts in unclean quar-  
ters, and in such quarters lice and  
mites are always more plentiful.  
The coops and houses should be  
cleaned and sprayed once a week,  
and clean shavings, chaff, or sand  
put on the floor. Examine the chicks  
and houses often for lice and mites,  
and if found they should be got rid  
of at once.

### Feeds and Water

A variety of feeds, with fresh,  
clean water, is necessary if chicks are  
to grow properly. The three feeds  
most necessary for rapid growth are  
grain feed, green feed, and dry mash.

Grain Feed—In addition to the  
green feed and dry mash, which  
should be fed night and morning,  
giving as large a quantity as the  
chicks will eat clean, but no more.  
A good grain mixture for growing  
chicks consists of 3 parts cracked  
corn, 2 parts wheat, and 2 parts of  
hulled oats. When available, kafir  
corn or rolled oats or hulled barley  
may be substituted for hulled oats.  
In localities where hulled oats, kafir  
corn, or rolled barley cannot be ob-  
tained or is too high in price, a  
mixture of cracked corn and wheat  
only may be fed until the chicks are  
old enough to eat whole oats, when  
2 parts oats only may be added to  
the corn and wheat mixture.

Green Feed—A reasonable supply  
of fresh green feed is almost as nec-  
essary as grain for growing chicks if  
they are to develop properly. If al-  
lowed liberty they will obtain much  
of it for themselves, but if kept in  
confinement or in quarters where  
green feed is not abundant, it should  
be supplied to them regularly. Lawn  
grass, beet tops, cabbage, and lettuce  
make excellent green feeds.

When chicks are confined to brood  
coops with runs these should be  
placed on ground where the grass is  
green and tender, and as fast as it  
is eaten off the coop and run should  
be moved to a place where the grass  
is plentiful.

Dry Mash—In addition to grain  
and green feeds, dry mash should  
be kept before growing chicks at all  
times after they are three or four  
weeks old. It is best to feed it in  
a hopper inside the building or where

it will not be exposed to rain or wet.  
If a large number of chicks are  
raised the mash may be fed in an  
outdoor hopper.

The following mixture makes a  
good dry mash: Two pounds corn  
meal, 2 pounds middlings, 1 pound  
oatmeal, 2 pounds wheat bran, 1  
pound beef scrap, and one-fourth  
pound of charcoal. When larger a  
larger quantity is desired it should  
be mixed in the same proportion.

Grit and oyster shell should be  
provided also, so that the chicks may  
help themselves whenever they wish.

Sour Milk—Nothing is better for  
growing chicks than a library supply  
of sour milk. If it can be obtained,  
it should be kept always before them  
in an open dish or pan where they  
can eat and drink it freely. When  
sour milk is feed, the amount of  
beef scrap in the dry mash may be  
reduced one-half.

Water—Plenty of fresh, clean  
water is absolutely necessary for all  
growing chicks. In hot weather it  
should be given twice daily and put  
into fountains or dishes and placed  
in the shade so as to keep as cool as  
possible. Clean the water dish  
thoroughly each day before filling.

An abundance of free range with  
plenty of shade is necessary if the  
chicks are to grow rapidly into vig-  
orous fowls. Growing chicks that  
have free range obtain quantities of  
green feed, bugs, worms, and other  
things, therefore requiring less grain,  
and they are also less liable to sick-  
ness or disease. Give your chicks  
free range whenever possible.—Ani-  
mal Husbandry Division, U. S. Dept.,  
of Agriculture.

## MICHIGAN BREEDER TRICKED AT NEW YORK

TWENTY-three years of scietific  
work gone for naught. Fifteen  
thousand dollars vanished. All  
because of a few missing feathers.

This is what a few words in a tele-  
gram received from New York said.  
At the Madison Square Gardens poul-  
try show, several crates of birds en-  
tered by Mr. Ferris, were found to  
have been tampered with and \$15,-  
000 worth of prize winning white  
leghorns possibly rendered worth-  
less. Tails of 14 male birds had  
been clipped, and they had been  
roughly handled. L. E. Heasley,  
representing Mr. Ferris at the  
show, was compelled to withdraw  
them from exhibition.

The management of the show post-  
ed notice of \$500 reward for infor-  
mation leading to the arrest of per-  
sons responsible for the mutilation of  
the birds. It is believed the act was  
committed by a rival exhibitor.

### Represents 23 Years' Work

The 14 mutilated birds are the re-  
sult of 23 years' breeding, culling  
and selecting and were the choicest  
of his flocks. Although their market  
value is probably around \$15,000, he  
says, to him they were worth many  
thousands more and were not for  
sale at any price.

For one year these birds had been  
carefully groomed for this show, Mr.  
Ferris said. In order that not a  
single feather should be broken or  
the plumage ruffled, they had not  
been exhibited for 12 months, and  
when the crates had been prepared  
and the birds shipped it was Mr. Fer-  
ris' belief that they were the best  
to be found anywhere in the country.  
He was confident they would carry  
off all the awards as they have done  
time and again in previous years at  
other shows.

The loss of the 14 males will cause  
him many thousands of dollars' loss  
in addition to their actual value.

## ANNUAL POULTRY CROP WOULD BUILD TWO PANAMA CANALS

The poultry in the United States  
yields over half a billion dollars  
every year—enough to build two  
Panama Canals.

The Panama Canal cost about  
\$300,000,000. The poultry prod-  
ucts are worth over \$600,000,000  
annually.

Ninety per cent of this amount  
is produced by the small flocks on  
the farms of the country.—Internat-  
ional Harvester Co., of America.

### DOING HIS SHARE TOO

Editor—Michigan Business Farmer—  
Enclosed find order for one dollar to re-  
new my subscription to Business Farmer  
for two years. I sure think you are  
doing something to help us farmers in  
these strenuous times so I feel we must  
do our part with you.—Thomas Rawson,  
Huron, County, Michigan.

## HIGHEST QUALITY CHICKS

Michigan's Old  
Reliable Hatchery

(The most modern and best  
equipped Hatchery in the state)

### PURE BRED English and American

S. C. W. Leghorns; S. C. Anconas; Bared  
Plymouth Rocks and R. I. Reds. Strong,  
well hatched chicks from tested Hoganized  
Free range stock that make wonderful  
winter layers.

Chicks sent by Insured Parcel Post Prepaid  
to your door. 100% live delivery guaran-  
teed. Fifteen years of experience in pro-  
ducing and shipping chicks has given ad-  
vantage satisfaction to thousands. Write for  
illustrated free catalog and price list.  
Get lowest price on best quality chicks be-  
fore you buy.  
Holland Hatchery, R. 7, Holland, Mich.

## Day Old Chicks

From Select, Hogan Tested,  
Flocks on Free Range. Well-  
fed and handled to insure  
strong, vigorous chicks.  
Heavy Layers. PRICES:  
WHITE and BROWN LEG-  
HORNS and ANCONAS, 50,  
\$7.50; 100, \$14; 500, \$65.  
BARRED ROCKS, 50,  
\$8.50; 100, \$16; 500, \$75.  
Hatched right and shipped  
right. Postpaid, 100% live delivery guaran-  
teed. Bank Reference. Order direct  
from this ad. Circular free.  
BORST & ROEK, Box P, Zeeland, Mich.

## CHICKS From State Inspected Flocks

We Specialize In  
ARISTOCRAT BARRED  
ROCKS, TOM BARRON  
WHITE AND EVERLY  
BROWN LEGHORNS, SHEP-  
PARD'S STRAIN ANCONAS.  
SELECT ARISTOCRAT ROCK  
CHICKS, \$30 per 100.  
SELECT LEGHORN AND  
ANCONAS CHICKS, \$22 per  
100. 10% discount on early  
orders to March 1st on these special matings. Get  
our special low prices on our grade B Chicks. Post-  
paid, full live delivery guaranteed. Reference 2  
Banks. Also Breeding stock in above varieties.  
Member M. B. C. A. FAIRVIEW POULTRY  
FARM, Route 2 K, Zeeland, Michigan.

## Star Hatchery BABY CHICKS

From Select, Vigorous, Heavy  
Laying Breeding Stock

WHITE and BROWN LEG-  
HORNS and ANCONAS.  
50—\$7.10—\$14.50—\$65  
50—\$8.10—\$16.50—\$75  
Hatched by modern methods  
in best machines under our  
personal supervision. Carefully  
packed and sent postpaid and  
100% live delivery guaranteed. Bank Reference.  
You take no chances in ordering STAR BABY  
CHICKS. Place your order now and get them  
when you want them  
STAR HATCHERY, Box X, Holland, Michigan

## WOLVERINE BABY CHICKS ARE CHICKS THAT SATISFY

Bred for egg production 13 years. We  
hatched and shipped chicks for 12 years.  
This assures you success. ENGLISH TYPE  
WHITE and BROWN LEGHORNS  
100% safe arrival guaranteed. Write for  
catalogue. It's free. WOLVERINE  
HATCHERY, R. 2, Zeeland, Mich.

## PIONEER FARMS

CHICKS FROM APPROVED FLOCKS  
Single Comb, White Leghorns, Heavy  
Layers, 50, \$7; 100, \$13; 500, \$60.  
Tom Barron Strain S. C. W. Leg-  
horns, 50, \$8; 100, \$15; 500, \$70.  
Bared Rocks, Extra Fine, 50, \$9.50;  
100, \$18; 500, \$85.  
All Chicks hatched from our own  
flocks. Postpaid, 100% live delivery guaranteed.  
Reference, Zeeland State Bank. Circular free.  
PIONEER FARMS, R. 3 M, Zeeland, Mich.

## GUARANTEED BABY CHICKS

TOM BARRON ENGLISH  
S. C. WHITE LEGHORNS

1,500 breeders on our farm.  
Hatch every Tuesday starting  
March 1st. Write at once for  
new catalog and prices. 100%  
delivery guaranteed, shipped  
postpaid.

DOWNS POULTRY FARM  
R. F. D. 1, Washington, Mich.

## DAY OLD CHICKS

Best Paving, Heavy Laying, Pure Bred Tom  
Barron English White Leghorns, Rhode Island Reds,  
Park's Bared Rocks. Strong healthy chicks from  
State Inspected and Approved Stock. Order now  
at new low prices. Instructive catalog FREE.  
Brunner's Poultry Farm, Box 26, Holland, Michigan

## GUARANTEED BABY CHICKS

From World's Champion Layers. Certi-  
fied, Trap-Nested, Pedigreed, Snowden's English  
White Leghorns, 250-281 Egg records; Snap-  
pard's 381 Egg strain Anconas. Guaranteed  
strong healthy chicks. Real money makers.  
Beautiful Catalog FREE.  
FRANK A. VAN BREE, Box 48, Zeeland, Mich.

BABY CHICKS—REMARKABLE FOR SIZE  
and strength. Reasonable  
prices. Leghorns, Anconas, Rocks, Wyand-  
ottes, Orpingtons, Minorcas, Spanish, Brahmas.  
TYRONE POULTRY FARM, Fenton, Mich.

BABY CHICKS—FROM SELECTED FLOCKS  
Six leading varieties. Popular prices and guaranteed  
delivery. Write for catalog and price list.  
H. H. PIERCE, Jerome, Mich.

LOOK—75,000 CHIX 12c AND UP. TEN  
purebred certified egg-tested varieties. Hatching  
eggs, circular free. LAWRENCE POULTRY  
FARM, R. 7, Grand Rapids, Mich.

QUALITY BABY CHICKS S. C. Brown  
Strain White Leghorn, Baby Chicks. Write for cal-  
alogue. Cooks Poultry Farm, Holland, Mich.

CHICKS—SINGLE COMB BUFF LEGHORNS  
only Strong healthy chicks from good  
laying stock. J. W. WEBSTER, Bath, Mich.

# The Agricultural and Business Situation

Revised Monthly by the Department of Research of the American Farm Bureau Federation.

## SUMMARY:

Industrial output is beginning to catch up with agricultural production. The large volume of equipment now being ordered by the railroads is significant and encouraging. Automobile production is continuing at a pace that contains a warning. The favorable factors in Europe in 1922 were financial improvement in England and France and industrial activity in France and Germany. Disheartening features of the foreign situation include unemployment in England and financial collapse in Germany. The new move by France to force payment by Germany injects new uncertainty into European affairs.

Money and credit conditions point to continuing business revival in the United States. The general price level is 14 per cent above a year ago. Agricultural prices have made about a 6 point gain toward the relationship with other prices existing before the war but have 32 points yet to go.

## I. PRODUCTION AND TRADE:

The year 1922 brought increasing industrial activity. Manufacturing output was around 30 per cent greater than in 1921. The output in December, 1922, was about 50 per cent more than the month of lowest production, July, 1921.

The railroads purchased eight times as many freight cars in 1922 as in 1921. This is particularly encouraging in view of the deficiency in railroad equipment. A fact which is not so favorable is the enormous output of automobiles which shows no sign of lessening. Automobiles fall partly in the luxury class. Prices of steel are rising and costs are and will be higher in lines of industry more necessary of present development than the automobile industry.

Agricultural output in 1922 was the third largest ever produced, being exceeded in the years 1915 and 1920.

## II. FOREIGN TRADE:

Total exports for 1922, when higher price level is considered, were practically the same as for the previous year. Imports showed a slight increase. Agricultural exports which customarily comprise a little over one-half of the

total, declined in volume. The decline in cotton and pork products was small, but in the case of wheat about 40 per cent. It should be remembered that wheat exports in 1921 were unprecedented in volume.

England, the leading purchaser of American goods, has improved its financial position to a marked degree during the year as reflected in a gain of about 50 cents in the price of British drafts. The price is still 20 cents under par. A discouraging feature of the situation in England is the large amount of unemployment which persists.

France made some progress during 1922 in stabilizing its finances and its population has been at work producing goods and rebuilding the devastated areas.

In Germany, during the year, production has been feverishly maintained partly as a result of rising prices due to the unlimited issue of paper money which has brought the financial structure to ruin.

American agriculture has a large stake in the stability of Europe and will be confronted with uncertainty until European affairs are arranged. The present activity of France, designed to force Germany to meet its obligations, has not gone far enough to indicate whether it will retard or hasten the coming of more settled conditions.

## III. MONEY AND CREDIT:

Interest rates are low, ample credit is available and industrial profits are slightly higher than in 1921. This combination of circumstances should lead to moderate increase in the demand for credit, and expanding industrial activity. The Harvard Economic Service gives great significance to the money factor in forecasting a continuation of the upswing in business for the year 1923.

## IV. PRICES:

Farm commodities made a gain of 21 per cent in price during the year 1922. Food products of which several are sold directly from the farm, advanced 6 per cent. All commodities, other than farm and food products, gained 16 per cent during the year. These facts are based on wholesale prices collected monthly on 400 items by the United States Bureau of Labor Statistics.

## I. Production and Trade

### I. Agriculture:

U. S. Production—000,000 omitted.

	Dec. 1st 1922	Estimate	1921	1916-1920	Average	Estimate	Dec. 1st 1922
	Preliminary						per cent
Corn, bu.	2891	3069	2831	102			
Wheat, bu.	856	815	799	107			
Oats, bu.	1215	1078	1413	85			
Barley, bu.	186	155	197	94			
Rye, bu.	95	62	68	139			
Buckwheat, bu.	15	14	14	106			
Potatoes, bu.	451	362	373	133			
Sweet Potatoes, bu.	110	99	89	128			
Hay, all, tons.	113	98	102	111			
Cotton, bales	10	8	12	83			
Tobacco, lbs.	1325	1070	1878	96			
Flaxseed, bu.	12	8	11	109			
Rice, bu.	42	38	42	100			
Peanut, bu.	57	33	44	129			
Pears, bu.	19	11	14	136			
Apples, total, bu.	204	99	179	114			
Apples, com'l, bbls.	31	22	27	115			
Sugar Beets, tons.	5	8	7	71			
Cranberries, bbls.	6	4	4	150			
Beans, bu.	12	9	13	90			
Onions, bu.	18	14	17	105			
Cabbage, tons	1	6	7	113			
Sorghum, gal.	37	46	40	93			
Cloverseed, bu.	1.9	1.5	1.5	127			
Peanuts, lb.	624	829	1043	59			
Hops, lb.	26	29	32.1	81			

\*As percentage of average 1916-1920.

World Production—000,000 omitted.

	1922	1921	Average
			1906-13
Wheat, bu. (1)	3,058	3,069	2,800
Corn, bu. (2)	3,450	3,781	3,512
Rye, bu. (3)	785	773	773
Oats, bu. (4)	3,003	2,750	3,008
Barley, bu. (5)	833	818	882
Potatoes, bu. (6)	3,123	2,445	3,006
Cotton, bales (7)	16	14.1	19.6

(1) Russia and Mexico excluded. (2) 17 countries. (3) 18 countries. (4) 27 countries. (5) 25 countries. (6) 16 countries. (7) 500 pounds net, lint-free.

### 2. Mining:

Figures express production as a per cent of normal. In estimating normal production, due allowance is made for seasonal variation and year to year growth.

	Nov., 1922	Oct., 1922	Nov., 1921
Anthracite coal	99	95	82
Bituminous coal	81	75	67
Copper	87	84	19
Petroleum	123	112	102

### 3. Manufacturing:

	Nov., 1922	Oct., 1922	Nov., 1921
Wheat flour	102	109	78
Meat	*	97	83
Sugar	147	108	125
Cotton	106	95	99
Pig Iron	92	83	47
Steel Ingot	88	85	53
Lumber	*	*	84
Wood pulp	*	92	83
Gasoline	*	105	96
Cement	*	126	102
Wool	*	131	121

### 4. Building:

	December 1922	December 1921	Twelve Months 1922	Twelve Months 1921
Contracts awarded in 27 States:				
(F. W. Dodge Co.)				
Number	7,080	6,181	107,637	78,222
Value (000,000 omitted)	\$ 215	\$ 199	\$ 3,346	\$ 2,359

### 5. Transportation:

	Week Ending Jan. 13, 1923	Same Week Ago	Same Week Year	Week Ending Jan. 13, 1922
Freight Car Loadings:				
Total	873,251	919,828	720,877	121
Grain and grain products	51,034	55,608	50,187	102
Livestock	37,500	38,170	36,165	104
Coal	198,686	200,505	159,245	124
Coke	13,795	13,051	7,258	190
Forest products	68,632	63,195	48,490	142
Ore	10,763	9,879	4,451	243
Merchandise and Miscel.	492,841	539,420	415,081	119

\*As percentage of week year ago.

### 6. Employment:

	November, 1922	October, 1922	September, 1922
Out of 65 industrial centers employment:			
Increased over previous month in	54	56	48
Decreased from previous month in	11	9	17

### 7. Bank Clearings:

	Dec., 1922	Nov., 1922	Dec., 1921
New York City	\$18.90	\$17.33	\$18.48
Outside New York City	16.51	15.80	14.37

### 8. Mail Order Sales:

	December 1922	December 1921	Twelve Months 1922	Twelve Months 1921
Montgomery Ward	\$11,623,292	\$ 7,425,126	\$ 92,474,182	\$ 75,956,649
Sears Roebuck	20,756,296	17,080,880	182,165,824	177,014,888

### I. Exports:

	000 omitted	1922	1921	1922	1921
Commodity:					
Grand total, all exports	\$374,544	\$289,242	\$3,425,724	\$4,087,753	
Beef and veal, lb.	2,520	2,763	30,743	39,307	
Pork, lb.	60,775	37,647	624,663	697,362	
Lard, lb.	62,321	51,854	688,354	804,399	
Neutral lard, lb.	1,478	733	17,981	22,438	
Butter, lb.	564	480	10,576	7,576	
Cheese, lb.	332	500	4,699	11,333	
Hides and skins	\$ 313	\$ 524	\$ 3,591	\$ 3,642	
Corn, bu.	7,521	4,542	158,851	118,731	
Meal and flour, bbl.	50	38	584	742	
Wheat, bu.	10,577	13,955	155,015	269,606	
Flour, bbl.	1,556	1,246	13,524	15,787	
Oats, bu.	2,614	132	29,679	3,126	
Meal and rolled, lb.	14,250	4,039	102,936	89,712	
Fruits and nuts	\$ 13,658	\$ 9,725	\$ 67,430	\$ 64,489	
Veg. oils and fats	\$ 1,921	\$ 1,067	\$ 12,818	\$ 26,573	
Sugar, lb.	8,707	37,874	1,830,748	862,522	
Leaf tobacco, lb.	*	29,236	*	416,581	
Cotton, bale	858	649	5,506	5,834	

\*Not available.

### 2. Imports:

	September 1922	September 1921	September 1922	September 1921
Grand total, all imports	\$228,795	\$179,292	\$2,181,386	\$1,872,696
Beef and veal, lbs.	10,533	2,066	26,998	22,033
Pork, lbs.	76	56	435	582
Butter, lbs.	89	398	2,735	12,173
Cheese, lbs.	3,037	2,571	26,241	15,535
Hides and skins	\$ 50,587	\$ 32,806	\$ 358,765	\$ 268,980
Corn, bu.	2	3	97	156
Oats, bu.	37	62	1,271	3,081
Wheat, bu.	782	81	14,321	10,171
Flour, bbl.	42	4	552	780
Fruits and nuts	\$ 3,864	\$ 5,268	\$ 55,489	\$ 48,529
Veg. oils and fats	\$ 3,822	\$ 2,990	\$ 44,079	\$ 26,474
Sugar, lbs.	390,150	315,999	8,434,011	4,747,517
Leaf tobacco, lbs.	2,780	2,600	51,556	36,914
Cotton, lbs.	2,506	3,181	113,724	67,091
Wool, lbs.	27,892	14,592	278,527	288,114

### 3. Prices of Foreign Drafts:

	Price of Demand Drafts	Jan. 22, 1923	Dec. 19, 1922	Jan. 23, 1923
Par of Exchange				
England	\$4.87 to 1£ Sterling	\$4.66	\$4.61	\$4.22
France	19.3c to 1 franc	0.34c	7.45c	8.04c
Germany	23.8c to 1 mark	0.05c	0.05c	0.48c
Belgium	19.3c to 1 franc	5.67c	6.83c	7.74c
Italy	19.3c to 1 lire	4.72c	5.08c	4.37c
Spain	19.3c to 1 peseta	15.62c	15.70c	14.94c
Austria	20.3c to 1 crown	0.014c	0.014c	0.03c
Denmark	26.8c to 1 crown	18.68c	20.70c	20.00c
Norway	26.8c to 1 crown	18.64c	19.05c	15.65c
Sweden	26.8c to 1 crown	26.86c	26.89c	24.85c
Holland	40.2c to 1 florin	39.50c	39.82c	36.36c
Argentina	42.5c to 1 peso	39.25c	37.90c	34.25c
Brazil	32.4c to 1 milreis	11.45c	12.15c	12.63c
India	48.7c to 1 rupee	32.25c	30.95c	28.00c
Japan	49.8c to 1 yen	48.85c	48.95c	47.38c
Canada	100 c to 1 dollar	99.13c	99.43c	95.00c

### 4. Discount Rate of the Bank of England:

	Jan. 17, 1923	Month Ago	Year Ago
3%			

## III. Money and Credit

### 1. Gold, Currency and Bank Deposits:

	000,000 omitted	Jan. 1, 1923	Dec. 1, 1922	Jan. 1, 1922
Stocks of monetary gold in the United States	\$ 3,943	\$ 3,909	\$ 3,657	
Total supply of currency in the United States	4,733	4,617	5,775	
Total deposits in National Banks	\$16,599	\$16,321	\$14,561	
Deposits in New York City Banks	\$3,850	\$3,830	\$3,840	

### 2. Gold Movement:

	000 omitted	November 1922	November 1921	November 1922	November 1921
Exports of gold	\$ 3,431	\$ 607	\$ 34,165	\$ 21,729	
Imports of gold	18,308	51,298	248,730	659,582	

### 3. Federal Reserve Ratio:

	Jan. 17, 1923	Dec. 13, 1922	Jan. 18, 1922
Ratio of total reserves to deposit and Federal Reserve note liabilities combined	76.1%	75.1%	76.0%

### 4. Interest Rates:

	Dec., 1922	Nov., 1922	Dec., 1921
4-6 mos. commercial paper	4.88%	4.88%	5.38%
60-90 day commercial paper	4.62%	4.62%	5.12%

### 5. Discount Rates of the Federal Reserve Banks:

	Jan. 1, 1923	Dec. 1, 1922	Jan. 1, 1922
Range of rates for the twelve banks on commercial, agricultural and livestock paper	4-4 1/2%	4-4 1/2%	4 1/2-5 1/2%

### 6. Stock and Bond Prices:

	Jan. 12, 1923	Dec. 8, 1922	Jan. 13, 1922
20 Industrial stocks	\$98.63	\$97.88	\$80.82
20 Railroad stocks	85.09	84.56	74.98
40 Bonds	89.01	89.06	85.26

### 7. Business Failures:

	Jan. 11, 1923	Dec. 8, 1922	Jan. 12, 1922
Bradstreets	550	462	717
Duns	546	484	719

## IV. Prices

### 1. Wholesale Prices of Farm Commodities:

Wholesale Prices of Farm Communities:				
Quotations at Chicago except as noted.				
	Jan. 23, 1923	Month Ago	Year Ago	
Fat hogs, cwt., average.....	\$ 8.30	\$ 8.45	\$ 8.75	
Beef steers, good native, cwt., av.....	9.35	9.00	7.00	
Fat lambs, cwt., average.....	14.20	14.25	13.30	
Fat sheep, cwt., average.....	7.90	7.15	6.85	
Wool, Ohio delaine unwashed, lb. (Boston).....	.57	.565	.45	
Butter, 92 score, lb.....	.50	.51	.34	
Cheese, No. 1 twins, lb.....	.266	.2675	.20	
Eggs, fresh firsts, doz.....	.355	.395	.39	
Poultry, hens, lb.....	.22	.17	.25	
Wheat, No. 2 hard, bu.....	1.155	1.26	1.16	
Corn, No. 2 mixed, bu.....	.695	.73	.505	
Oats, No. 2 white, bu.....	.435	.455	.38	
Rye, No. 2, bu.....	.855	.90	.815	
Barley, bu.....	.625	.67	.585	
Kafir, No. 2 white, cwt. (K. C.).....	1.575	1.55	.94	
H. y. No. 1 timothy, ton.....	21.00	21.00	21.50	
Flax, No. 1 bu. (Minneapolis).....	2.84	2.605	2.16	
Cotton, middling, lb. (New York).....	.2875	.268	1.775	
Beans, white, cwt. (f. o. b. Michigan).....	8.05	7.50	4.65	
Potatoes, northern whites, cwt.....	.90	.85	2.00	
Onions, midwest yellow, cwt.....	2.75	2.50	8.00	
Apples, winter varieties, bbl.....	5.00	5.00	8.50	
Hides, No. 1 native heavy, lb.....	.205	.20	.165	
Sugar, fine granulated, lb. (N. Y.).....	.067	.0705	.0505	



# MARKET FLASHES



## FOOTE'S MARKET LETTER

By W. W. Foote

It is an old saying that advice is cheap and the more one gives, the more one has left. Perhaps this is an exaggeration; at any rate there are many requests from farming districts asking what appears to be the best course to follow at this time in regard to selling grain and other farm products. In replying, it should be said that much depends upon how the farmer is fixed financially and whether he is working his own farm or that is not mortgaged. Supposing that the Michigan farmer is out of debt, and physically able to carry on his farm work without hiring any helpers, there appears to be no good reason for worrying over the existing conditions over in Europe, bad as they are. Michigan farmers are as a class practically clear of the strined conditions in such states as Iowa and Illinois, where the great war boom in farm prices lifted lands to extremely artificial figures; and furthermore, our Michigan farmers are largely in the habit of diversifying their crops, instead of depending mainly on a single crop. Then the farmers of this state are more than ever before realizing the importance of growing most of the foods consumed on the farm. It is worth remembering that about 9 per cent more of the food consumed on farms could economically be produced locally rather than brought in from distant producing areas, as a recent nation-wide survey made by the United States Department of Agriculture maintains. This statement is the result of questions mailed to 20,000 crop reporters in all parts of the country, revealing that about 60 per cent of the food consumed on American farms is produced locally. To this statement, it may be added that this applies especially to Michigan, and farmers who raise their own vegetables, apples, beans, hens, cows, and hogs have gone a long way to solve the vexing problem of living comfortably on the old farm. As for marketing the surplus products of the farms, that is, of course, quite a different matter.

Manifestly, the market reporter is fallible in judging the future outlook, but just now it seems to be advisable to let the live stock go to market as soon as fat enough to grade well and not try to produce as much weight as is possible. Much depends upon whether the farmer has sufficient feed for his stock, and if he is short of feed, the best course is to ship the stock without delay. In reading the market reports, it should be remembered that cattle classed as choice to prime cut no figure in the sales, so few are offered. Most of the cattle marketed are of what is termed an "in-between" kind, with good representation of the poorer kind. Hogs are bringing good prices still, despite the liberal marketing at packing points, while sheep are making their fortunate owners no end of money.

### Why Wheat Prices Fell

While prices for wheat are lower than they were several weeks ago, being put forth by market writers ago, they are still higher than before the war. No end of predictions are being put forth by market writers, reinforced by figures showing the available stocks and what the world importing countries may be expected to consume; but it may be just as well for the farmer owning marketable grain to take a fair price so long as it is offered, even if the price is higher later on. As for corn, the farm is the place for using it, although after feeding all that is needed for home feeding and for seed, the remaining surplus should be sold without undue delay. Corn for May delivery has been selling recently on the Chicago market around 20 cents a bushel higher than a year ago, although remaining stocks appear to be ample. Traders are not showing much interest in the oats market, and supplies are ample, although stocks in sight are much smaller than a year ago. Oat prices are con-

## MARKET SUMMARY

Wheat prices gain slightly as demand improves. Corn easy. Oats and rye remain unchanged. Beans are inactive. Live poultry, dressed calves and hogs are wanted. Receipts of butter and eggs exceed demand and market is easy. Potatoes steady. All live stock show more activity and the market is steady.

(Note: The above summarized information was received AFTER the balance of the market page was set in type. It contains last minute information up to within one-half hour of going to press—Editor.)

considerably higher than a year ago, and May rye sells a little higher than last year. Exports of wheat, flour, and rye have been running on quite a large scale, with heavy exports of rye to Germany and Norway, owing to the fact that rye is cheaper than wheat. Wheat for May delivery sells in Chicago at \$1.17, while cash sales are made of No. 2 yellow corn at 71½ cents, No. 2 white oats at 46½ cents, rye at 86 cents and barley at 60 to 64 cents. Michigan pea beans sell at \$8.35 to \$8.45 per 100 pounds, with buying in a small way.

### Live Stock on Farms

There were more hogs on farms in the United States on January 1 than at any time since 1919, as is shown by the recent government live stock report. The total number is 63,424,000 head, a gain of 5,000,000 as compared with the revised figures of the previous year and 7,327,000 in excess of two years ago.

Milch cows increased 347,000 head as compared with the previous year, while cattle increased 373,000 head. The largest increase in other cattle is in the states where the corn crop was largest, and represents a shifting of livestock from sections where the crops were short to other parts of the country where feed is abundant.

A gain of 882,000 was shown in the number of sheep as compared with 1922, while mules increased 39,000 and horses decreased 203,000 head. Comparative figures follow:

Farm Animals	Total
Horses—Jan. 1, 1920.....	19,766,000
Do Jan. 1, 1921.....	19,208,000
Do Jan. 1, 1922.....	19,056,000
Do Jan. 1, 1923.....	18,835,000
Mules—Jan. 1, 1920.....	5,427,000
Do Jan. 1, 1921.....	5,455,000
Do Jan. 1, 1922.....	5,467,000
Do Jan. 1, 1923.....	5,506,000
Milch Cows—Jan. 1, 1920.....	23,722,000
Do Jan. 1, 1921.....	23,594,000
Do Jan. 1, 1922.....	24,082,000
Do Jan. 1, 1923.....	24,429,000
Other Cattle—Jan. 1, 1920.....	43,398,000
Do Jan. 1, 1921.....	41,993,000
Do Jan. 1, 1922.....	41,550,000
Do Jan. 1, 1923.....	41,923,000
Sheep—Jan. 1, 1920.....	39,025,000
Do Jan. 1, 1921.....	37,452,000
Do Jan. 1, 1922.....	36,327,000
Do Jan. 1, 1923.....	37,209,000
Swine—Jan. 1, 1920.....	59,344,000
Do Jan. 1, 1921.....	56,697,000
Do Jan. 1, 1922.....	57,834,000
Do Jan. 1, 1923.....	63,424,000

### The Chicago Cattle Market

More cattle are being fed in feeding districts than a year ago, and western markets are receiving more than at that period, the bulk of the beef steers grading only fairly well and few of the prime long-fed heavy steers going at \$10 to \$11 per 100 pounds. However, prices are still much higher than a year ago or before the war, and there is a good profit for the stock feeder who understands the business. Not many stocker and feeder cattle are being shipped back to the farms for a proper finish, and such cattle sell at high prices, the packers competing with country buyers for the best offerings. Beef steers are selling mainly between \$8 and \$10, with sales down to \$6.25 to \$7.25 for the commoner kinds and plenty of cows and heifers taken at \$4.50 to \$7. Veal calves are selling at \$6 to \$12.50 per 100 pounds and stockers and feeders at \$5 to \$8, mainly at \$6.50 to \$7.50.

### Chicago Hog Market

Because of greatly increased receipts, prices have undergone a great reduction within a short time, ruling the lowest in a long time, not-

withstanding a large demand for the better classes of swine for shipment to eastern packing points. Meanwhile, the consumption of fresh pork products is extremely large, and exports of provisions are heavy, recent exports of lard being far greater than a year ago. Hogs are marketed mostly very heavy in weight, recent receipts averaging 241 pounds. This is the heaviest at this season in over ten years and 15 pounds above the average for the period. The large number of hogs feeding points to heavy consumption of corn and corresponding high prices. Unusually heavy receipts of hogs last week caused big breaks in prices, late sales being made at \$6.80 to \$8.40.

### Big Profits from Sheep

Michigan farmers have never gone back on sheep, and seldom have they made such handsome profits as this season. Michigan is one of the important feeding states, and owners have been marketing their fat flocks of sheep, yearlings and lambs in Chicago freely recently, prices alternately advancing and weakening, but all the time ruling much higher than a year ago or before the war. Colorado is a large sheep state, and many flocks are being marketed from there. Demand runs much strongest on fat handy-weight lambs, and consignments averaging 90 pounds and over are severely discriminated against by packers. Late sales were made of lambs at \$12.75 to \$15, with feeding and shearing taken at \$13.75 to \$15.25. Shorn lambs fetch \$1.50 to \$2.50 less than these prices.

## WHEAT

In spite of the fact that during the past fortnight the wheat market has had nothing but bearish news the price has changed only slightly. In general, the price has been at about a standstill. Any increase in the price brought out a large supply of grain while any decline found the market well supplied with buyers. export demand is practically nothing. Dealers are expecting only a very little business from that source until a settlement has been reached between France and Germany. It is hard to predict what the market will do. The supply is large and demand small at present and if times were normal the natural trend of prices would be downward. But conditions are far from normal at present and the supply and demand position is not exercising its usual influence. Many of the larger dealers are confident that the wheat market is in a position for an advance in the near future. Some look for the advance to amount to as much as 5 cents.

### Prices

Detroit—Cash No. 2 red, \$1.35; No. 2 white, \$1.33.  
Chicago—No. 2 hard, \$1.15½.  
New York—No. 2 red, \$1.29½; No. 2 hard, \$1.25½.

Prices one year ago—Detroit, No. 2 red, \$1.27½; No. 2 white, \$1.24½; No. 3 mixed, \$1.24½.

## CORN

The corn market was agitated by the action of wheat during the past two weeks. The price at Detroit has shown little change during this period. Demand is light being mostly local and receipts are of fair volume, although not enough to overload the market and cause prices to decline.

### Prices

Detroit—Cash No. 2, 76½¢; No. 3, 75½¢; No. 4, 73½¢; No. 5, 71½¢.

Chicago—No. 2 mixed, 70@71c; No. 2 yellow, 70½@71c.

New York—No. 2 yellow and No. 2 white, 88½¢; No. 2 mixed, 88½¢. Prices one year ago—Detroit, No. 2 yellow old, 57c; No. 3 yellow new, 53c; No. 4 yellow new, 51½c.

## OATS

Oats are featureless and continue to follow the trend of other grains. The market is inactive with demand light, both domestic and shipping.

### Prices

Detroit—Cash No. 2, 49c; No. 3, 47½¢; No. 4, 46c.  
Chicago—No. 2 white, 43½¢@44½¢; No. 3 white, 42½¢@44c.  
New York—No. 2 white, 55c.  
Prices one year ago—Detroit, No. 2 white, 40c; No. 3, 37½¢.

## RYE

This market has been quiet the past couple of weeks. Demand and supply are just about balanced. At the present time many of the larger dealers believe that the market is in position to decline although the tone is steady and quiet on the majority of the larger markets.

### Prices

Detroit—Cash No. 2, 90c.  
Chicago—Cash No. 2, 86½¢@86¾¢.  
Prices one year ago—Detroit, Cash No. 2, 87c.

## BEANS

There has been several declines in the price of beans on the Detroit market during the past fortnight and many are becoming frightened believing that the market is at the beginning of a long slump. We cannot believe this is true because present conditions justifies an upward trend instead. To the "Bean and Pea Journal" the market for the navy beans appear as follows, according to the most recent issue of that publication: "The predictions that beans will see 9 or 10 cents seems possible of fulfillment. Many believe there will be a steady drift upward well into the spring and summer months.

But another view is coming to the fore. With the price at present high point, there is a slight nervous feeling. Realized that it will take little to swing the market the other way. It is most authoritatively stated that in Michigan most of the beans are out of the farmers' hands, and that elevators are filled to the brim with beans of finest quality.

"They were bought at much lower prices. They are in strong hands, in the hands of those who intend to get the highest figure they can. And while there has been a distinct lessening of demand, canners are said to be badly in need of beans.

"Thoughts are turning to acreage. The government has urged that more beans be planted. Various new sections are experimenting with beans, and it is very likely that 1923 will see one of the largest acreages of beans in recent history.

"Imports continue to be a slight factor, but not enough to cause much domestic concern.

"Several bean orders have been filled during recent weeks, one for the navy."

### Prices

Detroit—C. H. P., \$7.70 per cwt.  
Chicago—C. H. P., \$8.10@8.15.  
Prices one year ago—Detroit, C. H. P., \$4.80.

## POTATOES

The tone of the potato market is better than it has been for some time. The car shortage is causing the surplus on the eastern markets to disappear at such a rapid rate that dealers are beginning to worry, and there is a stronger and healthier appearance to this market at this time in that section than for some time in the past. The car shortage along with increased demand is giving the western markets a firm tone and higher prices are expected in the near future. However, higher prices are of no interest to the potato producers if he cannot secure the cars to ship his supply to the market.

Something must be done, and done soon.

#### Prices

Detroit—Michigan, \$1@1.10 per cwt.

Chicago—Minnesota sacked, \$1 per cwt; Minnesota sacked round whites, 85¢@90¢ per cwt.

Prices one year ago—Detroit, \$2.30 per cwt.

## AUCTION!

FEBRUARY 6, TUESDAY 12 SHARP  
To dispose of our surplus breeding stock.  
ANDREWS FEED BARN, WILLIAMSTON, MICH.

### 60 Reg. Poland Chinas 60

18 bred sows. Big rugged sows with lots of quality. In the best of condition. Bred for March litters. 42 fall shoats. Some nice gilts and boars in this lot.

### 50 Ewes 50

50 medium wool breeding ewes. Mostly 2 and 3 yr. olds. Bred to Reg. Oxford buck for March lams.

**4 Scotch Shorthorn Cows 4**  
Range from 3 to 6 yr. olds due to calve or will have calves by side. Grand sires and grand dams imp. Bred to a son of Imp. Lorne. 10 mo. old red heifer calf 10 mo. red bull calf.

### Percherons

2 pure bred stallion colts 8 mo. old, dark greys. 1 pure bred stallion colt 9 mo. old, wt. 1,000. These colts will be shown at M. A. C. Farmers' Week. Pair 3-4 yr. black mares. Full sisters. Terms 2 per cent discount for cash. Bank notes 8 mo. at 6 per cent. The above stock will positively be sold regardless of price.

J. M. HICKS & SONS, Williamston, Mich.  
W. MURRAY, AUCTIONEER

## PUBLIC SALE!

OF BIG TYPE

### Poland China Hogs

Feb. 14, 1923

50 HEAD PURE BRED, IMMUNED—5 YEARLINGS, 43 SPRING GILTS, AND 2 GOOD SPRING BOARS

This is as good a bunch as Northern Ohio ever has offered for sale.

Location 18 miles south east from Toledo on North Western Ohio Electric, Stop 43. Write for Catalogue.

O. H. KNIERIM & SONS  
Elmore, Ohio.

### BREEDERS DIRECTORY (Continued from page 23.)

**SHORTHORN CATTLE TUBERCULIN TESTED**  
Berkshire hogs, both sexes.  
SIMON G. MITCHELL, Middleville, Mich.

**FOR SALE—SHORTHORN BULL CALF, ROAN**  
9 months. Of herd of Joe Murray & Son.  
MRS. JOE MURRAY, R. 2, Brown City, Mich.

### DURHAMS

**FOR SALE—FIVE REGISTERED DURHAM**  
bulls from ten months to one year old. I have also a few female Durhams for sale.  
HENRY J. LYNCH, Mayville, Tuscola Co., Mich.

### ANGUS

**WE HAVE SOME FINE YOUNG ANGUS BULLS**  
from International Grand Champion Stock at reasonable prices. E. H. KERR & CO., Addison, Mich.

**FOR SALE—SIX YOUNG ABERDEEN-ANGUS**  
cows and heifers. Well bred, good individuals. Price \$800.00 E. O. B. Mich.  
GEO. HATHAWAY & SON, Ovid, Mich.

**SPECIAL PRICE ON BULLS, RANGING IN**  
age from 8 to 11 months, until Jan. 1st, 1923.  
RUSSELL BROS., Merrill, Mich.

### GUERNSEYS

**FOR SALE—REGISTERED GUERNSEY HEIFERS**  
at reasonable prices, also choice bull calves of May Rose breeding.  
H. W. WIGMAN, Lansing, Mich., Box 52.

**FOR SALE REGISTERED GUERNSEYS—ONE**  
bull ready for service and bull calves. Herd just T. B. tested, no reaction.  
H. F. NELSON, R. 1, McBride, Mich.

**GUERNSEY BULL 1½ YEARS OLD. SIRE**  
and dam A. R. Tapp, robust and well bred. 7-8 blood of Norman Missaukee Red. Price \$125. Accredited herd. A. M. SMITH, Lake City, Mich.

**FOR SALE—REG. GUERNSEY COW, HEIFERS**  
and bull calf from a healthy herd.  
WILBUR VAN DER KOLK, Hamilton, Mich.

### JERSEYS

**JERSEY BREEDERS ATTENTION!**  
We offer several yearling bulls, ready for service out of a Silver Medal Sire and R. O. M. Dams. Good looking individuals, and priced to sell. Federal accredited herd.  
Samuel Odell HIGHLAND FARM Adolph Heege  
Owner Shelby, Mich. Farm Supt.

**REG. JERSEYS, POGIS 99th OF H. F. AND**  
Majesty breeding. Young stock for sale. Herd fully accredited by State and Federal Government. Write or visit for prices and description.  
GUY C. WILBUR, Belding, Mich.

**FOR SALE—YEARLING JERSEY BULLS**  
Shropshire 19th Tomanor breeding.  
J. E. MORRIS, Farmington, Mich.

### BROWN SWISS

**FOR SALE—REGISTERED BROWN SWISS**  
heifers and cows, also one bull. Herd federal accredited. ELMWOOD FARMS, Sebawaing, Mich.

**FOR SALE—REGISTERED BROWN SWISS**  
Herd federal accredited. Come and see them or write for what you want. Erwin R. Moore, Osseo, Mich.

### RED POLLED

**RED POLLED CATTLE**—A few choice bulls and heifers for sale.  
ROYSTAN STOCK FARM.  
Will Oettle, R. R. 1, West Branch Michigan

### HAY

Eastern markets generally are steady under smaller receipts of the good qualities of hay. Some embargoes last week curtailed shipments and very few permits were issued. This has created a little better feeling as not enough hay arrives to cause any accumulation. Western markets, however, are a little lower, as in some instances the receipts exceed the demand. There are many reports of poor hay in the daily offerings.

#### Prices

Detroit—No. 1 timothy, \$16.50 @17; standard, \$15@16.50; light mixed, \$16@16.50; No. 2 timothy, \$15@15.50; No. 1 clover mixed, \$14@14.50.

Chicago—No. 1 timothy, \$20@21; standard No. 2, \$17@18; light clover mixed, \$18@19; clover No. 1, \$14@15.

New York—No. 1 Light clover mixed, \$23@24; No. 1 timothy, \$23@24; No. 2, \$21@23.

Prices one year ago—Detroit, No. 1 timothy, \$19@20; standard timothy, \$18@19.

Aalfalfa—Detroit, No. 1, \$14@17 per ton; Chicago, No. 1, \$22@24 per ton.

### MISCELLANEOUS MARKET QUOTATIONS

Detroit, Tuesday, Jan. 30th.

**BUTTER**—Best creamery, in tubs, 48¢ per lb.

**EGGS**—Fresh, according to quality, 35¢@36½¢; refrigerator, 26¢@27½¢ per doz.

**HONEY**—Comb, 23¢@25¢ per lb.

**DRESSED HOGS**—90 to 130 lbs, 11¢@12¢; 130 to 160 lbs, 9¢@10¢; heavy, 5¢@8¢ per lb.

**LIVE POULTRY**—Best chickens, 21¢; leghorns, 17¢; best hens, 22¢@24¢; medium hens, 21¢@22¢; small hens, 17¢; old roosters, 15¢; geese, 16¢@17¢; ducks, 24¢ for large and 20¢ for small; large turkeys, 34¢@35¢; small turkeys, 35¢ per lb.



Week of February 4

**B**RIGHT, sunny days and clear moonlight nights will usher in the week of February 4. Each day nearer the middle of the week after Sunday will average warmer in Michigan as a result of the eastward movement of a moderate storm center.

By the middle of the week rain or snow in scattered localities together with moderately strong winds will have reached the state and immediately following, say about Thursday or Friday, there is expected to be a sudden and extensive drop in temperature.

About Saturday of this or Sunday of next week Michigan residents may expect moderate snow and sleet storms with strong winds that will cause drifts and blockades in many sections unless proper precautions have been taken.

### Week of February 11

Rain, sleet or snow will be falling in Michigan as this week begins that may cause local drifts and blockades. These will not necessarily cripple business or transportation for any great length of time, if at all but we do look for a sudden and rapid fall of sleet or snow that in combination with the high winds and storminess will occur about Monday but another storm that was formed soon after the last storm got its start will have reached the Lake region about Tuesday. Some wind with snow or sleet may be expected in Michigan just before the middle of the week as a consequence.

During the next two or three days of the week temperatures will drop far below the normal for this month in Michigan and no moderation is to be expected until after the middle of the week.

About Thursday temperatures will be getting warmer in Michigan, the sky will be cloudy and there will be more indications of rain or snow. Much colder weather is to be expected during the closing days of this week.

## Cut Production Costs with Better Barn Equipment



It doesn't matter whether your barn is large or small—old or new—you will find products in the big Porter line that will pay for themselves again and again. Get the FACTS about them now—while you have leisure to plan your improvements carefully. Just check the items in which you are interested, tear out this page, write your name and address in the margin and mail it back to us.

- ☐ Steel stalls and stanchions
- ☐ Litter carriers
- ☐ Feed carriers
- ☐ Steel cattle pens
- ☐ Steel hog pens
- ☐ Automatic drinking bowls
- ☐ Hay tools
- ☐ Barn door hangers
- ☐ Garage door hangers
- ☐ Cupolas and ventilators
- ☐ Barn plans

PORTER products have been standard equipment for 55 years—every modern improvement for barns and hog barns. If you expect to build or re-model ask for PLAN BOOK No. 64

J. E. Porter Corporation  
582 Guion Street : Ottawa, Illinois

**PORTER**  
"Dependable Since Sixty-Eight"

## \$24.95 American Upward CREAM SEPARATOR

On trial. Easy running, easily cleaned. Skims warm or cold milk. Different from picture which shows larger capacity machines. Get our plan of easy MONTHLY PAYMENTS and handsome free catalog. Whether dairy is large or small, write today.  
**AMERICAN SEPARATOR CO.**  
Box 7067  
Bainbridge, N. Y.



## GARDEN SEED

BELL  
BRAND

Isbell's Michigan-grown Garden Seeds assure a big-yielding, profitable garden, for they are thoroughbred stock—the result of 44 years of development and selection. Send today, for Isbell's 1923 Seed Annual, giving valuable information on quality seeds and quoting direct-from-grower prices.

S. M. ISBELL & COMPANY 731 Mechanic St. (41) Jackson, Mich.

## SALE 30 Registered Duroc Jersey Bred Sows and Gilts; 43 Registered Shropshire Ewes, at Fair Grounds, Hillsdale, Mich.

Wednesday, Feb. 21, 1923, at 12.30 P. M.

The only chance to buy sows bred to 1922 Grand Champion at Michigan State Fair. This offering of sows is intensely Orion Cherry King bred, and ewes include imported and Canadian blood.

A rare opportunity for Boys and Girls Clubs. Don't delay. Send for catalog and plan to attend.

**CLYDE GODFREY, Jonesville, Mich.**

COLS. F. W. BUSCHE, J. D. POST, F. E. HAYNES, AUCTIONEERS

### HEREFORDS



PRODUCE YOUR OWN  
FEEDERS UNDER  
**EARLE RIPE HEREFORD  
BEEF PLAN**

which guarantees maximum prices. Investigate personally the success of other Michigan Farmers. For further information write

T. F. B. SOTHAM & SONS  
(Herefords since 1839) St. Clair, Mich.

**RIVERVIEW HEREFORDS**—FOR SALE  
Bulls, also few females. WM. C. DICKEN, Smyrna, Mich.

### AYRSHIRES

**FOR SALE—REGISTERED AYRSHIRE**  
bulls and bull calves, heifers and heifer calves. Also some choice cows.  
FINDLAY BROS., R. 5, Vassar, Mich.

## SWINE

### DUROCS

**SENSATION MARSI** Our new herd boar. Sired by "Marsi" Reserve grand champion National Swine Show 1922. We are taking orders for gilts and sows for spring farrow bred to this wonderful boar.  
SCHAFER BROS., Route 4, Oxford, Mich.

**PEACH HILL FARM** offers choice weanling Duroc pigs, either sex. Priced very reasonable. Write us.  
INWOOD BROS., Romeo, Mich.

**HILL CREST DUROCS, PERRINTON, MICH.**  
We are breeding twenty sows and eighteen gilts to a son of GREAT ORION SENSATION Yearling spring and fall boars. NEWTON & BLANK, Farm 4 miles straight south of Middleton, Gratiot Co., Mich.

### CHESTER WHITES

**BRED SOWS AND FALL GILTS FOR SALE**  
Also some fall pigs. Pedigrees furnished.  
WILBUR JONES, Route No. 1, Reese, Mich.

## Farm Account Book FREE

Write us, telling the size of the silo you own or intend to buy this year and mention the name and address of your implement dealer. We'll mail you free a 50-page Farmers' Record and Account Book.

This is arranged for the easy taking of farm and household inventories, and for the keeping of simple accounts which will show a complete and accurate financial condition of your year's business. It will help you find and stop the money leaks.

Ask also for Papec Catalog covering the 1923 improvements—at a lower price! It shows why your dollars buy more in a Papec.

**PAPPEC MACHINE COMPANY**  
187 Main St., Shortsville, N. Y.

So Distributing Houses enable Papec dealers to give prompt service



## FOR SALE!

### USED MACHINERY

16 H., 18 H., 20 H., 25 H. Nichols & Shepard Steam Traction Engines, 16 H., 18 H., 22 H. Huber, 18 H., 20 H. Rumely, 18 H., 20 H. Pitts, 20 H. Reeves, 18 H. Aultman & Taylor, 18 H. Minneapolis, 23 in. Aultman & Taylor thresher, 23 and 32 in. J. I. Case, 23 in., 32 in. and 36 in. Wood Bros., 38 in. Cape, 32 in. Minneapolis. Sandwich Belt Power Press. Write for our complete second hand list. Buy used machinery and save money.  
**THE BANTING MFG. CO.**  
2979 Dorr St., Toledo, Ohio

WANT TO SELL POULTRY?  
AN AD IN M. B. F. WILL DO IT

**O. I. C.**  
REGISTERED O. I. C. BRED GILTS FOR sale. Weighing 250 lbs. A few fall pigs.  
J. R. VAN ETEN, Clifford, Mich.

### BERKSHIRES

**BEMILLERS BIGGER, BETTER BERKSHIRES**  
Auction at Wakarusa, Ind., Feb. 15, 1923, 40 bred sows, write for catalogue.  
I. J. BEMILLER, Elkhart, Ind.

### HAMPSHIRE

**A CHANCE TO GET SOME REAL HAMPSHIRE**  
shires. Boar pigs, sired by Gen. Pershing Again, Gilt Edge Tipton, Messenger All Over 10th. Gen. Pershing 2nd., and other great boars. Writes for list and prices. DETROIT CREAMERY HOG FARM, Route 7, Mt. Clemens, Mich.

**HAMPSHIRE—SPRING BOARS AND BRED**  
gilts from 25 sows to select from. Place your order now or you may be late. 10th year.  
JOHN W. SNYDER, R. 4, St. Johns, Mich.

**HAMPSHIRE BRED GILTS, \$20—\$25.** Bred sows \$30—\$50. Guarantee safe delivery. Registered free. C. F. Luckhard, Bach, Mich.

### SHEEP

## 800 BRED EWES FOR SALE

in lots of 50 or more, black faced, from 1 to 4 yrs. old; no broken mouths, in good condition, bred to Shropshire and Oxford rams to lamb May first. Located 22 miles S. W. of Detroit on Detroit and Toledo electric and Dixie Highway. Telegraph address, Rockwood.

ALMOND B. CHAPMAN, So. Rockwood, Mich.

**50 HEAD REGISTERED, BRED SHROPSHIRE**  
ewes, large, well covered, 1 to 4 years. In fine healthy breeding condition. Flock established 1890.  
C. LEMEN & SONS, Dexter, Mich.

**SHROPSHIRE—10 REGISTERED EWES.**  
Choice wooly Rams.  
DAN BROOHER, Ewart, R. 4, Mich.

**KEEP THE MICHIGAN BUSINESS FARMER COMING. SEE PAGE 25.**

# Belgium Melotte

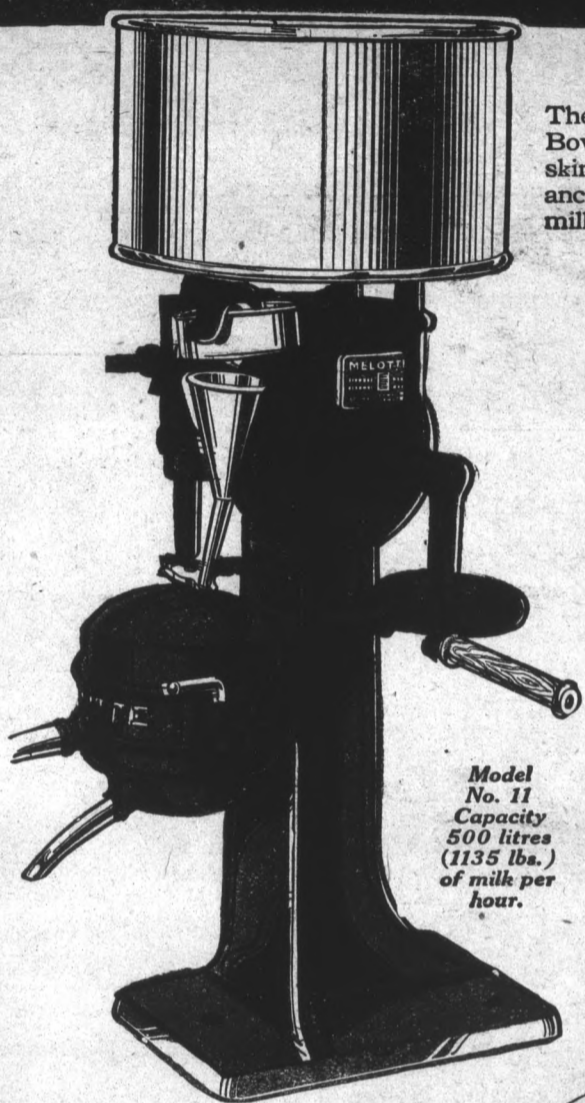
## Imported Separator

### Self-Balancing Bowl

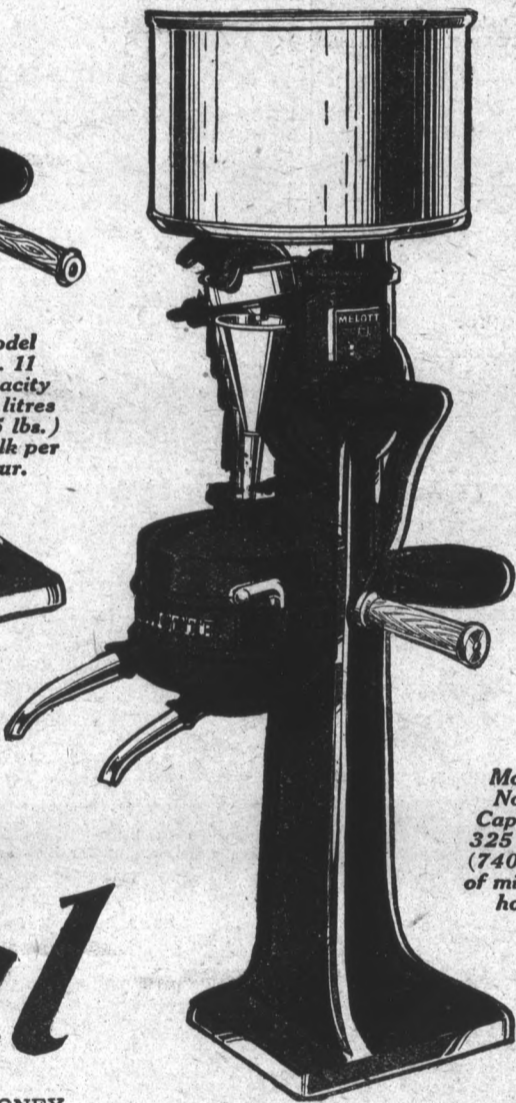
The Belgium Melotte is the only single-bearing-bowl separator ever made. This patent Bowl hangs from one frictionless ball bearing and spins like a top. It is *self-balancing*. It skims as perfectly after 15 years of use as when new. Positively cannot ever get out of balance—cannot vibrate and thus cause cross currents which waste cream by remixing with milk. Send coupon below today. Get the Free Book that tells about this great Melotte.

**\$ 750**  
*After Trial*

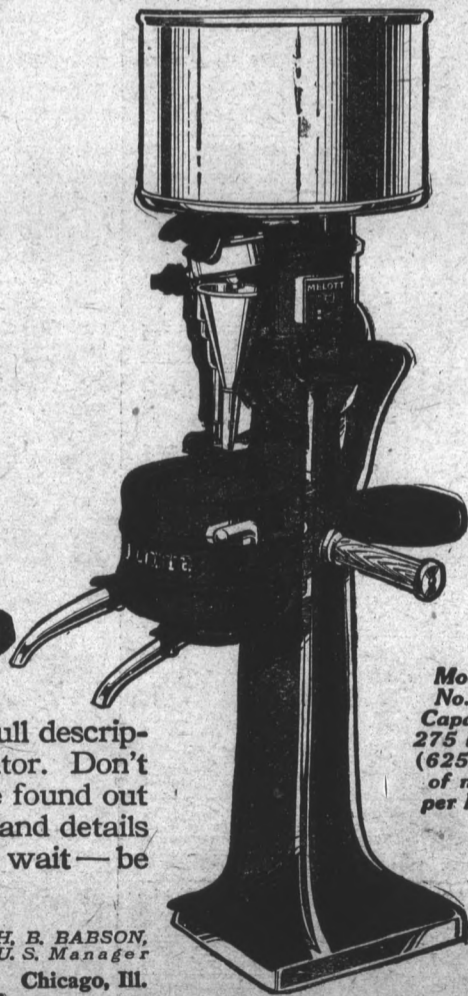
We will send an imported Belgium Melotte Cream Separator direct to your farm on 30 days' absolutely Free Trial. Use it just as if it were your own machine. Put it to every possible test. Compare it with any or all others. The Melotte is easy to keep clean and sanitary because it has only one-half the tinware of other separators. Turns so easily that bowl spins 25 minutes after you stop cranking unless brake is applied. No other separator has or needs a brake. After you have tried it for 30 days and you know it is the separator you want to buy, pay \$7.50 down and balance in small monthly payments.



Model  
No. 11  
Capacity  
500 litres  
(1135 lbs.)  
of milk per  
hour.



Model  
No. 7  
Capacity  
325 litres  
(740 lbs.)  
of milk per  
hour



Model  
No. 6  
Capacity  
275 litres  
(625 lbs.)  
of milk  
per hour

# Free Trial

Your choice of any of these three models. NO MONEY DOWN—FREE TRIAL—SMALL MONTHLY PAYMENTS—DUTY FREE. This wonderful Belgium Melotte Separator has been picked by a jury of thousands of farmers—picked by dairy experts throughout the world to be the "king" of all separators ever manufactured. It has broken all records for Efficiency of Skimming, Ease of Turning, Convenience of Operation and Durability. Send coupon below for Big Free Book.

# Write

**The Melotte Separator, H. B. Babson, U. S. Mgr.**  
2843 West 19th Street, Dept. 9302, Chicago, Ill.  
2445 Prince Street, Berkeley, Calif.

Without cost to me or obligation in any way, please send me the Melotte catalog which tells the full story of this wonderful separator and M. Jules Melotte, its inventor and hundreds of letters from American farmers.

Name \_\_\_\_\_

Address \_\_\_\_\_ Co. \_\_\_\_\_

Post Office \_\_\_\_\_ State \_\_\_\_\_

Mail coupon for catalogue giving full description of this wonderful cream separator. Don't buy any separator until you have found out all you can about the Melotte and details of our 15-year guarantee. Don't wait—be sure to mail coupon TODAY!

**MELOTTE SEPARATOR, H. B. BABSON, U. S. Manager**  
2843 West 19th Street, Dept. 9302 Chicago, Ill.  
2445 Prince Street, Berkeley, Calif.