

MICHIGAN FARMER

AND LIVE STOCK JOURNAL
PUBLISHED WEEKLY. ESTABLISHED 1843.

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

VOL. CXLVII, No. 15
Whole Number 3909

DETROIT, MICH., SATURDAY, OCTOBER 7, 1916

50 CENTS A YEAR
\$2 FOR 5 YEARS

Marl—Its Value In Soil Management

By M. M. McCOOL, Ph. D.

Professor of Soils, M. A. C.

ACID or sour soils are of frequent occurrence in Michigan. Such conditions obtain in all classes, the sands, loams, clays and mucks, but preliminary studies reveal these are most frequently met with in the sandy group. Moreover, these studies show that the degree of acidity varies greatly; some soils require only a few hundred pounds of lime to correct this undesirable condition, and others several tons, being so acid that the growth of alfalfa, sweet clover, and red clover is prohibited, and certain other crops more or less injured thereby. This, then, becomes one of the leading soil problems of the state. Fortunately there are extensive deposits of lime, both as limestone and as marl within the borders of the commonwealth which can be removed and utilized to correct soil acidity. It is desired to call attention to the frequent occurrence of marl and its value when applied to sour soils.

Occurrence.

Marl underlies many of the peat and muck deposits of the state, and is frequently met with along the shores and in the beds of lakes. The depth at which it is encountered varies from a few inches to several feet, and the thickness of the beds likewise varies enormously.

Origin.

Certain investigators hold that much of the marl comes from the broken down remains of shells of lower animals, such as the mollusca. Others maintain that the material was washed out of the soil mass and accumulated with the drainage water and water from springs in both the temporary, and more permanent lakes, and ultimately settled out of suspension as silt settles out of water. We should not overlook the important fact that lime rock is composed largely of the same material, having been solidified by pressure.

Marl is easily recognized in some cases by the presence of shells, and the material in many deposits when first removed is usually a pasty mass ranging in color from light to dark gray. Upon drying the color usually becomes lighter and the mass may be easily crumbled or broken up, or pulverized. This latter property, however, is governed largely by the purity. In addition, it readily dissolves, giving off bubbles of gas when brought into contact with either muriatic acid or vinegar. This latter property can readily be made use of in identifying this substance by placing a teaspoonful of the material in question in a tumbler half filled with vinegar, or in one containing about a tablespoonful of muriatic acid. Although the purity can be judged in a measure by the amount remaining after the action has ceased, it is well to send a representative sample to the experiment station, or to some commercial chemist.

Composition.

The marl beds vary enormously in composition, as well as in mechanical properties. Some are almost pure carbonate of lime and others are compos-

ed largely of carbonate of lime and some contain appreciable amounts of carbonate of magnesia, while others contain less carbonates and more impurities. Attention should be called to the fact that small amounts of phosphorus exists in some deposits. Material that contains 75 per cent or

weight of a given volume of marl depends upon a number of factors, such as purity, or carbonate content, water content, and texture. In order to throw light upon this and other properties of marl, samples were taken from marl beds and studies made in the natural condition. In the table below are pre-



A Typical Marl Bed in Southern Michigan. (Photo by Chapin).

more of lime carbonate is considered to be of high grade.

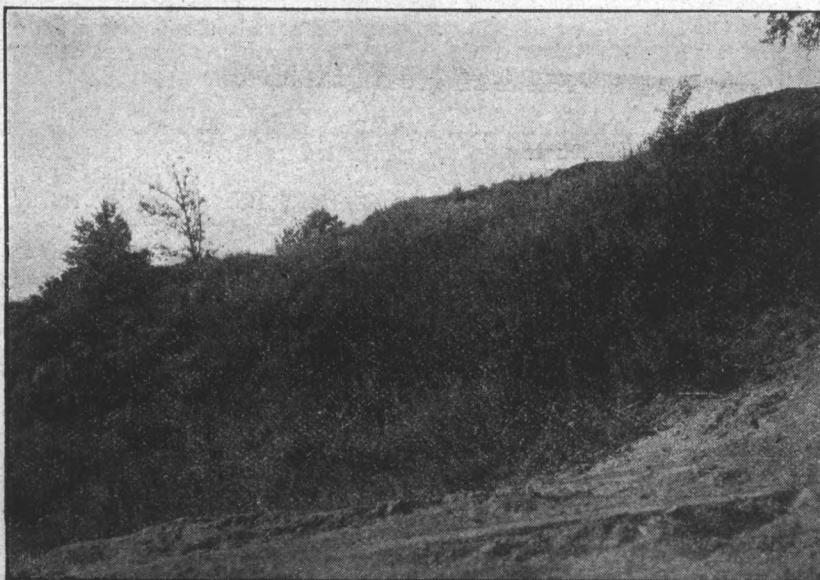
When marl is first removed from the bed it contains a great deal of water, the amount retained depending

sented data, showing the water in marls, the weight of a cubic yard, and the amount of lime carbonate in one cubic yard of material, figured on wet and dry basis respectively:

Water Content and Weight of Marl.

Sample No.	Per Ct. of carbonates.	Per Ct. H ₂ O on dry basis.	Per Ct. H ₂ O on wet basis.	Wt. of cu. yd. dry in lbs.	Wt. of cu. yd. of wet marl in lbs.	Wt. of lime carbonate in 1 cu. yd. of dry marl.	Wt. of lime carbonate in 1 cu. yd. of wet marl.
1	75	46.7	32	1652	2430	1239	1239
2	85	45.5	31.3	1665	2424	1415	1415
3	88	38.9	28	1670	2319	1470	1470
4	95	35.1	26	1731	2339	1644	1644

upon the impurities present as well as the compaction of the mass. After all dripping has ceased, or the so-called "free water" has drained away, the water content may still be high. The results of these studies show that the average water content of high grade marl approximates 30 per cent on the wet basis, and that the weight of a cubic yard of the same is about



Sweet Clover Requires an Abundance of Lime for its Profitable Growth.

2,400 pounds, and that when one applies one yard of wet or dry marl—carbonate of lime content 88 per cent—he adds approximately 1,400 pounds of carbonate of lime. These studies are of far reaching economic importance and should be considered when one contemplates applying marl to the soil. If one purchases on the basis of volume or a cubic yard the water content is of no consequence so far as the actual amount of lime is concerned, as the above table shows.

Non-Agricultural Uses of Marl.

Marl is made use of in numerous ways. It is known to be powdered and marketed for polish, for adulterating certain substances, and in addition, large quantities are burned and made use of in making cement. Many of the deposits are so high in lime that clay is mixed with the mass in order to turn out cement of highest quality. We have talked with many farmers who did not appreciate the fact that marl and lime rock are largely composed of the same substances, and therefore, very much alike when properly treated.

What Marl Does in the Soil.

Marl, as well as other forms of lime, when judiciously applied to soils may perform divers functions. It is generally looked upon as being an improver of the tilth of all classes of soils, making the finer textured ones somewhat less plastic, and the sandy ones less porous in nature, but we desire to state that we are forced to conclude that unless applied in very large amounts this is of small importance. It is well known that it greatly increases the activities of certain of the desirable soil bacteria, such as those that form nitrates in the soil, those that enable the leguminous plants to increase the nitrogen content of the soil, and those that fix atmospheric nitrogen in the soil in the absence of growing plants. These are all looked upon as being of great importance in governing soil productivity.

Marl undoubtedly brings about reactions in some soils, the result of which is more available phosphorus for crops. This probably takes place, to the greatest extent, when applied to very acid soils. It releases, but perhaps to a less degree, potassium from certain compounds in the soil. In addition, acid or sour soils may be sweetened by applying sufficient quantities of marl to them, this being the most important function of marl or lime when applied to the soil.

Marl, as well as other forms of lime, has proven its value in connection with good soil management. The writer, during the past season, has seen hundreds of fields where it has produced wonderful results, when applied to soils devoted to alfalfa, red clover, sweet clover, vetch, and a smaller number where it has resulted in increased yields of barley, wheat, and corn. On the other hand, I have noted where other soil conditions, such as poor drainage, deficiency of vegetable matter, or available phosphorus, are the chief limiting factors that applica-

(Continued on page 311).

The Michigan Farmer

Established 1843.

Copyright 1916.

The Lawrence Publishing Co.

Editors and Proprietors

39 to 45 Congress St. West, Detroit, Michigan

TELEPHONE MAIN 4325.

NEW YORK OFFICE—381 Fourth Ave.

CHICAGO OFFICE—604 Advertising Building.

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

PHILADELPHIA OFFICE—261-263 South Third St.

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

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

TERMS OF SUBSCRIPTION:

One year, 52 issues.....50 cents
Two years, 104 issues.....1.00
Three years, 156 issues.....\$1.25
Five years, 260 issues.....2.00

All sent postpaid.

Canadian subscriptions 50c a year extra for postage.

RATES OF ADVERTISING:

40 cents per line agate type measurement, or \$5.60 per inch (14 agate lines per inch) per insertion. No advt. in series for less than \$1.20 each insertion. No objectionable advertisements inserted at any price.

Memo Standard Farm Papers Association and Audit Bureau of Circulation.

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

DETROIT, OCTOBER 7, 1916

CURRENT COMMENT.

It is estimated that more than \$150,000,000 worth of property is destroyed by fire each year. Property burned up is forever gone; fire insurance companies do not replace it, they merely collect from patrons a tax which is distributed to those carrying policies in their companies who suffer fire losses. A heavy share of this loss, as well as a considerable percentage of the five thousand persons killed and many thousand injured annually by fire falls upon rural communities because of the remoteness of the average farm from adequate help in case of fire, and the lack of adequate means of fire prevention on the average farm. The prevalence of wooden construction and the inflammable nature of the surroundings of many farm buildings make an additional risk from the carelessness of owners or employees.

In view of these facts, a campaign has been organized by the Safety First Federation of America for the general observance of what is to be known as Fire Prevention Day. In accordance with this program the following proclamation has been issued by Governor Ferris of this state:

In order to arouse the citizens and property owners of Michigan to a vivid sense of our great fire dangers, and to induce them to co-operate with the fire marshal that we may secure a reduction of our enormous fire losses and reduce our excessive fire insurance rates, I hereby proclaim that Monday, the ninth day of October, 1916, the anniversary of the great Chicago fire, be known as State Fire Prevention Day, and I most urgently recommend that our people observe it by a general cleaning up and removal of rubbish, trash, inflammable material and waste from their premises.

Concurrent action upon the part of newspapers, public officials, school teachers, fire departments, and all civic societies and property owners will surely result in such a general clean-up of all dirt and refuse, and the removal of fire hazards as not only to promote beauty and sanitation throughout the state, but to have a pronounced influence in lowering the fire loss.

The fire losses in Michigan each year run into millions of dollars. The fire losses in the United States and Canada in 1915 were \$184,989,100. The fire losses for the first eight months of 1916 were \$159,535,220, which is nearly \$50,000,000 larger than for the same period of the previous year.

Over 5,000 persons are killed and 50,000 injured annually as a result of fire. In Michigan during 1915, 141 persons lost their lives and 183 were seriously burned or injured from this cause. An ounce of prevention is worth a ton of fire fighting apparatus. Seventy-five per cent of the fires and accidents are due to preventable causes, and could easily be avoided by the exercise of reasonable care and precaution.

I sincerely trust the people of Michigan will see to it that Fire Prevention Day means something this year.

In addition to cleaning up the premises, getting rid of all burnable trash and taking all reasonable precautions of this nature against the occurrence of fire, every property owner should be impressed with the need of being constantly careful to avoid danger of fire and should safeguard all buildings against fire so far as possible. Just at this season of the year when artificial heat begins to be needed in the farm home, there should be the most rigid inspection of the heating apparatus, particularly stove-pipes and chimneys, since a large part of the fires occurring at this season of the year are due to defective smoke flues.

An abundant supply of water should also be provided at convenient places where it can be used in case of emergency, since many a fire could be easily extinguished when first discovered, but soon gets beyond control and causes irreparable loss.

The growing use of automobiles and electrical apparatus upon farms increases the fire hazard unless proper precautions are taken. All employees as well as members of every household should be taught prudence in the use of kerosene and other oils as well as gasoline, since fires originating from such sources are not only difficult to control, but more than ordinarily dangerous to life.

All farm property should be adequately covered by insurance, not alone for the proper protection of the owner, but as well to give him a greater interest in the general proposition of fire prevention, to the end that the great annual loss from fire may be reduced and the cost of insurance accordingly lowered. This is particularly applicable to rural conditions, since the larger percentage of farm property is insured in mutual companies, and the cost of insurance decreases in direct proportion to a decreased number of fires. Every Michigan farmer can do much to make fire prevention day effective to this end.

A communication recently received from a subscriber in one of the better developed agricultural counties of northern Michigan indicates the interest which is being taken in the rural credit act in that section of the state. The writer of this communication enquires whether the organization of federal banks provided for in the act has progressed to a point where it is possible to secure funds on farm mortgages through this source, stating that he has a real estate loan soon coming due, and that to get same renewed he will be obliged to pay five per cent commission and seven per cent interest for a five-year term. He states that much higher rates of interest are charged on accommodation loans and that it is uphill business to clear up and improve a farm under these conditions.

As many more Michigan farmers are no doubt in a similar position, this interest in the new rural credit law may be expected to become general in all sections of the state where high interest rates prevail. No loans can be made through this source until the federal land banks have been located and organized, and for the first year of the operation of the law loans can be secured only through the medium of national farm loan associations organized by ten or more men who desire to make loans aggregating \$20,000 or more. The range of loans which can be made is comparatively wide, running from a minimum of \$100 to a maximum of \$10,000 as fixed by the law. After the law has been in operation for one year, provision is made by which loans to farmers can be made through the medium of established banks which are designated as agents by the federal farm loan board.

It is, however, important that national farm loan associations be organized wherever the conditions warrant such action, to the end that the efficiency of this plan of rural credit may be given an adequate trial. Interested

farmers in any section can secure from the Federal Farm Loan Board, Washington, D. C., pamphlets published by the Treasury Department which contain specific information as to the method of procedure in organizing a national farm loan association, and the powers, duties, and limitations of such associations when they have been organized.

A full understanding of a new plan of financing the farmers of the country such as provided for in this act necessitates considerable study, and any co-operative action looking toward the utilization of this form of credit will of necessity be preceded by some public discussion. For this reason every reader who is interested in the proposition should write to the federal farm loan board for the literature above mentioned.

Promoting the Dairy Industry.

Litchfield on October 7. This is the third event of the kind to be held in Illinois this season. The first two were observed earlier in the season at Carbondale and Harrisburg. This occasion is planned to eclipse former efforts in bidding for public attention. Speakers of national reputation, including the assistant secretary of agriculture, former Vice-president Fairbanks, and others have been engaged as well as ten bands and three quartets. The boys and girls are to be given an opportunity to compete for valuable calves as prizes, which have been donated by railroad officials and other business men. Dairy and Food Commissioner Matthews, of Illinois, who planned the affair, estimates that at least 50,000 persons will be present and a big impetus to dairying is expected to result from this event.

According to the commissioner, the "Dairy Days" already observed in Illinois have contributed more than any other factor to the encouragement of the dairy business in that state. Since the first of the year 110 carloads of milk cows and heifers have been placed with the farmers of Illinois through the agency of the dairy extension movement. With the dairymen of Illinois alive to the importance of the marketing end of their business, as they have successfully demonstrated during the past year, and with the dairy extension work of this kind in progress, the future supply of dairy products from that state should keep pace with the increase in population and demand.

The dairymen of Michigan may well follow the lead of their Illinois contemporaries not alone in the matter of co-operating to secure a compensatory price, but as well in advertising the industry in which they are engaged.

The Michigan Farmer, as its readers well know, is not a partisan organ and

its columns are not devoted to political discussion and comment. Public questions are discussed with an eye to the interests of the farmers of Michigan and the country, regardless of their political significance, but no opinions are expressed regarding the respective merits of party platforms or the records or attainments of party candidates. No violation of this rule is contemplated in opening our columns to national campaign advertising placed by the responsible heads of the leading political parties. An advertisement of this nature, placed by the national democratic committee, appears on another page of this issue. An advertisement of a similar nature, placed by the republican national committee will appear in the issue of next week. These advertisements will serve to place before the readers of this paper the official messages of these two party organizations touching the issues of the impending national campaign, but should not in any way be construed as editorial expression or opinion. They are simply advertise-

ments and are paid for on the same basis as other ads.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—The fourth Zeppelin raid on London and the east coast of England during the past month occurred Sunday night, and another one of the airships was brought to earth. The damage done is reported as slight.—Greece has apparently decided to join in the war with the Allies and a war ministry is expected to be formed immediately.—The Russians are renewing their drive on Lemberg with increased vigor and troops have made advances both to the north and south of the Galician capital. Four thousand Austro-Germans were taken with the fall of the Teutonic positions. In the province of Transylvania the Teutons have won a decisive victory over the Roumanians, having shattered both the first and second armies of the defenders of Red Tower pass. By an encircling movement the Teutonic armies occupied the pass which prevented the escape of the Roumanians, despite their ferocious attacks upon the enemy.—On the western front the English and French forces have made considerable gains on both sides of the Somme river. The objective positions of Combes and Bapaume were captured in a terrific drive and a number of smaller positions are included in the territory taken from the Germans. Activity around Halle reported from Berlin may indicate the beginning of another drive in this district, with Peronne as the objective.

The office of vice-presidency of the de-facto government of Mexico has been abolished by a decree of first chief Carranza which also amends and adds to various other articles of the federal constitution. Among these changes is a provision cutting down the presidential term from six to four years, making it illegal for a president to be elected for two consecutive terms.

A scarcity in the supply of paper and paper pulp material is reported in other countries besides the United States. It was thought that relief here might come from raw material secured in South America but investigations have revealed a distinct shortage in that country as well as in Spain where considerable paper is manufactured and exported under normal conditions. The Brazilian congress has even gone so far as to reduce import duties on news print paper to relieve the situation, and publications are encouraging the issuance of smaller editions to save paper supplies. In Spain dealers in paper and cardboard have informed the government of their willingness to postpone the filling of export orders until the domestic supply is sufficient to meet the home demand.

National.

The action of the farmers of four states whose dairies are supplying milk to New York dealers, in refusing to sign contracts at old prices because of the increased cost of milk production is becoming effective and already the distributors have called upon the state attorneys to investigate the legality of this movement of the producers. The farmers, on the other hand, are welcoming any scrutiny that might be given, as they are certain that the findings would justify their actions. Unless an agreement can be reached shortly, a milk famine is certain to follow in New York City.

Michigan cavalry troop B of Detroit, troop A of South Haven, signal corps of Ypsilanti, and Company A of Calumet, will comprise the next detachment of troops to leave Camp Ferris at Grayling for the Mexican border. The exact destination is not known. The Michigan troops already on the border are now on a long march to Fort Selden, New Mexico from El Paso, Texas.

Word comes through the British medical journal that an American has made a new surgical discovery as remarkable as the X-Ray. The new appliance enables one to obtain in daylight a picture of any internal organ of the body. The inventor is James Shearer, a graduate of the University Washington.

Eight persons were killed and 35 injured when a switch engine on the Grand Trunk railroad crashed into a packed street car in Detroit about midnight Sunday. Fifteen of the injured persons are reported in a serious condition. There is no evidence to show where the blame for the accident lies. General Pennypacker, who was the youngest officer in all the Union and Confederate armies to win the rank of brigadier-general during our Civil War, died in Philadelphia October 1, at the age of 72 years.

A shipping corporation which proposes to inaugurate a general mercantile trade between the United States and China has been recently organized by eastern and southern capitalists.

MARL—ITS VALUE IN SOIL MANAGEMENT.

(Continued from first page.)

tions of marl or other forms of lime have proven disappointing until the said deficiencies have been attended to. Such conditions, by the way, account for many of the unsatisfactory results obtained from liming the soil.

Some Things Marl will not do.

Marl, then, certainly will not take the place of systematic crop rotation, the growing of catch crops, the conservation and judicious use of manure and fertilizers where needed, drainage or proper tillage. In a word, its use should be looked upon as one of the underlying principles of good soil management and, therefore, its application must be repeated from time to time, depending somewhat upon the initial application.

Value of Marl when Applied to Soils.

The efficiency of marl when applied to correct acidity or sourness, of soils, depends upon its purity and the thoroughness with which it is incorporated in the soil mass. The results of recent studies at the Michigan Experiment Station, as well as a number of observations on farms, show conclusively that this is far more important the first year than later on, inasmuch as tillage operations, as well as other factors, assist in its distribution.

It is perfectly obvious that the higher the carbonate content the more valuable it is. It should be constantly kept in mind that marls and other forms of lime must be dissolved before they are of value and, moreover, the finer a given mass is subdivided, the more rapidly it will pass into solution and, therefore, the more quickly will it perform its work. The results of recent field experiments show that unless applied in large amounts, particles of ground limestone larger than one-twentieth of an inch in diameter, may have slight action the first year but somewhat more the second, and that finely pulverized limestone, from 80 to 100 mesh, in equivalent amounts or the actual amounts of lime present, approaches the hydrate in the rapidity of its action in reducing soil acidity. Doubtless as the fineness increases the amount required to bring about the same immediate results decreases, but it is well recognized that there is a limit to the fineness of division, that is for the greatest net returns, inasmuch as the cost of the process of grinding may be greater than the increase in crop production, due to the finer grinding, that is to say, a given application of 100 mesh limestone may bring certain results, but it may be more economical to apply somewhat larger amounts of a 40 or 50 mesh lime.

The individual particles of marl are exceedingly minute, in fact more so than the particles that make up most of the average ground limestone and marl is, therefore, more rapid in its action, provided the lumps are pulverized and well mixed with the soil mass. The results of recent experiments show that when such is the case it is almost as available as hydrated lime, that is in equivalent amounts, or when the same amounts of lime are added in each case. One can readily determine the amount of marl, under the above conditions, required to equal the lime in the hydrate if he knows the purity of the marl and considers that one pound of pure hydrated lime is equal to about one and three-tenths pounds of the carbonate. Under average conditions, in practice it is probable (we can only approximate this) that about two yards of marl of 90 per cent purity are required to bring the same immediate results as one thousand pounds of hydrated lime.

Another question arises relative to the most economical degree of fineness to use, namely, what about the duration of these? This question cannot be answered definitely in the light of our present knowledge. The Divi-

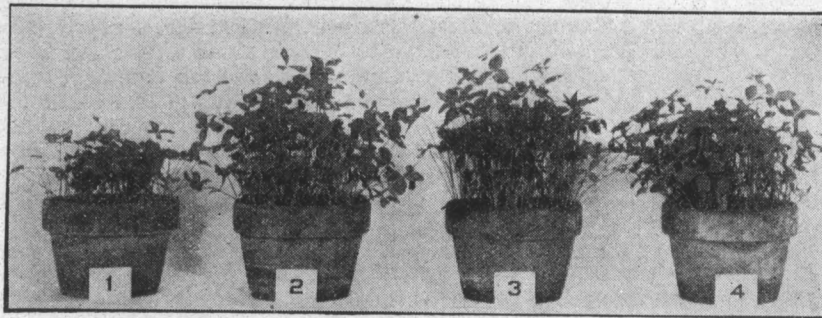
sion of Soils at the Michigan Agricultural Experiment Station has elaborate field experiments under way in different parts of the state to solve this question.

Removal of Marl from Beds.

The removal of marl from many beds may be accomplished with ease, but with difficulty from others. Deposits that lie near the surface and away from standing water are generally accessible, and the mass may be removed, loaded into a wagon, and hauled away. If the ground is too soft to bear up the weight of the team and wagon some farmers pile the marl and move it when the ground is frozen. There are many large deposits that are so situated that special equipment must be provided for their removal, a discussion of which is uncalled for in this paper. Such are installed only when the marl is to be placed on the market.

Distribution of Marl in Soils.

Marl may be applied to the soil by



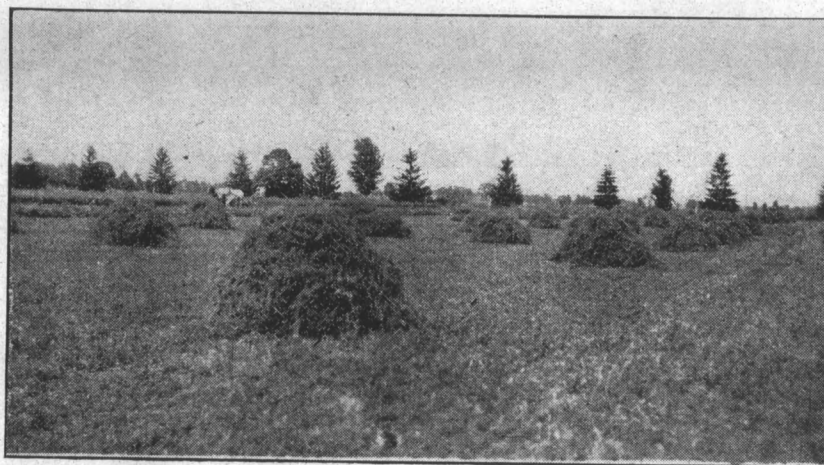
An Illustration of the Effect of Lime or Marl on Clover.

1. No Treatment. 2. Lime requirement added as hydrated lime. 3. Lime requirement added as 60-80 mesh limestone. 4. Lime requirement added as marl.

means of a shovel, a manure spreader, or a lime distributor. The method employed is governed largely by the water content and by the texture of the marl. It is probable that more marl is distributed by means of the shovel and the manure spreader than by other methods. Marl, as well as other forms of lime, are generally applied to plowed ground and well mixed with the soil by means of a harrow. Experience teaches that it is usually best to apply marl and limestone to soils to be devoted to alfalfa and clover some time previous to the date of seeding, autumn being a good time in case fall sown grains are grown. If the soil is to be fallowed for alfalfa they should be applied just after ground is plowed. But we should not lose sight of the fact that lime may be profitably

clover somewhat less, and the cereals still less sensitive than the clover to soil acidity. The small grains vary in their tolerance of acidity, barley being looked upon as the most sensitive.

We are safe in stating that at present we have no laboratory method that will show the optimum amounts of lime to apply—certain of them indicate that it is needed, but only approximate the amounts to apply. Moreover, it is hardly probable that we shall ever be able to do more, owing to the many conditions noted above that influence it. Such being the case, the judicious farmer will be governed by standard practices until he conducts trials on his own fields, applying it at different rates, say one, two, four and perhaps six tons per acre and carefully determining the net returns.



Alfalfa on Soil Treated with Marl. One Cutting Paid for Cost of Treatment.

applied to the soil any place in the rotation except where potatoes are grown, and then as far from this crop as possible.

Amounts to Apply.

The farmer applies lime to the soil in order to increase his net returns, or in other words, its use is looked upon as an investment from which profitable returns are to be derived. Since this is true, the amount to apply to a given soil is of considerable economic importance. It will depend upon a number of conditions, if as stated above, it is finely ground, or even in a powdered form, smaller applications are required than if lumpy.

In general, the degree of acidity or

sourness of the soil governs the amounts to apply, but it is doubtless true that soils high in vegetable matter, or in medium, or high state of fertility, although quite acid, may not require lime until they have been farmed a number of years. The writer had occasion to determine the requirement of a soil in a recently turned fence row that was growing excellent crops of red clover, and also the soil in the field adjoining which had been farmed some sixty years upon which "a catch" of clover was impossible. The lime requirement of the former was 1,500 pounds per acre and the latter 1,850 pounds, as determined by laboratory methods. The writer knows of many similar conditions; thus in poor soils, or those that have been run for a number of years, the so-called acidity is intensified, but in otherwise fertile soils this action is reduced to the minimum. The nature of the crop grown is also important, alfalfa and sweet clover being very sensitive, and red

ceedingly valuable to the farmer. Indeed, there are many farmers purchasing lime on the market today who have such deposits, the value of which is not appreciated.

ONE PHASE OF THE POTATO CROP.

The reports on the potato crop are rather confusing; one man tells us that he has no potatoes at all, and the next one reports a good crop.

We decided that there must be a reason for this and inquired into it. Our potato crop is good, while some of our neighbors', whose potatoes were planted at the same time and on the same kind of land, were poor; therefore, we decided that it was in the manner of cultivation.

We always plant potatoes on new ground as they do better than most crops there; then we find that if they are planted in checks and cultivated both ways the briers, grass and other wild growths are better subdued, leaving the ground in better shape for the next crop than when they are planted in drills and cultivated one way, which is the usual practice in this vicinity. In every case that we have inquired into the man who has a good crop has cultivated both ways, while the man with the poor crop has planted in drills; if this is coincidence it is striking indeed, as we have not yet found an exception to this rule.

There are two cases in particular that impressed me; they are both on land similar to our own, and new ground the same as ours, the one complains that the potatoes in his field average about three to the hill—they were planted in drills—the other brags about having as good a crop as he ever raised; he told me that he planted his in checks and cultivated them four times both ways.

It is obvious that the dry weather prevented a good setting of tubers; and it seems no more than reasonable to suppose that the ground which was the more thoroughly worked would be in a better shape to conserve moisture; hence, was least affected by the drought.

Otsego Co. G. F. DE LA MATER.

AN OLD THEORY EXPLODED.

We have often heard arguments advanced to the effect that if frosted plants were sprinkled with water before the sun shone on them the effects of the frost would be counteracted. Once when a boy we tried this and it failed; but the "old heads" declared that we didn't do it right. As a rule, a dry, hot day follows a frost; and we have often heard that the hot day did as much damage as the frost.

On the night of September 18 at about ten o'clock, when we went to bed, there was a white frost; and about midnight it started to rain—a circumstance that we have never before noted—we thought of our watermelons, potatoes, etc., and thought that maybe they wouldn't be badly damaged, but the next morning we found that the rain had had no effect whatever.

While the crops were too nearly matured to suffer any material damage we felt that these observations were worthy of note; hence our submission of them.

Otsego Co. G. F. DE LA MATER.

COST OF HORSE LABOR.

The annual cost of keeping a horse was found to be \$90.40 in Rice county, Minn.; \$87 in Lyon county and \$75.07 in Norman county. These figures are averages for the years 1904-1907. In Rice county these charges were as follows: Interest on investment \$5.54; depreciation \$5.56; harness depreciation \$2.10; shoeing \$1.42; feed \$63.49; labor \$11.88, and miscellaneous 40c, making a total of \$90.40. These costs have increased. This emphasizes the need of keeping the horses busy and of having no idlers on the farm.

A standard application of marl to soils upon which alfalfa, sweet or red clover, starts with difficulty, lies between four and six cubic yards per acre, depending of course upon the purity and the possibilities for thorough mixing with the soil mass.

Marl Beds of Michigan of Vast Importance.

We have seen that sour soils predominate in Michigan and that the successful use of marl, as well as other forms of lime, is beyond the experimental stage and its use in the future must be looked upon as one of the factors in good soil management. Since such is the case, Michigan's marl deposits are destined to be ex-

GOOD ROADS IN MICHIGAN.

Wayne county will have 200 miles of good roads by the end of the year, and they have been built in about ten years. Of these roads 150 miles are of concrete. These roads draw traffic and must be built wider to accommodate three times the traffic of the old roads. None of the new highways will be less than 16 feet wide, most of them will be 18 feet, and near the city 20 feet, with shelves to make them 28 feet over all. The county has been hampered by scarcity of labor and actual laying of concrete this year totals about 23 miles. The expense of maintaining roads has been light this year, most of the outlay being on the shoulders. Much attention has been paid to appearances of roadsides, the work including cutting weeds, and improving ditches.

Good roads men of Calhoun county met at Marshall and formed an organization to work for the passage of the proposed \$800,000 bond issue at the November election. The officers elected are: President, Thomas Bigger, Marshall; vice-president, John L. Kellogg, Battle Creek; secretary-treasurer, Grant S. Bennett, Battle Creek. It was stated that only \$298,000 of the \$800,000 could possibly be used for a cement highway crossing the county from east to west, and that altogether the sum would build 340 miles of good gravel, macadam and cement roads. Kalamazoo, the county west, is planning to spend \$1,400,000 for good roads.

Ingham county has resumed work on about 15 miles of uncompleted roads, being advised that its portion of the state automobile tax money, or \$22,000, may be used for the purpose. The work was halted for a few days in the belief that the auto tax money must be used for maintenance purposes only.

Berrien county commissioners have been advised by the attorney general that they may build county roads through villages and even into cities to supply missing links in given roads, at the joint expense of county and state, the state paying the reward on such roads just as it is paid on country roads. Berrien's plans for 1917 include the supplying of these gaps through villages and other work that is planned includes a macadam road from Niles to the Indiana line, a road extending east from Millburg and another running north from New Buffalo.

Delta county has built 11 miles of macadam road this year, besides doing much work in grading and resurfacing. There is continuous macadam road now from Escanaba to Ogontz bridge, a distance of 26 miles, and an additional four miles to Nahma junction will be completed this fall.

Genesee county will vote at the fall election on a million dollar bond issue for good roads. It is planned to expend \$100,000 to complete the system voted in 1912, \$450,000 to build a new township system, and \$450,000 to reconstruct the permanent trunk line highways in the county. Funds are to be divided equally among the 18 townships, to be used in building as much of 14 miles in each township as possible. State Commissioner Rogers has called attention to the unsatisfactory condition of state reward roads near Flint and the state reward money earned by the county is being held up at present because these roads are not kept in proper repair. These roads bear great traffic and it has been proven that macadam will not stand up under it.

Ottawa county has let contracts as follows: Grading and graveling one and one-half miles at Lamont to J. Burdick of that village, for \$4,000; one-half mile at Bridge street to H. J. Lake, Coopersville, for \$3,950.

Oakland county has let the following contracts: Two miles of nine-foot gravel road, Pontiac-Perry, to Murray Hall, at \$2.70 per mile, county to furnish material; one mile of nine-foot

gravel road in Groveland township to Cyril Spencer for \$3,700, county supplying material. Oakland is finding, along with Genesee and other counties, that neither gravel nor macadam will stand the wear on main trunk lines.

The question has been raised lately in Genesee and Oakland counties as to whether it always pays to build according to state specifications for the sake of the reward. Instances are cited of deep cuts and high fills that are not only costly but have left a road defaced on two sides with high banks and ditches that are a detriment, also cases of grading and sloping ditches on cross roads which have not been compensated for by the reward received.

Kent Co.

ALMOND GRIFFEN.

VERTICAL DRAINAGE.

In regard to vertical drainage we have four small deep basins that were thoroughly drained by digging a deep hole in center about four feet square to water sand and filling with stone. We plowed and scraped a trench around the largest basin three rods across, filling the hole with the dirt and filling the trench with stone from line fences. Last year and this year so far no water has been seen above this tile.

Over 20 years ago a neighbor drained half an acre of land where there was no outlet, by digging a ditch to coarse sand and gravel, using four-inch tile that emptied into an oil barrel for a drain head. The barrel has recently been replaced, and this job has also proved a success.

As M. N. has five acres of muck land and no natural outlet, he should try to underdrain this land by digging deep to coarse sand or gravel, using large tile for drain heads, and laying tile drains across the marsh, connected with the drain heads. On five acres it may take four or even more drain heads to let all the water down in a wet time.

We have one and a half acres of muck land that has been drained the

second time 12 years ago with five-inch tile. This ground has settled about two feet and now is too wet to plow or produce anything but weeds and willows. We are going to reclaim this land by vertical drainage. There is coarse sand on one shore and we are confident one drain head with a five-inch tile will prove a success.

On muck land that is springy and too soft to hold the tile true to grade, we use either boards in the bottom, or coarse gravel or sand, making a firm bottom for the tile, and fill the ditch with coarse sand to readily let the water into the tile.

Lapeer Co.

WM. H. HURD.

LILLIE FARMSTEAD NOTES.

Frost Damage.

I motored through Gratiot and Isabella counties after the frost of September 18. Up there it was hardly a frost—it was a freeze. Ice froze on the water tanks. Late corn, potatoes, beans, etc., were badly injured. The beans were ruined. The potatoes and corn will grow no more. Fortunately most of these crops were ripe and not injured. Some of the best corn I have seen in the state is in this section, especially in Isabella county, and I think the bean crop there is the best in the central part of the state, at least it is the best that has come under my observation.

Imagine my happy surprise to get home Saturday morning, September 23, and find our late potatoes not injured in the least by the frost. The tomato plants in the garden are not frosted. Lima beans are not injured. Some sweet corn on low ground shows the effect of a light frost, but this is scarcely injured. Dame Nature surely seems to be trying to make amends for what she did last spring in this locality. It looks now as if the cold snap is over for a spell. If frost holds off for two weeks we will have potatoes.

Wheat Seeding.

We have the best conditions for the wheat that we have had for many years. The whole 60 acres is all sown

and the first field sown is all up nicely and looks fine. I like to get a crop up above ground before we have a heavy rain. If rain comes, that is a heavy one, after the crop is sown and before it gets out of the ground, we never can get a good crop. On our soil the seed is virtually sealed up without air and it never does well.

A fairly good acreage of wheat is going in in this vicinity, but in many portions of the state there is little or no wheat being sown. It is so dry people have not plowed the ground and if they had the wheat would not germinate. Some wheat will go in after beans but the most of the bean ground is so dry wheat will not germinate. I have seen just such conditions here but am thankful such is not the case now. Still in this vicinity where the oat stubble was not plowed soon after harvest the ground dried out so much that it can scarcely be fitted, and one farmer told me he could not sow until after we had rain. Our ground was all worked in time to save the moisture and the wheat can come up at once. You see, friends, I do not grumble when conditions are fair. But it worries me when farm work can not be done properly.

The Suggested Embargo on Wheat.

I read that some city ladies' organization has forwarded a petition to President Wilson asking him to have congress place an embargo on wheat so the price will not get so high. What do you think of that? Would it not be the limit to have our government deprive the farmer of a market so as to help the city fellow? If the city folks will come out and help us grow and harvest the crops we can produce enough so the price will be low. Let congress pass a law to that effect. Let congress pass a law forbidding city people (manufacturers) from asking only so much for their products. Put an embargo on automobiles and force the price down so farmers will not have to pay so much for them. Compel the laboring man to work for such a price that the farmer can afford to hire him. Do these things and others and then perhaps the farmer would submit to an embargo on wheat. But the American farmer is an American citizen and he never will submit to such a high-handed measure as this. Why, he would be justified in shouldering a musket to prevent such a thing. Our government would have no right to do such a thing. They could not do such a thing unless a state of war existed and the existence of the nation was imperilled. If our own people want the farmer's products they must pay the price the people of foreign nations are willing to pay. A year or so ago some congressman, so the daily papers stated, wanted a law passed compelling the farmer to raise all their calves so as to produce cheap beef for the consumer. What an idea. Some people seem to think the farmer exists simply for the convenience of the consumer. But they don't exist for that purpose. They fight for a living the same as other people, and when prices of farm products are low they have to take their medicine and they have taken a whole lot of medicine in this country. They have worked hard, wore poor clothes, lived economically, paid the big end of the taxes, fought the battles of the country, stood the humiliation of being called "hay seeds," and now when they cannot get labor to produce big crops city people want to compel them to sell their products cheap so they can live in luxury. Not much. We farmers will never swallow such a pill. The only way to even this business up is to grow less of some products until it affects the price so the farmer can make a profit above the cost of production. If city people want to guarantee profitable prices for the farmer every year, they will dickering with them. But we are not going to guarantee cheap food products without proper compensation.

COLON C. LILLIE.

Improving Sandy Land

A DEFINITE plan for building up the sandy-land farm of northern Indiana, southern Michigan, or northwestern Ohio, is outlined in Farmers' Bulletin No. 716 just issued by the U. S. Department of Agriculture. The department specialists have found a way by which the sandy-land farms of this section can be built up, at the same time returning a profit. The remedy proposed for existing difficulties may be summarized very briefly:

"Grow soy beans or cowpeas—first for seed and later to feed live stock."

The production of one or the other of these legumes for seed is offered as the first stage in the development that ultimately leads to profitable general farming. The sale of seeds from one of these crops serves to finance the farm development while the foundation of soil improvement is laid by the legume crop itself.

"Soy beans and cowpeas," says the bulletin, "are profitable cash crops on the poorest of these sandy lands, the yields ranging from five to 20 bushels per acre, and the present range of prices being from \$1.50 to \$2.00 per bushel. Aside from being a source of immediate income, the crops furnish the most practical foundation for the building up of the soil."

Briefly, this is the system of farming proposed:

First Stage.—Continuous cropping with soy beans or cowpeas. One of these crops is grown for seed on the available farm area not needed for growing necessary hay and corn. A catch crop of rye is used between the crops of soy beans or cowpeas and plowed under in the spring before the new crop is planted. This program

may sometimes be modified with profit by following a two-year rotation of corn, soy beans, corn, or cowpeas. In this event a catch-crop of rye and vetch is sown in the standing corn, or rye after the corn is cut. After a year or two as the condition of the soil begins to improve, ground limestone is applied to at least one of the fields in order to prepare the way for clover.

Second Stage.—After the first stage has been passed and clover can be grown with reasonable certainty, the system may be gradually changed to a four-year rotations as follows:

First year, corn; second year, soy beans or cowpeas; third year, rye; fourth year, clover.

This rotation presupposes that two or three tons of ground limestone or marl per acre has been applied to at least one field of the farm, and that a new field will be thus treated each year before an attempt is made to seed it to clover. The catch-crop of rye or rye and vetch is sown each year in the corn as before. This is a transition stage in which live stock is being introduced as rapidly as fences can be purchased and built, and as the farm can be made to produce the necessary feed and pasture.

From this point the way is open in several directions for the free development of general farming through a gradual shift from the cash-crop to a live stock basis, or a proper balance of both. In some sections of the sandy-land country the system outlined has been found to serve as a foundation for developing a profitable hog-raising enterprise, while in other sections, where markets are convenient, it leads more logically to the development of dairying.

NOT one in ten is constructing his wire fence as he ought. This is a fact to be deplored. There is no form of construction work done by the farmer upon which more depends than upon the work of constructing the farm fence. Upon these present-day wire combinations depends the safety of the farmer's valuable growing crops and the security of his live stock.

There are hundreds of miles of woven wire fence, carefully constructed, which are so many miles of animal-turning field divisions. No animal attempts to force its way over, through or under said fences, instinct seeming to acquaint them with the inevitable outcome of such an attempt. On the other hand there are many more miles similar fence, constructed carelessly, which serves to confine animals only when they see fit to be confined, or when the feed in the pasture lot is better than that in the adjoining fields. They only aggravate the animal slightly when escape is attempted, but aggravate the owner greatly when the escape is noted.

Another consideration is that of appearance. The farm all divided into fields by the tightly strained, straight, upright, woven wire fence, attached to posts uniform in size, height, distance apart, etc., is certain to impress even the casual visitor or passer-by, while the bent, sagged, half-put up wire entanglement will not serve to tone-up the appearance of the farm no matter what the growth of the grain in the fields they are supposed to inclose.

The truth of this admitted, then it behooves every farmer to build his wire fence as near perfectly as circumstances and conditions will permit and enjoy the maximum of service possible to get from it.

Preparing the Old Fence-row.

The first consideration of the intending builder should be that of preparing the strip of land upon which the fence is to be built, or the fence-row. Almost invariably this old fence row is one from which the old-fashioned crooked rail fence has recently been removed. Here weeds, unmolested by plow or harrow, have taken possession and by virtue of years of having their own way have become firmly entrenched. Now is the time to rout the enemy and pains taken with plow and harrow will accomplish this result. There will, in all probability, be a considerable number of stone and clumps of brush to be rooted out. After plowing and harrowing this land, if the fence can be left off for the summer and the strip sown to some crop which will permit of grass seeding, the preparation will have been perfect. These old fence rows will, in a great many cases, raise enough grain to buy a goodly number of rods of the fence we will require.

Best Time for Fencing.

More farm fence is built during the months of April and November than during the remaining ten months combined, because at these two periods the farmer can spare the time for fencing operations. Because of the liability of the ground being full of water and loosened up by the winter frost, the spring time is not the ideal time for fence construction. Post-holes fill with water before the posts can be placed and the ground is too spongy to hold the posts in place when strain is put on them. November, when the earth is firm, yet usually moist enough to facilitate post-hole digging, becomes the favorite time of the fence builder.

However, the constructor who sets his end posts in April, with the idea of attaching his fence in November, will benefit greatly by his forethought. His posts set in April will have become almost immovable by November, because of the settling and hardening of earth around same.

The End Post.

The whole life of the wire fence depends upon the two posts between which it is stretched. These posts

Building the Farm Fence

By R. C. SMITH

must hold the terrific strain of nine or ten heavy wires strained until they sing in the wind from very tautness. In order to enable these posts to hold without giving even an inch the fence builder must exercise the greatest care in selecting and placing them. In the order in which they are named will the following posts give a maximum of satisfaction:

1. The cement post, because if of the proper size it will last forever without repairs.

2. The cedar post because of all our native woods it will the longer resist decomposition.

3. The white oak post, because it is also of a fiber that will resist decomposition.

If the cedar or white oak post is used the selection should be nine feet in length and one foot in diameter. The anchors should be strong two by fours, five feet long. Notches should be cut in post one foot from its bottom and the 2x4 anchor nailed therein, one on each side two and one-half feet projecting in front of center of post, and two and one-half feet projecting to its rear. This necessitates an excavation some six feet long, three feet

where fence must be forced down and so held by them must be anchored, according to lifting tendency of fence.

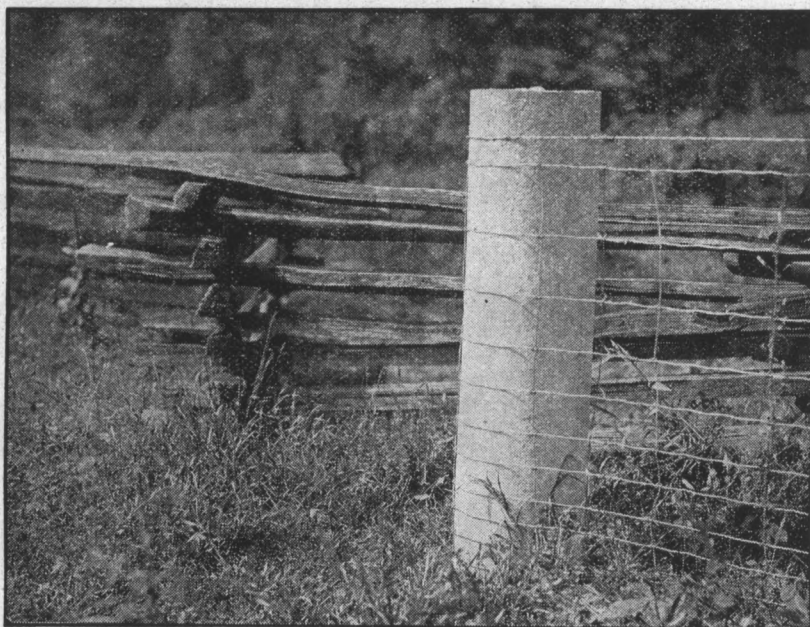
Twenty-five feet apart is the distance recommended for the setting of line posts. Better the extra dollar for the extra posts and the satisfaction of having an extra good fence.

The Fencing Itself.

With the exception of the brittle wire fencing, the writer would have no preference in particular makes of fencing when about to purchase. The majority of manufacturers are putting out high grade work and using excellent material.

In stapling fence always force fence down tight to ground before driving home staple so as to prevent stock from forcing fence outward in attempt to reach grass or grain growth on opposite side. Their attempts will be certain to cause fence to buckle and practically ruin it. Always place at least one strand of barbed wire just above fence at once to prevent the equally ruinous habit of some live stock of reaching over the fence for food.

Never fasten the wire fence to one side of the end post only, as this gives



The Service Rendered by a Woven Wire Fence Depends upon the End Posts.

wide and four and one-half feet deep, to admit the post and its right angle anchors. The post should be set so that anchors are parallel with line of fence to insure the full benefit of such anchorage.

The excavation, after post is placed therein, must be filled with alternate layers of stone and dirt and tamped with a heavy instrument. The man who will use cement and stone to fill up the last foot of hole will ever after have confidence in his end post. The cement will serve to prevent water from settling around his post, which is no small benefit in itself. If pains are taken either method will result in an almost immovable post.

Line Posts.

The line post, although of far less importance than the end post, has its duties to perform and must be placed accordingly. Many fences become useless as far as small animals are concerned after the frost has heaved the line posts and thus raised the fence itself so far from the ground that the pig or sheep can squeeze underneath, and once squeezed through low indeed must be the fence that prevents their second attempt. The best and only way of preventing the frost from getting in its work is by using line posts which taper from large bottoms to small tops. Having line post sawed from white oak logs to measure six inches square at bottom, tapering to a 2x6 inches at top, gives a frost resisting slant. In fact, it is almost impossible to pull these posts after once setting. All line posts in depressions

per had been destroyed. You had forgotten the exact information contained in the article and its value to you had been entirely lost. This, no doubt, has been the experience of all of us at one time or another.

It has been said that the next best thing to knowing a fact is to know where to find it. We cannot hope to definitely remember everything of interest that we read, and most of us remember only a small percentage of it. So if our reading of papers and magazines is to be of much value to us it is necessary to have some system of keeping a record of desirable information. In the business world this is usually done by means of some sort of card index system. Many elaborate filing systems and devices have been worked out for the use of professional and business men, but many of them are too complicated and expensive, and take too much time to be of much use to a farmer. When a paper issues an index number, as does the Michigan Farmer, this furnishes the easiest method of filing information. However, it has its disadvantages. Some of the papers are apt to be lost. In the course of a few years some of the articles will become obsolete or may perhaps be practically repeated. It requires the keeping of all matter, whether it be of interest or not. The mass of material soon becomes bulky, especially if two or three papers are taken, and it becomes increasingly difficult to locate any particular piece of information wanted.

The Envelope System.

Perhaps the best method of filing information for the use of the general reader is what might be called the envelope system. It is simple, inexpensive, takes little time, and provides for the easy elimination of obsolete or duplicate articles. All the equipment necessary is a few dozen manila envelopes about 8x12 inches, open at the end, and a drawer or case of the right size to hold the envelopes when placed in an upright position. Group under several general headings the information you want to keep, and write each of these headings at the top of an envelope. For instance, you may be a general farmer and interested in the growing of corn, hay, wheat, oats, and potatoes, and in raising cattle, hogs, horses, and poultry. You will write the word "Corn" at the top of one envelope, "Hay" at the top of another, and so on. You are now ready to begin your reading. When an article of special interest is found read it carefully a second time, and then, if it can be done without spoiling the paper for the rest of the family, cut out the article at once and place it in its proper envelope, and write the title of the article on the envelope under the general heading. If it is best not to cut out the article at the time, mark it and also mark the paper so it will not be destroyed or lost and then, after the paper has been read by the others, cut out the article and file it away. Some articles will come as readily under one heading as another. For instance, an article on spraying might be placed under either potatoes or fruit. It might be filed under fruit and the title also placed on the potato envelope with directions to "see under fruit." As soon as a number of articles on spraying have been collected, a separate envelope with that heading can be used and the spraying articles removed from the other envelopes.

Envelopes can be ordered through any printer, and if a drawer or case is not already at hand one that will answer the purpose can be made in a short time by anyone handy with tools. The inside width of the drawer should be about one-half inch more than the width of the envelopes. This system will be found to take very little time after it is once started. The ability to locate at once certain definite information will be a matter of satisfaction as well as sometimes the saving of both time and money.

Allegan Co.

O. F. EVANS.

A CONVENIENT FILING SYSTEM.

In your reading you have sometimes found an article that interested you greatly and you have decided to keep it for future reference. You went on with your reading and finally laid the paper aside. The article was forgotten for a time and when you again thought of it and looked for it the pa-

Macomb Co. R. C. SMITH.



The Magazine Test of Shot Shells

Fire a Black Shell at a thick monthly magazine. Count the number of pages shot through. If you think some other shell will penetrate as many pages, turn the magazine around and try it.

There are two other interesting tests of the superiority of

US BLACK SHELLS
Smokeless and Black Powders

In order to get three sample shells, and a booklet of instructions for making these tests, just do as follows: On the margin of this advertisement write your name and address, also that of your ammunition dealer, tear it out and send it to us. We will send you an order on your dealer for shells from his stock and for booklet of directions.

UNITED STATES CARTRIDGE CO.
2606 Trinity Building, New York City



Clean Up! Cutaway

Bush and Bog Plow

Turn bush-land into cornfield, disk your roadsides and kill the chinchbugs. The **Cutaway** does away with the bushknife, grubhoe and shovel—it's better, quicker and cheaper. The forged sharp Cutaway disks penetrate deep, cutting roots, turf and trash and pulverizing the soil. Splendid for deep tillage, 2 horse and 4 horse. Reversible. If your dealer has not the genuine Cutaway write to us direct. Be sure to write us for our new book, "The Soil and Its Tillage." Get your copy now.

THE CUTAWAY HARROW COMPANY
Maker of the original
CLARK disk harrows and plows
925 Main St., Hingham, Conn.



Stop Crop Destruction

Solve the drainage problem. Write for free book and letters from hundreds of farmers telling what they do with the Martin.

THE Martin

Farm Ditcher and Road Grader
cuts ditches, throws up terraces, levels bumps, fills gulches, makes levees, builds roads. All-steel, adjustable and reversible for wide and narrow cutting. 10 days' trial. Money back guarantee.
Owensboro Ditcher and Grader Co., Inc., Box 310, Owensboro, Ky.

When writing to advertisers please mention the Michigan Farmer.

Storing Vegetables for Winter

I BELIEVE that every farm that can support a man and his family should support a garden. I am not alone in this as the many farm gardens will testify but there are not enough of them. One of the things that will make farm life more tolerable to old people and its attractiveness more inciting to young people, is the keeping of a good vegetable garden. To many folks, the garden is valuable because it keeps the grocer from getting quite all the cash that comes in through the summer, if he does get it all in the winter. That need not necessarily be true, though, for one of the great values that comes with the farm garden is the fact that most vegetables are so easily stored that the grocer is cheated the year around instead of for three months only.

Farm economy is often expressed as the act of cutting the little corners rather than raising enormous crops, although that is wise, if possible without too great cost. Even drought is not without its blessings when one has a garden. Why, this year with the sun so actively in charge as he was through July and the fore part of August, it wasn't even necessary to cook the vegetables. Our onions were already fried, the carrots got stewed and the potatoes were more than half-baked. Since the rain, however, the onions have got stronger, the carrots have grown greener and a few of the potatoes are commencing to see the light of blighted maturity.

All to the contrary notwithstanding, there will be some crops to winter over. As it comes near to the time for storing, one is apt to make the mistake of leaving the different vegetables in much the same way, but this is likely to be followed by loss, odor and much useless labor. Really, most vegetables are easy to store and the different methods of storage vary only with the general nature of the vegetable. It is hard to lay down any specific rules to guide one in storing every garden crop and so different cases must be cited. Most vegetables cannot stand freezing without deterioration; many of them must have a steady supply of fresh air to take the place of the foul air that is given off as they slowly mature through the winter, and still others need a warm temperature.

Dig Roots that Can Stand Freezing.
Parsnips may be left in the ground all winter and suffer none; in the same class is salsify and horse-radish. My experience last winter in taking a half-hour to pick a dozen parsnips out of the frozen ground and a quarter of an hour to wash them, doesn't permit me to recommend leaving these roots in the ground until they are wanted. Negligence brings its own penalty. There are times in the winter when one would enjoy a mess of parsnips but his appetite shrivels at the thought of shoveling down through a snow-bank three or four feet deep. These roots can be dug and put all together in one pile right on top of the ground. Cover them up with five or six inches of soil; with this sort of a pile, when the vegetables are wanted, a hole about a foot square may be chopped through the frozen earth and the vegetables are easily removed. Take out enough to last for a week or so. The same hole will furnish an easy avenue by which the vegetables may be had without too much bother.

Storing carrots, potatoes or beets is done by putting the vegetables in a pile, (or pit if the soil is well drained), cover with about eight inches of straw and then put on seven or eight inches of soil and when the weather gets real cold, put on some more straw or strawy manure or cover the pile with snow. Some gardeners recommend the use of beet or carrot tops for covering the roots, but we have had some spoilage resulting from their use. Besides, I regard beet tops as too good cattle feed to be used in that way. Carrot

tops are so green and damp that frost easily penetrates them while, if they are allowed to dry, many of them are required to do the same work that two or three good forkfuls of straw will do. This pit can be opened in much the same way that the parsnip pit is opened, but care must be taken to leave the opening frost-proof.

Keep Cabbages Moist.

Cabbages are quite easily stored and this very fact has led people to advise different methods of keeping them. Some advise wrapping the heads with paper and putting them in a barrel in a cool place. This does well sometimes but much depends upon the "cool" of the place. If we have only a few cabbages, we take all the excess leaves off and pack the bare heads in to a barrel filled with moist earth. This provides a cool temperature for the cabbages and they are easily available when wanted for cooking.

Where there are many cabbages, they are piled right on top of the ground, three abreast, then two on top of the first three and one on top of the second two. This makes a V-shaped pile. The whole mound is covered with dirt until not even the roots can be seen. Stored in this way, cabbages will keep through most winters but if the cold weather gets too in-

tense, it may be necessary to put some straw over the pile. It is a good idea to make three or four of these small piles and then all the cabbage in one of them can be taken out at a time and put into the cellar for future use. **Store Pumpkins and Squashes in Dry, Warm Place.**

Most vegetables for storage require a temperature just above the freezing point but the pumpkins and squashes are an exception to this rule. If put in a damp place, they will rot and if placed under cool conditions, they do not develop that meaty flavor that is so desirable in them when used for culinary purposes. They ought to be put either in a warm attic or in a furnace room. A scheme that has served well is to hang boxes from the ceiling of the furnace room and put the squashes and pumpkins in these boxes. These two vegetables are seldom fully matured when they must be picked to avoid frost and they go on ripening until well along in the winter if put in a warm, dry place.

A little time taken to store the vegetables not used up during the summer is well paid for by the variety and palatability of the bill of fare thus made possible through the winter. At times, it is hard to procure these vegetables from the grocer and even if possible they are often wilted and cannot compare with the home-grown and home-stored product. I. J. MATHEWS.

Fall Care of Bush Fruits

Raspberries and blackberries winter-kill more or less in many northern states if they are not given some sort of protection. The facts in the case, however, are not that cold does this so much as the condition of the atmosphere. Plantations set along hillsides, in ground of a sandy or loamy texture, are usually quite free from this trouble, while those at the bottom of the valleys or on level land, that is, of a clayey nature, frequently receive considerable injury. It is also true that localities where the ground is subjected to alternate freezing and thawing are not as favorable to these berries.

Laying Down Fresh Fruits.

If there is any possibility that the canes will winter-kill, this is more likely with certain varieties than others, they can be laid down and covered without much labor. On dry ground the first thing to be done is to plow a furrow each side of the row, throwing the earth towards the canes. This should be delayed as late as possible or until the ground is about to freeze. Two men can do the work of laying down the bushes to much better advantage than one. First, the canes should be cut back to three or four feet, raspberries perhaps to three and blackberries to four or possibly five. One man, wearing heavy gloves, bends down the canes while the other shovels on sufficient earth to hold them in place. In many cases this is all that is necessary, especially where heavy snows are likely to fall. In other localities straw or meadow hay is used to cover the bushes. The process of laying down is one that is quite feasible for plantations of considerable size, as the work can be done rapidly by two experienced men. Raspberry canes are very flexible while those of the blackberry are stouter and stiffer. Laying down does not seem to injure the bushes, in fact this practice can be carried to a much farther extent than is generally supposed. A peach grower in Colorado lays down a large peach orchard each year and by so doing he is able to gather a large crop annually.

Mulching is Beneficial.

When alternate freezing and thawing of the ground is likely to occur, or in wet stiff soils, mulching is a good practice. This prevents heaving of the roots and will prove beneficial in almost any soil. Raspberries and blackberries are supposed to be hardy in any climate that is favorable to the

peach. However, this is not always true. In some cases the condition of the atmosphere causes winter-killing. Laying down will prevent all this while mulching will prevent heaving of the roots.

Currents and gooseberries are hardy in all the northern states. These bushes seldom winter-kill and if they are planted on dry soil they will need no fall attention except to cut out the canes that have ceased to be useful. The canes of these fruits bear for three or four years before becoming useless. Raspberries and blackberries bear but once. All old canes should be cut out and the new cut back as noted above. Currants and gooseberries need much less pruning. These fruits, when planted in moist or clayey soil, should be mulched with plenty of straw to prevent heaving. All mulching material should be removed very early in the spring and the bushes that have been laid down should be righted as soon as the opening of the ground will permit.

New Hamp. C. H. CHESLEY.

FIELD MICE AS ORCHARD PESTS.

The ravages of short-tailed field mice in many parts of the United States according to D. E. Lantz, Assistant Biologist of the Department of Agriculture, result in serious losses to farmers, orchardists, and those concerned with the conservation of our forests, and the problem of controlling the animals is one of considerable importance. Short-tailed field mice are commonly known as meadow mice, pine mice, and moles; locally as bear mice, buck-tailed mice, or black mice. Over 50 species and races occur within the United States and nearly 40 other forms have been located in North America.

The runs of meadow mice are mainly on the surface of the ground under grass, leaves, weeds, brush, boards, snow, or other sheltering litter. They are hollowed out by the animals' claws and worn hard and smooth by being frequently traversed. The runs lead to shallow burrows where large nests of dead grass furnish winter retreats for the mice. Summer nests are large balls of the same material hidden in the grass and often elevated on small hummocks in the meadows and marshes where the animals abound. The young are brought forth in either underground or surface nests.

TROUBLE DEPARTMENT.

Pruning Peaches.

I have about 800 peach trees about four or five years old that did not prune last spring. Would it be all right to trim them about September 15th?

Lapeer Co.

J. S. M.

It would be advisable for you to wait with the pruning of these trees until early next spring. If you should prune during September, it might cause the trees to force new growth, which would be immature before winter set in. Such growth would be very susceptible to winter injury, which might cause serious damage to the trees.

Galls on Maple Leaves.

Please give some information and a remedy for our large old maple tree. Last year leaves at the very top began to fall off, and branches died. This year it is much worse, dying very fast in a downward course. I enclose some leaves.

Ottawa Co.

M. W. S.

The little galls on the maple leaves, which you enclosed, have been caused by a very tiny "mite," almost microscopic in size. This "mite" has been given the scientific name of *Eriophyes acericola*.

The "mites" begin their work early

and appreciated, a larger number of orchardists would make a greater effort to bring their apples to full size and maturity.

Dead and dying limbs should be pruned out close to the tree and the wounds painted. Many people suppose that once a limb on a tree is dead that it dries out and does no essential harm. As a matter of fact, a dead or dying limb evaporates large quantities of moisture from the tree. Cutting off a dead limb and painting the wound saves a large quantity of moisture for the remaining living limbs, leaves, and fruit.

Cut Off Surplus Limbs.

Canker wounds or sun-scald areas where the growing limb beneath the bark has died, ought to be scraped clean up to a layer of healthy growing tissue and the wound painted. Cleaning and painting these wounds will destroy many insects which are sheltered behind the shelly bark of wound, which feed on the growing layer and prevent it from healing over the wound and the painting will save loss of water from the dead and spongy wood.

Water sprouts and surplus limbs not needed by the tree ought to be pruned



Peach Trees Should be Pruned in the Spring.

in the spring, as soon as the leaves come out, working on the underside of the leaf. The irritation which they cause on the epidermis of the growing leaf brings about the abnormal growths which extend outward on the upper surface of the leaf, in the shape of little hollow sacks or galls, having their openings on the under surface of the leaf. You no doubt noticed that the little galls are hollow, and the "mites" live on the hollow interior of these galls, where no spray can reach them at this time of year.

We have never known this mite to do any serious injury to the maple tree. Sometimes the galls will be on a tree in great numbers one year, and the next year one will see almost nothing of them. If the tree is dying, therefore, I think it must be due to some other cause than this little "mite." If you wish to do something in control of these "mites," however, we would recommend that the trees be sprayed in the fall, after the leaves have dropped, or in the early spring just before the buds open, with a strong lime-sulphur wash. It is believed that the "mites" winter in the bud scales, and in rough places on the bark of small twigs.

A spray of lime-sulphur applied as directed, would kill the overwintering forms, therefore, and prevent injury on the leaves the following summer. I would suggest that you examine the trunk of the trees very carefully for the work of borers. GEO. D. SHAFER.

RESULTS OF ORCHARD TREATMENT IN DRY WEATHER.

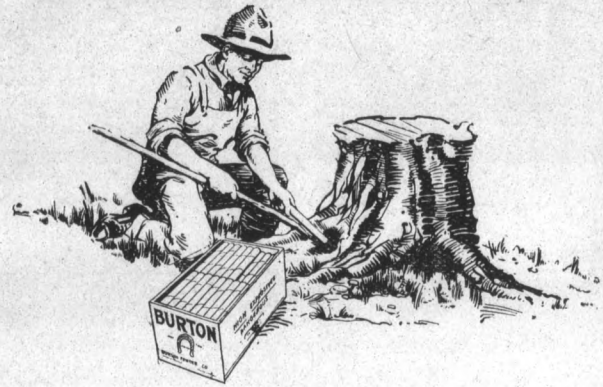
The Department of Horticulture of the University of Missouri finds in investigation work carried on during recent drouth years that proper orchard management can largely offset the effects of drouth in our apple orchards. Everybody recognizes in a general way that a well-managed orchard will stand drouth better than a neglected one. The reasons why this is true are not fully understood by most orchardists. If they were fully understood

out now. All wounds more than half an inch in diameter made in pruning should be painted with common paint to save evaporation from the wound. This is particularly desirable during the present year, on account of the exceedingly moist cool spring the trees made rank growth and a very large leaf surface. This most abundant growth occurred during the month of May. Now that drouth has occurred suddenly the trees have a larger leaf surface than can adequately be supplied with water. Reducing this evaporating surface, pruning out surplus growth, leaves just that much larger water supply for the fruit, leaves, and limbs which remain.

Effect of Fruit on Foliage.

Investigations during recent years at the experiment station show that this point is of special importance. It has been found that in a dry time the fruit is the first part of the tree to suffer from lack of water. This is because, when the water supply is inadequate the leaves have the power of drawing water out of the adjacent fruits. The sap in the leaves is more concentrated than that in green fruit so the sap of the leaves draws water from the apples. This point can be tested by cutting off two branches from an apple tree, each containing a similar number of fruit and leaves. Hang them up in a dry place, pick all the apples off one of the limbs. The leaves on the branch having no apples to supply water will turn brown, dry and brittle within twenty-four hours. The leaves on the branch containing apples will keep green for days until the water is drawn from the apples and the latter are dried and shrivelled. In a similar way cucumber or melon vines, containing large watery fruits, have their leaves remain green until the cucumber or melon is entirely shrivelled, while a similar vine containing no fruit will have the leaves begin to wilt as soon as the vine is cut off.

Mo. Ag. College. J. C. WHITTEN.



Easy to Remove—and Cheaper

Progressive farmers no longer use the antiquated, primitive methods formerly employed in removing farm obstructions. Instead they save time, labor and expense by using

BURTON

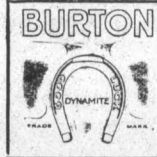
"Good Luck" Dynamite

Contrast this new money-saving way with the old style procedure of chopping and pulling, hour after hour. Not only is Burton "Good Luck" Dynamite better than former methods, but it is infinitely better than most other grades of dynamite on the market. And it is *cheaper*, too, because a smaller amount is required for a charge.

Safer to use and uniform in quality, "Good Luck" Dynamite is equally successful for ditching, tree-planting or subsoiling.

Our distributing facilities enable us to guarantee prompt deliveries.

Ask your dealer for Burton "Good Luck" Dynamite. If you can't locate a dealer in your community, write at once. If you have some difficult farm-clearing problems to solve, write us and we will help you.



Burton Powder Co.,

711 Empire Bldg., Pittsburgh, Pa.
1617 Fisher Bldg., Chicago, Ill.



Atkins

Cross Cut Saws

Superior to any others in Material, Temper, Grinding and Finish. Run easier, cut 25% more timber in the same time. Hold their cutting edge longer than any cross-cut saw that has ever been made.

Why Atkins Silver Steel Saws Cut Faster

They are "Segment-Ground." The blade is thicker on the toothed edge than at the back—thinnest at the center of the back. Wherever the teeth go, the rest of the blade follows without a struggle. It cannot stick in the wood. Ribbon-like sawdust is made by an Atkins Cross-Cut Saw, "Segment-Ground." The teeth cut the wood instead of rubbing it away. The "Segment-Ground" feature is an exclusive Atkins patent.

Two Popular Models

No. 5 "Perfection" (shown at top). Has four cutting teeth and raker. Known wherever hardwood timber is cut. 4 to 8 feet lengths. No. 540 "Rex." Has two cutting teeth and raker. Known wherever quality is appreciated. 4 to 8 feet lengths. Made with narrower blades if desired. These two saws are the most popular cross-cut saws on the market.

Free Offer

We will send you free our valuable booklet, "The Saw on the Farm," containing helpful information on the care of saws and short cuts in farm carpentry. We will include a serviceable canvas carpenter's apron, strongly sewed, with handy pockets, for fifteen cents in stamps. Send today for free offer "J"

Remember, we make saws for every purpose—and each is the best of its kind.

E. C. Atkins & Company, Inc.

World's Largest Saw Company

Indianapolis, Ind.

ROSEN RYE The new pedigree rye that produced an average yield of 41.2 bushels per acre without fertilizer. Very hardy, stands abundantly and the heads are especially well filled. Farmers report it much better than common varieties. Write to Secretary Michigan Experiment Association, East Lansing, Mich.

FOR SALE

Rosen Rye, Winter Wheat, Clovers and Grass Seeds—Bulbs for fall planting. Ask for Price list. S. M. ISBELL & CO., Jackson, Mich.

WE WANT VETCH. SEND US SAMPLES. YOUNG-RANDOLPH SEED CO., Owosso, Mich.

Northern Grown Hairy Vetch Seed. DORR D. BUELL, Elmira, Michigan.

TIMOTHY A. ALSYKE \$3.50 Per bu. 45 lbs. Bags extra at 20c each. Send us your order: Young-Randolph Seed Co., Owosso, Michigan.

Wanted: Garden and Field Beans, Vetch Seed, Etc. Mail us samples. S. M. ISBELL & CO., Jackson, Michigan.

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

When writing to advertiser please mention The Michigan Farmer.



The Clothcraft label in your clothes is like a return ticket. It starts at a point of Complete Satisfaction and brings you back to the starting point. For when you're all through—when the suit has done its duty and seen its day, you'll be bound to say "That was a mighty good suit of clothes."

SERGE SPECIALS
"5130" Blue, \$16.50
"4130" Blue, \$20.00
"3130" Gray, \$20.00

THE CLOTHCRAFT STORE IN YOUR TOWN

Clothcraft Clothes for Men and Young Men, Ready-to-Wear, \$12.50 to \$25.00

Made by The Joseph & Feiss Co., Cleveland.

Stock Breeding Hints

By N. A. CLAPP

It is during the fall of the year that changes are made in the flocks and herds, sires are selected and plans are laid by which we hope to secure an increase in the numbers of animals kept and improvements made in the character of the animals raised. To be satisfied with the character of the animals now possessed would be a means of checking progress and improvement. To be dissatisfied with what one has and have a desire for something better, and an ambition to devise means to secure it, is one of the first necessities required to attain it. The dissatisfied man, with burning desires to do something more and secure better results is the man who is likely to benefit himself and be a benefactor in his community. To seek improvement for one's own sake and to benefit the community and the age in which one lives, is a commendable ambition.

Heredity and Environment.

In seeking to make improvements in the live stock kept on the farms, there are many things to be kept in mind. Two great factors with their divisions and subdivisions, are constantly before us—heredity and environment. Those factors are far-reaching and wield a dominating influence on our operations from first to last. They are the alpha, the beginning, and the omega, which decides final results.

If I were to define heredity I would say that it embraces all the ancestral forces of nature, plus life. When speculating on heredity we must take into consideration nature's primal forces and what has been gathered along ancestral lines during recent years. Some influences may be looked for and expected all along the ancestral lines on the side of both sire and dam, from both remote and recent crosses. In most cases the remote crosses lose in potential influences as the length of the line increases, leaving the dominating influences to the last and recent ancestors. I could, if necessary, mention instances which would prove that there are exceptions to the rule. In fact, the exceptions to most rules quoted by breeders, are so numerous that it can be easily shown that results in breeding live stock can not be forecasted and predicted results obtained with anything like mathematical exactness. Like the scribe rule with mechanics, one must venture and await results.

If I were to try to define environment I would say that it means surrounding conditions, which would embrace food, temperature and treatment by those having the animals in charge. Heredity furnishes the seed carrying with it greater or less possibilities, and environment is responsible for the development of the animal. If the environments are favorable, then good results are secured. If the environments are not good disappointing results are sure to follow. It is on favorable environments one must depend for the improvement of the young animals in charge over the immediate and remote ancestors. It was by improving the methods of feeding, and giving better care to their animals that the breeders of the eighteenth century developed their animals, made up their breeds, and proved to the world the superiority of their stock over those which had not for a few generations been subjected to improved conditions. Improvements made on their animals by improved environments soon became fixed and were transmitted to a greater or less degree to their progeny. It is safe to assert that the improved animals composing the breeds which we have today, which have been held in a continuous line of improved conditions for a century, transmit to their progeny their superior characteristics with a greater degree of certainty than was possible

for those composing the same breed fifty years ago.

Results Obtained.

Although we look upon live stock breeding thus far followed as an art, not as a science, the results obtained are marvelous. Looking at the animals as they stand today, and represent the characteristics of the breeds, the transformation of the animals from the indifferent specimens which composed the stock from which the breeds were developed, we can say that the breeders have molded them at will with a skill equal to that of clay in the hands of the potter. They are like the perfectly shaped vessels ready to use for the purpose for which they were designed. It does not require a skilled individual to place each and every breed where it belongs among the breeds.

Among the horses we need not mistake the draft horse for a trotter or a runner; the conformation is so widely different that a glance enables one to decide where each branch of the equine species belongs.

With the cattle, the characteristics of the beef breeds are so in contrast with those of the dairy breeds, that anyone, with but a limited amount of general knowledge of cattle, and the purposes for which they are used, need not make a mistake.

The sheep, which are dual purpose animals, manifest by their appearance whether they have been bred more for mutton or more for the wool which they produce.

The hogs, which are distinctively meat producers, show by their shape whether they are "fat backs" designed to lay on fat and produce lard, or deep sided, capable of producing strips of bacon.

Lack of Interest in Live Stock.

It is very evident that there is, at present, a lack of general interest in breeding and improving live stock. The district and county fairs have been abandoned and ceased to exist. They were not well enough patronized by the farmers as exhibitors to insure their continuance.

At the State Fair the avenues of "attractions" on "midway" are thronged with both city and country people who go there with purses well filled with money to spend, listen to the "hawkers" of "natural freaks" and "marvelous wonders," spend their money only to find that the greatest entertainments and attractions are on the outside of the tents. P. T. Barnum understood human nature when he said that "most people love to be humbugged." While the avenues on "midway" are thronged with people, the stock barns, agricultural and horticultural halls are comparatively deserted.

In the farm yards there is material worthy of investigation and study, which, if looked at from the right viewpoint, will furnish entertainment far more interesting and profitable than the attractions advertised by the "hawkers" who are given to gross exaggeration. Nature's forces in producing and improving our domestic animals, and the molding and shaping of them by man, guided by his intelligence and best judgment, make a fascinating study that should hold the attention of all who are interested in farm life. A group of improved and developed domestic animals challenges the admiration of all who appreciate the influences of beauty, and the blessings of efficiency. People in cities select farmyard scenes where excellent specimens of our domestic animals are kept, for their pictures on which to gaze and furnish ideals with which to impress on the minds of their children while young images of genuine beauty. Why are most country people less appreciative of the beneficial influences of our improved domestic animals?

Wayne Co.

N. A. CLAPP.



Family Health Underwear

THE famous patented VELLASTIC knit fabric baffles the colds and chills resulting from sudden changes in temperature. VELLASTIC ribbed fleece underwear keeps the body at an even temperature, whether you are indoors or out. Doctors recommend it.

Velvety Fleece-Lined for Warmth *Elastic Ribbed for Perfect Fit*

VELLASTIC

TRADE MARK

for Men, Women and Children

Luxurious inner fleece, never mats, knots or washes out. Outer ribbed fabric gives freedom of movement and perfection of fit never experienced in other winter underwear. At all dealers VELLASTIC Union Suits and separate garments for men, women and children, 50c and up.

Look for the VELLASTIC label.
Write for Bodygard Booklet No. 23
Utica Knitting Co., 350 Broadway, New York




THE GREAT NATIONAL DAIRY SHOW IS TO BE HELD OCTOBER 12 to 21 INCLUSIVE THIS YEAR

AT SPRINGFIELD, MASSACHUSETTS

In Five Enormous New Concrete, Brick and Steel Buildings, Covering 400,000 Square Feet of Ground in a 170 Acre Tract. Larger and More Convenient and Better in Appointment than Any Other Similarly Used Buildings in America.

This Show Affords a Short Course in Dairy Agriculture That Can Not Be Equalled.
1,000 of the Best Dairy Cows in the World Assembled From All Over America.
50,000 Square Feet of Operating Modern Dairy Machinery; Farm and Barn Equipment; Silos; Motor Trucks, and Everything that a Dairyman Should Have.
Milk Pasteurization; Ice Cream Manufacturing; Competitive Exhibits of Dairy Products from Every State Displayed in Mammoth Refrigerators.
Domestic Science Demonstrations; U. S. Department of Agriculture Grade Cattle Exhibit; Exhibit by Agricultural Colleges; Students Judging Contests.
20,000 Square Feet Boy and Girl Agricultural Display.
A Meeting Place for the Dairy World. All Under Cover.

Reduced Railroad Rates From Everywhere

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

Summer Lamb Feeding

By JAS. N. McBRIDE

THE lamb feeding business has various phases—and fits into some forms of farming to advantage. The beginning of July usually finds some western lambs at Missouri river points, out of which is the feeder end too light for slaughter. Western range conditions not permitting sorting before shipping, and sometimes short feed on the range is primarily the cause of shipping out. The average corn belt farm is not ready for these for it is too early for the corn field and many stubble fields are not fenced for sheep.

Michigan conditions can be made to suit these early lambs. Three pounds of rape sown in the oats at time of drilling often provides an enormous amount of feed. Meadows which are to be plowed another season, are often a source of considerable pasture. All these are pound makers on lambs at practically no cost. Later there are corn fields which yield a considerable amount of feed before the corn is attacked. And even to continue and fatten in the corn field is a profitable method of corn disposal.

This year after a partial pasture clean up, the racks are taken to the meadow where hay is stacked and around 700 lambs are being finished on clover hay and salvage grain. About an equal number is being held

The first month's gain on lambs, as measured by shipping weights, is sometimes deceptive, because lambs taken from their mothers and used to green feed only, are well shrunk out and carry some food weight after becoming used to green feed. Twenty-five pounds gain in 90 to 100 days is good feeding, and perhaps above the average gain. Quick gains are not always the most profitable as utilizing cheap pasture and waste products are to be considered.

Western lambs are very fond of sweet clover and do not draw the line on nettles or burdocks. If sweet clover could be cut back to be in its prime early in July it would make a most profitable pasture crop for the lambs. This would avoid some of the difficulties of curing and handling the crops. There is very little sentiment in feeding lambs as compared to the individuality acquired by acquaintance with a breeding flock. Each lamb represents a certain investment and the gain and selling price make for profit or otherwise.

THE VALUE OF MANURE.

The best results from manure will be secured when it is hauled direct to the field, six to eight loads per acre, to be plowed under for corn or top-



Cheap Pasture Feeds are Converted into Dollars by Summer-fed Lambs.

back on pasture for smaller gains at less cost.

The advantage of summer feeding is that gains are made out in the fields where the manure is needed and at a time of year when out-of-door feeding is most profitable. Solid bottom racks are used and grain fed in the same racks as used for hay. A remote field can be used, and with the addition of grain the hay crop returned almost as if turned down with the plow. A drive well was put down in a few hours and furnished a necessity for sheep, as they demand plenty of fresh water on dry feed.

Hay alone is not sufficient to make profitable gains. Grain at the beginning about one pound per head and increasing until they are on full feed, is about the proper measure. Lambs on arrival should be turned in short scant pasture until accustomed to the green feed, and salt withheld for several days to avoid scours.

With scouring comes danger from flies and maggots. Constant watching and care are essential at this period. A dirty lamb is under suspicion and a constant tail wiggle confirmation. Shearing the infected spot, and an application of turpentine and then of tar to heal, is recommended. An occasional loss of two or three to the carload for various reasons is not at all unusual.

When corn field feeding is commenced the lambs should be full fed and accustomed to grain before beginning on the corn and pasture in addition provided. There is no more profitable way of cleaning up a field of beet tops than with a bunch of lambs. Here, too, is some danger of scouring as seasons and time of year when fed make some difference.

dressed on pasture or grass land. It will benefit these crops and also the grain crops that follow. When fresh manure is to be applied to a grain crop top-dress with it six to eight loads, or if rotted manure is available, it can be plowed under. On the North Dakota Experiment Station farm, manure applied to corn land six loads per acre, has increased the corn and the following three wheat crops enough to make a return of \$1.50 per load.

LIVE STOCK NEWS.

Hogs sold in the Chicago market the other day at the highest price ever known, \$11.60 per 100 lbs., this being paid for fancy butcher weights, which have been the highest sellers. Meanwhile the inferior quality of a large percentage of the daily offerings causes a widening out of prices between the commoner grassy hogs and the small percentage of high-grade corn-fed, and the packers are insisting on more favorable terms for grassers, which are found to dress badly and frequently cost in the end relatively more than the choicer lots. Owners continue to market the larger part of the hogs at lighter weights than in recent years, with recent receipts averaging only 226 lbs., comparing with 235 lbs. one month earlier, 238 lbs. one year ago and 247 lbs. two years ago. The eastern shipping demand is variable in numbers of hogs purchased, with medium weights selling highest. Fresh pork products are selling at very high prices still, and so are lard and cured hog meats, stocks of which in packers' cellars in western packing points are being reduced rapidly. Pork has soared above \$28 per barrel, comparing with \$12.15 a year ago.

Here's Twice As Much For Your Underwear Money

This wonderful Hanes Underwear is plumb full of value. It has everything you want—warmth, comfort, fit and wear, at a price you want to pay—65c a separate garment or \$1.25 a union suit.

Buying Hanes Underwear is like buying cream at milk prices. It's cotton all the way through—soft, clean, warm, sweat-absorbing cotton. It's honest and sensible—no fancy touches—just the biggest load of value that sixty-five cents or one dollar and twenty-five cents ever carried.

65c per Garment **HANES** \$1.25 per Union Suit
ELASTIC KNIT UNDERWEAR

Hanes Union Suits have a comfortable Closed Crotch that stays closed; Elastic Shoulders with Improved Lap Seams which "give" with every motion; snug-fitting Collarette which always keeps the wind out of the neck; Improved Cuffs at wrist and ankle which hug close and do not stretch out of shape; and every button is a good Pearl Button.

Hanes Separate Garments have Double Gussets to double the wear; a Comfortable, Staunch Waistband; Improved Cuffs which hug the wrists and won't flare out; a snug Elastic Collarette which never gaps; Elastic Shoulders with Improved Lap Seams which "give" with every motion.

Pre-shrinking keeps all Hanes Underwear elastic and true to size and shape. Seams are unbreakable where the wear is greatest.

No more darning or patching—no more frayed and "holey" underwear. Did you ever hear of such underwear anywhere under \$2 a suit? We never did. See a Hanes dealer. If you can't find one, write us.

P. H. HANES KNITTING COMPANY
WINSTON-SALEM, N. C.

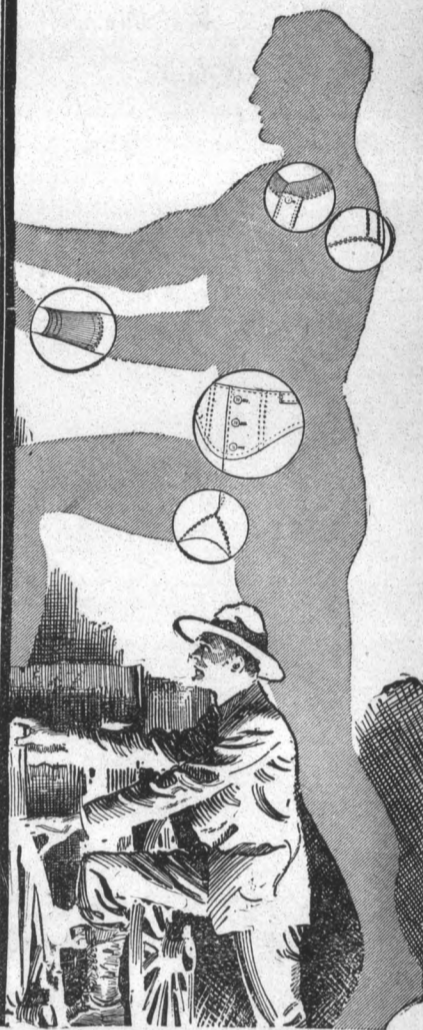
65c per Garment

HANES

\$1.25 per Union Suit

ELASTIC KNIT

UNDERWEAR



"GOTHIC"

15c each
6 for 90c

ARROW COLLARS

ARE MORE FREE FROM SPECKS AND STAINS AND LAUNDRY FAULTS THAN OTHER COLLARS AND HAVE AMPLE CRAVAT SLIDE SPACE

CLUETT, PEABODY & CO., INC., Makers

DO YOUR OWN SHREDDING

with a **ROSENTHAL Corn Husker and Shredder**
Most economical and satisfactory way of handling your corn crop. No delay, no extra help. Do it in your own spare time. Two sizes for individual use, 6 to 15 h. p. Also make three larger sizes for custom work. Over 20 years in the field. Write for catalog and Free Farmers Account Book. State h. p. of your engine.
SOLD ON TRIAL YOU TAKE NO RISK
ROSENTHAL CORN HUSKER CO. Box 2 Milwaukee, Wis.
Also Makers of Feed Cutters and Silo Fillers

Letz Grinds Oat Hulls

Only mill that grinds oat hulls, in one operation, fine enough to feed swine. Grinds ear corn, snapped corn, oats, wheat, rye, alfalfa, kafir corn with stalk, pea-vines, cow peas—in fact anything grindable.
1,000 to 3,000 Bushels / Per Set of Plates
Saving in cost of plates soon pays for grinder. Plates are self-sharpening, silent running, self-aligning. Running empty does not injure them. **Ten days free trial.** Valuable feeding book free.
LETZ MANUFACTURING CO.
210 East St., Crown Point, Ind.



America's Pioneer Dog Remedies

BOOK ON DOG DISEASES And How to Feed

Mailed free to any address by the Author
H. CLAY GLOVER CO., Inc.
118 West 31st Street, New York

B. L. K. MILKERS FOR SALE

Having disposed of my dairy herd I will sell 3 B. L. K. Milkens and complete equipment. Geo. A. True, Armada, Mich.

LEARN AUCTIONEERING at World's Original and Greatest School and become independent with no capital invested. Every branch of the business taught in 5 weeks. Write today for free catalog.
JONES' NAT'L SCHOOL OF AUCTIONEERING
28 N. Sacramento Blvd., Chicago, Ill. Carey M. Jones, Pres.

BUY YOUR FEED IN CAR LOTS

We can save you money. Write for prices delivered to your station.
RANDOLPH, HALL & YOUNG. Owosso, Mich.

When writing to advertisers please mention the Michigan Farmer.

DU PONT

RED CROSS FARM POWDER

The Original and Largest Selling Farm Explosive

Why use expensive high speed dynamites when this slower, safer farm powder will save you from \$3 to \$5 per hundred pounds and for most farm uses do better work?

BIG BOOK FREE

As pioneers and leaders in developing farming with explosives our booklet gives the latest, most reliable and best illustrated instructions. Write for **HAND BOOK OF EXPLOSIVES No. 100-F**

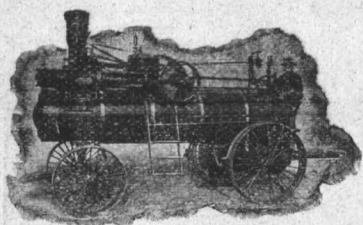
DEALERS WANTED

We want live dealers in towns still open. Get the orders resulting from our *continuous heavy advertising*. You need not carry nor handle stock. State jobber's name or bank reference when writing.

E. I. du Pont de Nemours & Company
Established 1802
World's largest makers of farm explosives.
Wilmington, Delaware

COOK YOUR FEED

Steam, The Dependable Power



REBUILT and SECOND-HAND ENGINES, every standard make, that have been taken in trade for New Port Huron Machines. Many sizes and kinds give YOU a large assortment to select from. Prices according to quality—every one a **good bargain**. For Hulling Clover, Threshing, running Ensilage Cutters, Grinding Feed, Sawing Stove Wood, HEATING, and for **COOKING FEED**, they are just what YOU NEED. Use **ANY KIND OF FUEL**. Also have Rebuilt and Second-Hand Grain Threshers, Corn Huskers and Shellers, Clover Hullers, Silo Fillers and Portable Saw Mills. If YOU don't want to invest in a new machine here is YOUR OPPORTUNITY to get a **good one at small cost**. They're all **fixed up right** (not given a lick and a promise.) Ask for our **REBUILT machinery list sent FREE**.

Port Huron Engine & Thresher Co.
Port Huron, Michigan.

Cream Wanted

Send Us Your Cream

We pay 4c over Elgin quotation for Butter Fat. Weights and Tests Guaranteed, Prompt Payments. Write for shipping Tags to,

O. A. ELLIS' CREAMERY
Ford Market Building,
HIGHLAND PARK, MICHIGAN.

FARM DYNAMITE

and accomplish more work in removing stumps, rocks, also planting trees, digging ditches, etc., than twenty men. It's effective, safe and easily used; guaranteed Standard Brand; shipped **DIRECT** from Mill in this state; lowest prices. No salesmen. Established over 30 years. Write for full particulars. **BRUNS POWDER CO.**
TERRE HAUTE, INDIANA.

FARM WAGONS
High or low wheels—steel or wood—wide or narrow tires. Wagon parts of all kinds. Wheels to fit any running gear. Catalog illustrated in colors free. **Electric Wheel Co., 35 Elm St., Quincy, Ill.**

Creosoted Wood Blocks for Stable Floors

By W. L. GILSON

Some time ago I saw an article on treating fence posts with creosote. Will blocks sawed in the shape of bricks, treated in the creosote, make a satisfactory cow stable floor? Should they be laid with a layer of sand on top of the concrete? What kind of wood will be best?—R. B.

CREOSOTED wood block floors have, during the last few years, been laid extensively in factories, car barns, ferry ships, veterinary hospitals and stables. These floors have met with decided success because of their durability, sanitary qualities, dustlessness, noiselessness, and their desirable "touch" as compared to floors of less elastic materials. Considerable experimenting was done with wood block pavements and floors before they were pronounced entirely satisfactory. While the difficulties were being overcome, wood blocks gained some public disfavor but as more has been learned regarding the methods of preparing and laying the blocks, engineers throughout the country have come to recognize their high value to be beyond question.

The Best Wood for Blocks.

Up to the present time, southern yellow pine has been used for making paving blocks to the exclusion of other species excepting small quantities

pressure applied when a final vacuum drawn to remove excess oil and act as a safeguard against bleeding.

Home Treatment of Blocks.

For stable floors, the absorption of creosote oil need not be heavy. For home treatment the blocks should be heated in coal tar creosote in an open tank for from three to six hours, depending upon the dryness of the wood and the species used, then be removed and allowed to cool in the open air. Upon cooling, the contraction of the air within the blocks tends to draw in the creosote oil and prevent bleeding. The effect is much the same as results in commercial practice from drawing a final vacuum. The wood to be used should not be too thoroughly seasoned as this tends to allow expansion and ultimately buckling when the wood absorbs moisture after being laid in the floor, particularly in stables.

The home treatment of wood flooring blocks has not been extensively tried although many have recently dis-



Pontiac Hazel and her Triplet Heifers, Owned by M. L. McLaulin, Wayne Co.

of Douglas fir, red gum, tamarack, larch and Norway pine. Engineers and foresters assert that while the species in our locality have not been given extensive tests, there is nothing of their structural characteristics but that indicates the probability of success with many of them. There are three qualities very essential of wood to be used for flooring blocks. It must be resistant to wear, of fairly uniform structure, and allow reasonable penetration of a preservative. Other than these species which have been given trial it is believed beech, hard maple, sycamore, pepperidge, elm, ash, etc., are very worthy of trial. It is probable that our softest woods, such as poplar, willow and basswood, would wear rapidly and lack the necessary resistance to splitting.

The chief objections to creosoted block pavements have been bleeding (a term applied to the exudation of oil from the wood) and buckling. The danger of bleeding in stable floors is reduced to the minimum because the blocks are protected from climatic influences and the same protection lessens the possibilities of buckling due to sudden swelling caused by absorption of moisture.

The Proper Way to Lay Floors.

Wood floor blocks are laid with the grain vertical so that wear comes on the ends of the fibers. It is also essential, in order to lay well, that they be of uniform shape and size. The blocks are laid upon a concrete base three to six inches thick over which is placed about an inch of coarse sand. They are laid so as to break joints and are tamped into place after which asphalt, fine grout or hot pitch is worked in between them. The floor surface should be covered with sand for a few days, after which time it can be removed.

In commercial practice wood blocks are treated in a large cylindrical retort so equipped that it can be tightly closed, the wood steamed, a vacuum drawn, the preservative admitted and

cussed the probabilities of successful preservation. Stable floors do not receive as severe treatment as pavements do under traffic and the protection by a roof removes the most serious problems that are to be contended with in making satisfactory pavements. There now remains no question of the adaptability of creosoted wood blocks for stable floors.

THINNING OUT UNPROFITABLE COWS.

It has long been our custom to weed out all unprofitable cows from the herd whether old or young, once we were thoroughly convinced they were not producing at a fair margin of profit. Many persons believe, however, that when a cow has reached the age of eight to ten years, her period of usefulness has passed. In a large measure this is no doubt true but there are some exceptions. I have had cows at the age of ten years that produced better than during any other period of their usefulness. Many cows are thinned out of the herd every year and gotten rid of. They are put on the market for what they will bring just because the owner has the opinion that the cow's usefulness has passed.

If a cow has had good care, plenty of the right kind of feed, good quarters to sleep in during the rough periods of the year, when it is either rainy, cool, and damp, or when cold weather sets in. If she has had this kind of treatment there is no reason why she will not produce profitably even at the age of ten years or even longer.

We have had cows that were in good condition at eight years of age, in fact in their prime, and continued to produce profitably for several years. After a time, of course, they gradually declined, both in quantity and sometimes in quality of milk until we were convinced that they were no longer profitable. Then they were sold to the first buyer who came along and who

was willing to pay what they were actually worth.

Cows with their first calves, up to three and four years of age, are mostly unprofitable as the milk yield is generally small and one really good cow, even at the age of eight to ten years, will produce as much as one or two young cows in the same length of time. Another item of importance is the fact that an older cow will not consume any more feed than the younger cows. This, of course, will depend largely upon the size of the individual. This fact alone tells me that it pays to not sell a cow just because her age is going against time and that soon she will be unprofitable. When the time arrives and the cow is no longer producing at a profit it is comparatively an easy matter to dispose of her and usually at a fair figure.

H. W. Swope.

EFFECT OF RATION AND AGE OF CALVING ON DAIRY COWS.

Many of the most thoughtful breeders are asking agricultural experiment stations if it is possible to follow any method of feeding and management of dairy heifers that will make it more certain that the heifers will be good producers. It is another application of the question as to the relative importance of heredity and environment. Does a good dairy cow or an inferior one derive her special dairy characteristics by inheritance, or is it a result of her treatment from birth to maturity? Is a good dairy cow born that way, or made what she is.

It is a well-known fact that there is considerable difference in practice among cattlemen in regard to the feeding and handling of dairy heifers. We find radically different views on some points. Some hold that a cow should be fresh at a very early age to insure the best development of the milking functions. Others take a directly opposite view and prefer a cow to be quite well-matured and state that only in such animals are the milk-producing functions the most highly developed. Some who raise dairy cattle feed their calves only bulky feed and in rather scant quantities. Others feed largely with grain and grow them as rapidly as possible. Some hold that if a heifer of a dairy breed is allowed to get fat when young she develops a tendency to use her food for body fat all her life rather than to produce milk. Others hold that the dairy qualities of a cow are not influenced in any way by the method of feeding when young and that no harm comes from a heifer being fat.

There must be some general law or laws in regard to these points that can be found by experimental work. Apparently there are a number of questions along this line which cannot be answered definitely as a result of common observations or there would not be this wide difference of opinion. Having these facts in mind, the Missouri Agricultural Experiment Station in 1906 undertook an investigation for the purpose of determining, if possible, some of the principles upon which practical methods of raising dairy cows should be based. It was thought that by raising dairy heifers under different conditions and keeping full records from birth until the cow had been in milk two years it would be possible to come to some more definite conclusion regarding the possible influence of the treatment when young upon the future usefulness of the animal for dairy purposes.

The general conclusions from the investigations is that it is possible to influence the rate of growth, size when mature, and type to some extent, by the liberality of the ration during the growing period, and the age at first calving. Within limits of variation, even far beyond the normal, the character of the ration with reference to amount of nutrients supplies does not exert any appreciable effect upon the milking functions of the cow when mature.

Autumn on the Dairy Farm

By W. MILTON KELLY

AUTUMN is the season of preparation on the dairy farm. Growth is completed, the fields are at rest and their green is bordered with a tinge of russet and gold. Clouds of rain, crashing thunder storms and white frosts give warning of the approach of winter and quicken industry in gathering the year's supply of food beyond the danger of storms. Muscles are hard from the summer's toil and the chill of the morning air makes the heart beat quick and the blood flow hot. Silos full of succulent corn, bulging mows of hay, bins of precious grain, sleek and contented cows, vigorous and growthy young stock, are the farmer's reward for skillful management and faithful toil. Some of the sweetest joys of country living are clustered about memories and experiences in providing for our dumb companions and getting them safely and snugly sheltered from cold and storms.

Filling the Silo.

Turning to the gathering of the autumn food crops the filling of the silo demands first attention. Have the hoops tightened, the doors numbered and in convenient places, and the bottom tight. Plan to start one binder cutting a day or two before the filling begins so that the work may be started promptly as soon as the crew is at the farm. Have the cutter adjusted so that the corn will be cut in pieces less than one-half inch in length. The finer it is cut the more firmly it will pack in the silo and the greater will be the food value. Once the wheels of the cutter are started turning the work should be rushed. A good cutter will take the corn as fast as two men can place it upon the table—faster than the same two men can keep the pace. In most dairying sections silo filling is a community job. There is no danger of too many silos to one engine and cutter so long as added help can save time. Rapid filling results in just as good silage, and if the silo is refilled within a few days there is no loss of capacity. Always plan to have the silage distributed evenly over the surface of the silo as it comes from the cutter and keep the edges well tread to prevent the air getting under.

When Corn is Fit for Silage.

When to begin cutting the corn crop for silage is one of the most discussed questions, and one on which there seems to be a great variation of opinion. Some tell us to begin cutting when the corn is well-glazed; others say when it is well-matured. These terms are too elastic, for well-glazed and well-matured seldom mean the same to two men. A little study of the nutritive value of the corn plant as it nears maturity is much better than any specific directions. The denting of the corn under normal growing conditions marks the ideal time for cutting the silage. At this time much of the feeding value is still in the stalk. After the corn begins to dent the work of the corn plant is mainly that of filling the kernels with the starches in the juices of plant. Silage uses the whole plant, hence the proper time to cut the corn is not when the most food is stored in the plant alone, or in the ear alone, but when the total of the food stored in the two is greatest, yet before the ripening process has turned the starches in the harder parts of the stalks into indigestible crude fiber. Soon after denting of the kernel takes place the development of crude fiber in the stalk results in a loss of palatability and succulence that more than counterbalances any gain in the amount of nutrition in the ear.

Harvesting the Corn Crop.

After the silos are filled, the rest of the corn crop should be put in shocks. Most of the nutritive value of the shock corn should be in the ear. It is better if the corn has ripened in stalk and the stalk became dry and

hard. Ripe corn allows large shocks. The larger the shocks the less snow in proportion there will be to combat in hauling a load of bundles. Both leaves and husks should show ripening before the corn is cut to shock. Cutting the crop before the stalks have partially dried out is taking a risk. If the weather is dry and windy a green shock will cure well. But it is much safer to wait until the stalks are matured sufficiently to insure thorough curing even though the weather may be damp and rainy for several days after shocking.

The practice of shredding is rapidly gaining in favor in many dairying communities. In the late fall and early winter when the weather is fair and the ground hard, it is easier to haul the shocks to the barn than it is during the winter, when they are frozen to the ground and covered with snow and ice. Experienced feeders estimate that shredding the stalks increases their feeding value about 25 per cent. This means that the stalks will last 25 per cent longer in the shredded form than when fed whole and produce equally as good feeding results. As bedding the refuse from shredded fodder is perhaps more valuable than any other material. Nothing we have compares with it in the ability to absorb stable liquids and keep the stock dry and clean. In a reasonably dry fall shredding may begin in November as soon as the stalks are sufficiently cured and the sap is fairly dry in the ears. As a rule, when the ears are fit to store safely in the crib the stalks will be dry enough not to mold in the mow in winter weather. Some dairy farmers cut hay and straw and spread it out in layers in the mow with shredded fodder. Such a mixture fed to cattle during the early part of the winter means a saving of silage and hay for feeding later in the winter and during the spring. Besides, these feeds are more valuable immediately after cutting than they are later in the winter.

Care of Meadow Lands.

The management of meadow and stubble lands is an important phase of the management of the dairy farm during the autumn months. If the clover meadow makes a vigorous second growth no harm will come from cutting the second crop for hay. It is better to cut the crop for hay than to allow the cattle to trample over the meadows and eat it down too closely. Never pasture the new seeding for the success of the crop the following year depends on the growth of leaves the young plants make the first summer and autumn. The leaves make starch and other foods and store them in the roots for the early growth of the plant the following season. If they are removed by grazing the store of food in the roots is lessened, particularly in a northern climate. In a northern climate it is also desirable to leave a full growth of leaves to protect the roots against winter killing.

It is always better to remove the stock from the pastures in time so that the grasses may make a growth sufficient to protect them during the winter. Pasturing too closely late in the autumn is sure to result in greater injury than turning the stock out too early in the spring. Nature provides a rapid growth late in the season to protect the roots of the grasses during the winter. This late growth contains only a small amount of nourishment and it is far better to leave it undisturbed than to allow the stock to graze it closely in the fall. The wise dairy farmer will plan to utilize supplementary forage crops or silage when pastures need the extra growth to protect them during the winter.

Sweet Corn for Fall Feeding.

For early fall feeding there is nothing that will be eaten with more relish than sweet corn. This may be put in with a common grain drill by closing

The Cream Separator to Buy



YOU don't begin to think of buying a cream separator until you are convinced that a separator will pay. When you come to buy, though, you want the one that pays best. How are you going to judge? Will these suggestions help you?

First, buy from a responsible, reputable concern. That still leaves you a number of separators to choose from.

Second, buy a separator that has proved itself a close, clean skimmer. This narrows your choice down still further. Let us send you a letter from the president of the Iowa Federation of Cow Testing Associations on this point.

Third, buy an easy running separator that requires but one adjustment, and that one you can make yourself. By this time your choice has narrowed down to two separators—a Primrose or a Lily. Either one of these, by any test you choose to put it to, will prove itself the separator to buy.

The local dealers who handle these machines can give you conclusive proof of the superiority in close skimming, handiness, cleanliness and length of service of Primrose and Lily cream separators. A letter to the address below will make it easy for you to investigate these separators as much as you please.

International Harvester Company of America

(Incorporated)

CHICAGO

USA

Champion Deering McCormick Milwaukee Osborne Plano

Only \$2 DOWN and One Year To Pay

For any Size—Direct from Factory

You can now get one of these splendid money-making, labor-saving machines on a plan whereby it will earn its own cost and more before you pay. You won't feel the cost at all.

\$24 BUYS THE NEW BUTTERFLY

No. 2 Junior—a light running, easy cleaning, close skimming, durable, lifetime guaranteed separator. Skims 95 quarts per hour. We also make four other sizes up to our big 600 lb. capacity machine shown here—all sold at similar low prices and on our liberal terms of only \$2 down and a year to pay.

Patented One-Piece Aluminum Skimming Device, Rust Proof and Easily Cleaned — Low Down Tank — Oil Bathed Ball Bearings — Easy Turning — Sanitary Frame — Open Milk and Cream Spouts.

30 DAYS' FREE TRIAL

GUARANTEED A LIFETIME

You can have 30 days FREE trial and see for yourself how easily one of these splendid machines will earn its own cost and more before you pay. Try it along side of any separator you wish. Keep it if pleased. If not you can return it at our expense and we will refund your \$2 deposit and pay the freight charges both ways. You won't be out one penny. You take no risk. Postal brings Free Catalog Folder and direct from factory offer. Buy from the manufacturers and save money. Write TODAY.

Albaugh-Dover Co., 2165 Marshall Blvd., Chicago, Ill.



APPLETON Husker and Shredder

Every year *hundreds* more farmers buy huskers, as they find the most economical, efficient way to save *all* the feed value of a corn crop is to husk the ears and make fodder of the leaves and stalks.

The Appleton was the *first* successful husker. Appletons made years ago are giving good service today. Few parts, made extra strong, mean long life, few repairs and positive dependability.

GUARANTEED TO DO MORE WORK WITH LESS POWER

than any husker of equal size. Appleton husks cleanest, shells least; has most efficient corn saver. Cuts or shreds leaves and stalks while husking ears. Fodder value saved from small acreage pays its cost. Easiest, safest to operate. Works in all conditions of corn.

Appleton Mfg. Co., 520 Fargo St., Batavia, Ill.



Husker book free!

Describes four sizes for engines of 4 h.p. and up. Shows why it pays to handle corn this way. Write today.

\$15 95% AMERICAN CREAM SEPARATOR
Sent on Trial. Fully Guaranteed. Easy running, easily cleaned. Skims warm or cold milk. Bowl a sanitary marvel. Whether dairy is large or small obtain handsome catalog. Address, AMERICAN SEPARATOR CO., Box 5061, Bainbridge, Y. N.

Try This New Way To Churn 30 DAYS FREE!
Send Us No Money In Advance
The New Improved Challenge brings butter in 3 to 7 minutes. Operates easily. Gets ALL (not part) of the butter fat. Try it 30 days WITHOUT MONEY risk. \$500 REWARD OFFERED. Write today for FREE BOOK "New Science of Butter Making." Valuable information. Send post card.
THE MASON MFG. CO. Dept. M. CANTON, OHIO

all but three holes, and it will make a rapid growth and furnish many ears which will add materially to the value of the forage. Sweet corn is very palatable and the cows will eat immense quantities of it, in many cases enough to make good for the shortage of pasture grasses. When feeding large quantities of sweet corn, it is advisable to feed a few pounds of dry grain daily. This counteracts the laxative effects of the juicy forage and supplies the deficient elements necessary to produce a maximum flow of milk. It is always desirable to have a patch of sweet corn for feeding the cows during the autumn months.

Never make the mistake of compelling the cows to roam over the whole farm to pick up their living during the autumn. As soon as freezing nights come the cows should be put in the barn and not turned out in the morning until the weather is pleasant. It is better to have them out every day unless it is cold and stormy, but judgment must be used to give them the proper protection during rainy and cold weather.

Keep Cows in Condition.

Any dairy cow that has the vitality necessary to produce a calf will produce something during the summer without showing any serious loss, but the cow that goes into the barn at the beginning of the winter in a weak, run-down condition is about as profitless a proposition as I know of. It is physically impossible for the cow to produce a satisfactory yield of milk when she is thin and her circulation and skin are out of normal condition. No matter how wide a variety of feeds or how well they are proportioned, it requires several months to get such a cow in good working form, and that means a loss of time and many dollars worth of grains. We must have a well balanced, vigorous cow as well as a properly balanced ration to begin the winter with if we realize the best returns from our dairying.

APPLYING TAR TO A SILO.

I have a cement stave silo and I am told that the ensilage is better if the walls are painted with tar, for the cement wall is not good for the ensilage. Had I better use tar, and what kind? SUBSCRIBER.

If the cement staves are rough tar would help smooth them and possibly would protect the cement from the acid formed in the silage. But I would not want to coat a silo on the inside with tar. I don't like to have the tar eaten by the cows. Some of it will be dissolved by the silage juice and will affect the silage more or less. I would not coat the inside of a silo with any preparation. With a wooden silo nothing is necessary, for silage seems to preserve wood. Silage will act on cement somewhat but this does not injure the silage, though it does injure the cement. I have had to plaster my cement lined silos since they were built as the silage actually dissolved the cement, eat it up, and it had to be replaced.

It is claimed that the silage close to a cement wall of a silo is not as good as it is next to a wooden wall for the reason that the cement wall allows the silage to cool off too quickly to produce the bacterial change necessary for the best quality. I think there is something in this, but I would not use tar or any other kind of paint on the inside of a silo.

FEEDING DAIRY COWS.

An English Experiment Station has definitely determined that the total quantity of milk is not influenced by equal or unequal periods of milking, but that the fat percentage is materially altered by the length of time between morning and evening milkings. Cows milked at even periods gave more milk in the evening than in the morning. The evening's milk was slightly the poorer in quality.

26 Extra Features
73 New Conceptions

Mitchell
MID-YEAR
MODEL

20% Extra Value
Due to Factory Efficiency

20% Extra Value

Due to John W. Bate, the Efficiency Engineer

We intend that the Mitchell shall offer 20 per cent greater value than a like price can buy elsewhere.

We save at least that in this factory. It was built and equipped by John W. Bate to minimize every cost. It has reduced our making cost one-half. It has given us an advantage of 20 per cent, we believe, under any rival Six.

90% In the Chassis

About 90 per cent of this extra value goes into this Bate-built chassis. It goes largely into extra strength. There are 440 parts which are drop-forged or steel-stamped—three times as strong as castings.

The major strains are met by Chrome-Vanadium steel, costing up to 15 cents per pound. To every part is given at least 50 per cent over-strength. The rear springs are Bate cantilevers, not one of which has ever broken.

We include a power tire pump, an extra-cost carburetor, a ball-bearing steering gear, an easy type of control.

There are in this car 26 extra features which other cars omit. And those extras will cost us about \$2,000,000 on this season's output alone.

Aims at 200,000 Miles

Mr. Bate has aimed at a lifetime car. Two of his Mitchells have already run over 200,000 miles each.

\$1325 F. o. b.
Racine

For 5-Passenger Touring Car
or 3-Passenger Roadster

7-Passenger Touring Body \$35 Extra
Equipped with Demountable Top Only, \$300 Extra
High-speed economical Six—48 horsepower—
127-inch wheelbase. Complete equipment, including 26 extra features.

That's forty years of ordinary service. Seven of them have averaged about 175,000 miles each.

See what Mr. Bate's genius has done for the Mitchell. His improvements number more than 700. See what his efficiency gives you in extra values. A half-hour spent with a Mitchell dealer will win you to Bate-built cars.

A Many-Year Decision

The decision you make on a fine car now will affect you for many years. If you get the right car, you may never need to buy another. If you buy the wrong car you are likely to change before long.

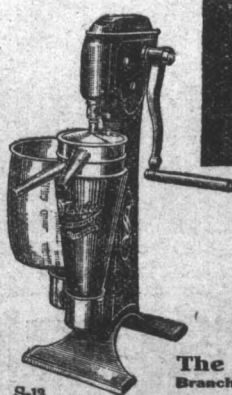
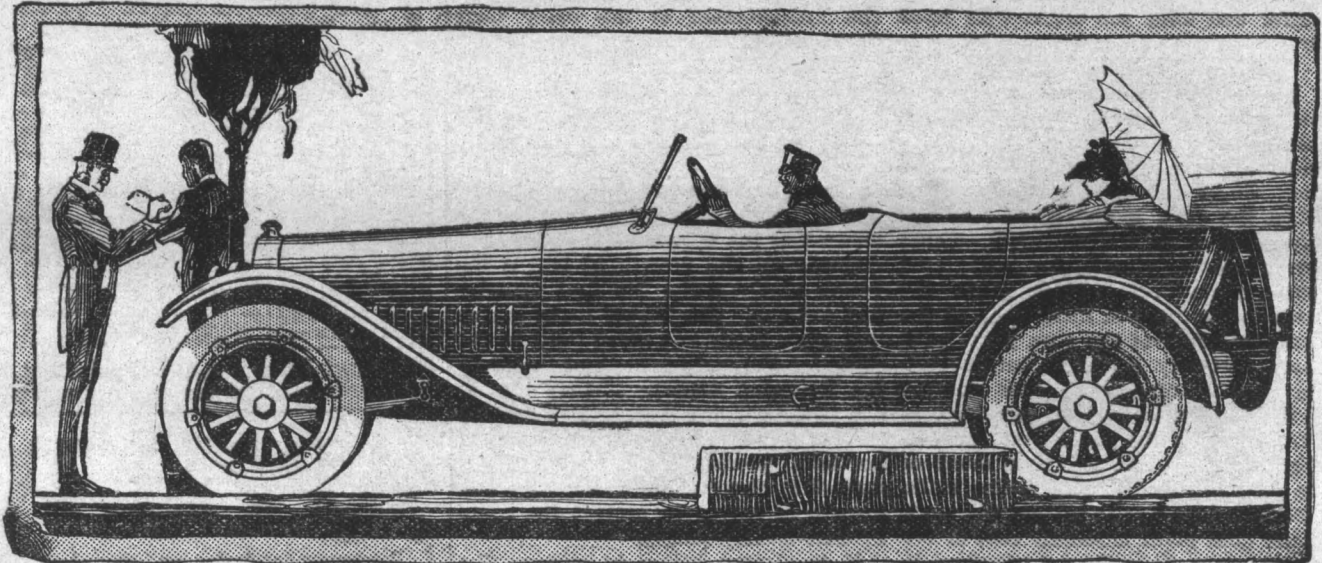
Don't judge by demonstrations only. All new cars run well. Go into the hidden facts. Get the records on endurance. Above all else, judge by the man who builds it.

Go deep enough, and you are bound to choose the Mitchell. Many noted engineers have done so in buying cars for themselves. Your Mitchell dealer will show you a list of them.

You will get in addition the most complete car that's built. In the Mid-Year Mitchell you will get 73 new conceptions. Our designers examined 257 of this year's models before completing this one.

Ask us the name of the nearest Mitchell dealer, if you do not know him. For your own sake, see the car he has. (122)

Mitchell Motors Company, Inc.
Racine, Wis., U. S. A.



SHARPLES

SUCTION-FEED CREAM SEPARATOR

\$80,000,000 worth of cream is lost annually, due to turning old-fashioned separators below speed (19 out of 20 farmers turn too slow) Sharples is the **only** separator that will avoid this loss—skims clean at **any** speed. Over a million users. Made by the oldest and largest separator factory in America.

The Sharples Separator Co. - West Chester, Pa.
Branches: Chicago San Francisco Portland Toronto

Your Cows In HARRIS Stanchions

will feel better, give more milk, prove more profitable! Sold under strong guarantee of satisfaction or money back after 60 Days Free Trial in your own barn. Considered the most

**Sanitary, Lasting,
Economical**

by thousands of successful dairy-men. Made of steel, wood-lined, easily installed, quickly adjusted. Built for lifetime service. Send for our **FREE Illustrated Catalog** Tells all about the complete Harris line of modern, sanitary Barn Equipment. Please write for your copy **TODAY**. The Harris Mfg. Co., 230 Main St., Salem, O.



When Writing to Advertisers Please Mention The Michigan Farmer

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

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

The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

THE unwritten history of American agriculture reveals the names of several pioneers, who in original and primitive ways, rendered far greater service to mankind in general than many more dignified men of science, agricultural experts and inventors whose names are prominent in our written history and whose pictures hang in our halls of fame.

One might feel indignant at the injustice which deals out what people call fame with so unequal a hand, were it not for the reflection that those who

John Chapman---Rural Benefactor

By-W. MILTON KELLY

understand the true meaning of fame and have learned to look on popular applause at its true value. The fame of great men ought to be estimated by the value of their labors to promote the happiness and comfort of mankind. Since about 1800, when the star of the empire took its westward way and changed forests into fields of grain,

and waste places into orchards and gardens, the name "Johnny Appleseed" has been familiar to thousands of residents in the territory between Newfane, New York, and Fort Wayne, Ind.

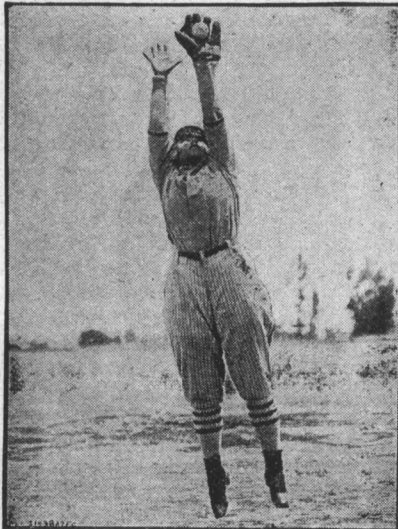
About 1805 a queer looking craft was seen in Lake Ontario off Newfane, N. Y. It consisted of two small canoes lashed together and a crew of one

man—an angular, oddly dressed person, who, when he came ashore, said his name was John Chapman and that his cargo consisted of apple seeds which he intended to plant. The country at that time was sparsely settled and the settlers received him with open arms. In a few years he became a familiar figure and a welcome guest at the homes of all the new settlers. All of the old orchards in Niagara county were produced from the nurseries of John Chapman. Wonderful changes have taken place in the intervening

WORLD EVENTS IN PICTURES



Thomas A. Edison and H. S. Firestone Returning from Adirondacks.



Star Fielder of Los Angeles Girls' Baseball Team.



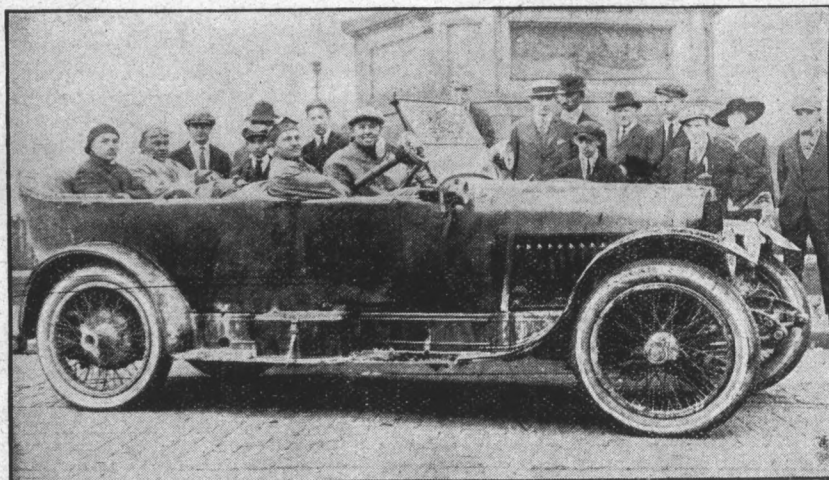
Eagle Attacks Aviator, is Caught by Aeroplane in Flight.



Avery Brundage, Best All-around Athlete in America.



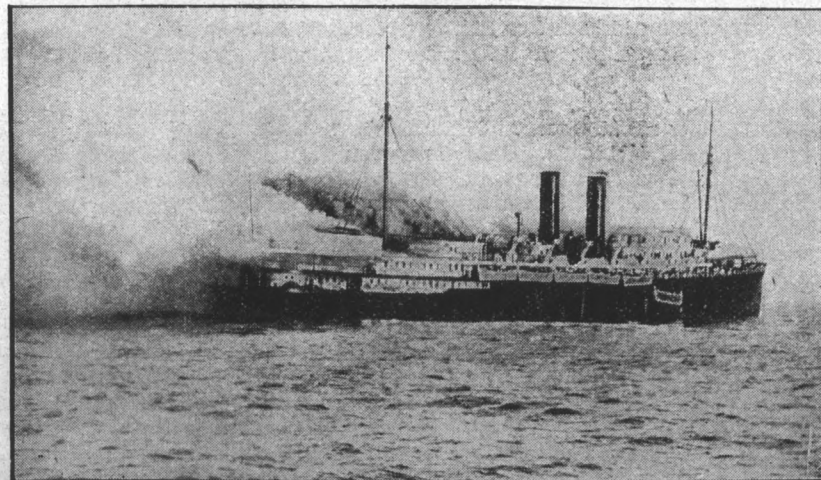
David Lloyd George, of England, Conferring with French Premier.



Automobile makes New Trans-continental Record by Covering Distance from San Francisco to New York City in 5 Days, 6 1/2 Hours.



The Autoped makes Convenient Mode of Traveling During Big Strike.



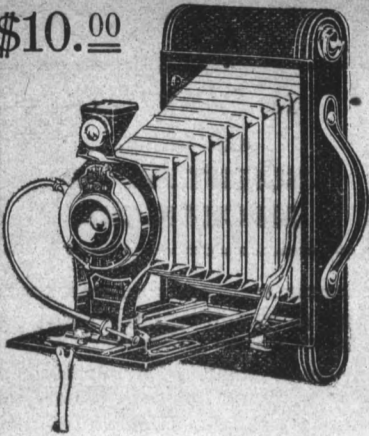
The Steamship Congress as it Appeared when Burning off Coos Bay, Ore.



A Mexican Depositing his Vote at the Election held September 3.

Copyright by Underwood, & Underwood N. Y.

\$10.00



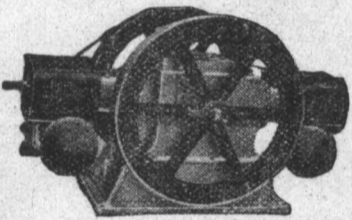
The New 3A BROWNIE

An efficient, yet simple camera for pictures of the popular post-card size. Fully equipped for snap-shots and time exposures and has the autographic feature whereby you can date and title the negative, instantly at the time of exposure. Exceedingly compact, well made in every detail, handsomely finished—a typical product of the Kodak factories where honest workmanship has become a habit.

Priced at \$10.00 with the meniscus achromatic lens and at \$12.00 with a Rapid Rectilinear lens the new 3A Brownie is one of the cameras that is helping to make photography by the Kodak system both simple and inexpensive.

Ask your dealer to show you the new 3A Autographic Brownie, or write us for catalogue of Kodaks and Brownies.

EASTMAN KODAK CO.,
389 State St., Rochester, N. Y.



Guaranteed for Life

The "New-Way" for running the hay baler, ensilage cutter, corn shredder, or for doing other heavy work about the farm, has no equal. It furnishes a steady, even flow of power under any conditions of work or weather, backed by a guarantee which covers the life of the engine.

For above heavy work we recommend the "New-Way" 8 to 12 H. P. double opposed cylinder engine. It weighs less than any single-cylinder engine of like horse power. Mounted on truck, it can be easily moved any place.

The "New-Way"

"GOES AND GOES RIGHT"

A FEW OF THE POINTS THAT MAKE IT BETTER

Lightest operating weight of any engine made. Direct cooled—no water—no extra weight. Built on reliable four-cycle principle. Faultless jump-spark ignition. High tension built-in magnets. Throttle governed. Drop forged steel connecting rod and crankshaft. High-grade automobile carburetor. Splash oil system. Enclosed, dust-proof, oil-tight, hinged crankcase. Easy to understand—simple to operate. Prices range from \$49.00 to \$120.00 f. o. b. Lansing, Michigan. Send for catalog.

The "New-Way" Motor Company
LANSING, MICHIGAN, U.S.A.
14 BANK STREET.

BOWSHER

FEED MILLS GIVE BEST RESULTS

Handy to operate, lightest running. Crush ear corn (with or without shucks) and grind all kinds of small grain. 10 sizes 2 to 25 H. P., capacity 6 to 200 bushels. Conical shaped grinders—different from all others. Investigate.

Write for Catalog

that tells all about them, with free folder about values of different feeds and manures.

D.N.P. BOWSHER CO.
South Bend, Ind.



When Writing to Advertisers Please
Mention The Michigan Farmer.

years between the coming of "Johnny Appleseed" and today. For miles and miles stretch acres of beautiful apple orchards. Thousands of barrels of these delicious apples are shipped annually to the markets of America and Europe. In the fall thousands of men are employed in the orchards of Niagara county to pick, grade and pack the crops. Traveling from Newfane to Fort Wayne one sees thousands of old orchards that represent the life work of this great benefactor of mankind.

John Chapman was born in Springfield, Mass., in the year 1775. Of his early life little is known, as he was reticent about himself, but a half sister who passed through that section later said that he had, when a boy, shown a great fondness for natural scenery and often wandered from his home in quest of flowers and plants and he liked to listen to the birds sing, and gaze at the stars. Chapman's penchant for planting apple seeds and cultivating nurseries caused him to be called "Appleseed John," which was finally changed to "Johnny Appleseed," and by that name he was known ever after.

The fields of his operations while in New York state were in Niagara county, especially in the lake region, and his mission in most part was to plant apple seeds in well located places in advance of civilization and have apple trees ready for planting when the new settlers should appear. He also scattered through the forests seeds of medicinal plants, such as dog-fennel, hoarhound, catnip, and the like. His first nursery was planted within five miles of the present village of Newfane, along the lake front where he confined his activities to the townships of Newfane, Wilson and Somerset, which are now in the heart of the apple belt.

Chapman was enterprising in his way and later he planted apple nurseries in a number of sections, which required him to travel long distances to visit and prune them yearly, as was his custom. His usual price per tree was a "fip-penny-bit," but if the settler hadn't money he would give him credit or take clothes for pay. He generally had nurseries located along streams, planted his seeds, erected a brush fence around his patch, and when the settlers came, Johnny had young trees ready for them. He extended his operations to Orleans and Monroe counties.

John Chapman was fairly well educated, well read, polite and attentive in his manner, and chaste in his conversation. His face was pleasant in expression while he was kind and generous in disposition. His nature was a deeply religious one, and his life was blameless among his fellowmen. He regarded comfort more than style and thought it wrong to spend money for clothing to make a fine appearance. He usually wore a broad-brimmed hat. He went barefooted not only in the summer, but often in cold weather, and a coffee sack with neck and armholes cut in it, was worn as a coat. His clothing was sparse, old and unique. He claimed that man should be clothed to conceal his nakedness, and not for comfort, much less display. His wardrobe was usually but the second-hand clothing, which he had taken in exchange for apple trees. For a hat, he wore for a long time a tin pan, which he would use as occasion required, in the cooking of his frugal meal. This was subsequently superseded by a head covering of pasteboard so cut as to give a wider brim on one side than on the other, this to protect his features of the glare of the sun. In this anomalous sort of attire he traversed the country, visiting the natives for the purpose of plying his apple seed profession. His gentleness of manner and generosity of disposition, always made him a welcome guest wherever he was known. He was about five feet nine inches in height, rather sparse in build, but was large-boned and sinewy. His eyes were blue but darkened with animation.

When upon his journeys "Johnny" always camped out. He never killed anything, not even for the purpose of obtaining food. He had a kit of tools with him on his travels, among which was a mush pan. When he called at a home his custom was to lie on the floor with his kit serving as a pillow and, after conversing with the family for a short time, would read from a Swedenborgian book or tract, proceeding to explain the religious views he so zealously believed and whose teachings he so faithfully carried out in everyday life and conversation. His mission was one of peace and good will; he never carried a weapon, not even for self defense. The Indians regarded him as a man of unusual powers and his life seemed to be a charmed one; neither savage nor wild beast would harm him.

John Chapman never married. Disappointed in love in his home state was the cause of him living the life of a wanderer and recluse. Johnny, himself, never explained why he led such a singular life only to remark that he had a mission—which was understood to be to plant nurseries and to make converts to the doctrines taught by Swedenborg. He was of New England ancestry and undoubtedly well educated, for he was a good reader and a ready talker, indeed at times he was eloquent, especially when discoursing about the fine fruit and the spiritual theories of his beloved Swedenborg.

Aside from his odd hobby of planting seeds, which was the origin of the first nurseries in Niagara county as well as the means of supplying the pioneers with that popular and delicious fruit, he was exceedingly interesting because of his strange habits, fantastic mode and his unique manner of living. On one occasion a pair of new shoes was given to him which shortly afterwards he gave to a traveler who needed them worse than he. His gentleness of manner and generous disposition always made him a welcome guest wherever he was known and whenever he would accept hospitality, which was seldom. In his idea of living and of society he was the pioneer Thoreau of his time. He preferred to live alone. John Chapman enjoyed the solitude of the woods and the companionship of the forest animals rather than that of his fellow men. While traversing the woods in which he spent a large part of his time, he carried with him an axe, a hatchet and a Virginia hoe, with which he cleared the underbrush and dug into the loamy or rich soil, usually along the banks of streams. In these cleared spots he would plant his apple seeds and start a nursery.

Although the most of his work was done free of charge it was the only means of his subsistence. With a rest-

less and roving nature he kept going from point to point, scattering his nurseries along the streams or highways for even hundreds of miles. He seldom sold his wares for money but usually exchanged them for such articles of food or clothing as he actually needed. His diet was that of a vegetarian and consisted of berries, nuts and native fruits of the country and a little corn bread or mush made from meal, for which he traded some of his apple seeds.

In philosophy he was a stoic, and assumed to bear pain with stolid indifference. If he was bruised, wounded or injured in any manner his first medical application was a hot iron to the affected part, by which it was scarred. He was an intense lover of every kind of animal and to kill the most repellant or useless form of animal life for any purpose was to him a sin. If he saw an animal maltreated or heard of it he would buy it and give it to some more humane person with the condition that the animal be kindly treated. He deserves to be called the patron saint of the humane society of which he was the earliest forerunner. Emigrants who traveled from the east to the west, would often cast off their decrepit or wornout horses, leaving them to starve or forage for themselves. As the blight of winter drew near "Johnny Appleseed" would corral the dumb outcasts and plan to have them kept through the winter by some farmer. He would never sell these poor and despised animals, but if anyone recovered their strength so as to be valuable he would lend them or give them away, exacting a promise from the recipient of the dumb brute that it would receive kind treatment. This sympathy with the lower forms of animal life and sacred respect for its existence was carried in John Chapman to an almost preposterous extent. At one time in relating how he was bit by a rattlesnake he said, "Poor fellow, he only just bit me when in the heat of my ungodly fashion I put the heel of my scythe on him and went away. Some time afterwards I went back and found the poor fellow dead. That death was a cause of deep regret to Johnny and he never referred to it without the feeling of great sorrow. At one time when camping out he noticed that the blaze from his fire was drawing thousands of mosquitoes. Many of them were lured into the flame and destroyed. Without delay he brought water from a stream and put out the fire. At another time he started a fire near a hollow log in the dead of winter, when he discovered that within the log a bear and her cubs had taken refuge. Rather than disturb the peaceful slumber of bruin and family he put the fire out and spent the night in the snow." (Continued on page 325).

It Pays to Advertise—By F. J. YATES

YES, that's what the papers say. And there's a lot of truth in the saying. Advertising generally brings some sort of return.

Suppose we apply this truth to human relationships. Everyone in the world, every hour of his or her life, is advertising. Ever think of it? It's true.

Granting this, what are we going to advertise? How about Cheer? Cheer pays mighty good dividends. Cheer is quite as contagious as the measles—and so much pleasanter. Mothers and fathers especially need to advertise cheer and poise. The kiddies simply bask in it; and it's so much easier to explain the reason why they should be "nice" and "stop sulking" if father and mother do not sulk and grouch themselves.

Truth. There's another good advertisement to run in the columns of Life's Daily. It brings returns of confidence, and high regard, and the desire to emulate. "His word is as good as his bond,"—there's one of the best

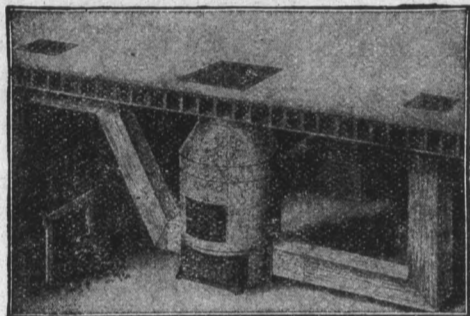
answers one gets to truth advertisements.

Love! The others are good but this last is surely a "top-notcher." I don't think any moral advertisement pays better than love. Love of family, expressed in daily word and action; love of animals, trees, and flowers; love of community; love of country; love of the Creator of all things! What a satisfying, what a splendid response comes through the advertising of one's love for the world in thought and word and deed; and if the returns are not always immediate they are no less certain.

There are lots of other human advertisements of a negative sort. Gloom, which brings answers of discomfort and strife and misery. Hate, with its returns of malice and dislike; and Untruth with its subtle influence for evil and trouble making. But there are two sides to the shield—let's not look at the dark side. Just remember to be careful what you're advertising, for—advertising always pays.

Your Money-Saving Answer To the Heating Question —A Pipeless Furnace at Wholesale Price

**—and Quick Delivery
Direct from Manufacturers
—Freight Prepaid Write at Once
for Details**



This shows how the Kalamazoo Pipeless Furnace can be installed with two wooden flues for cold air return. A simple and satisfactory plan of home heating.



Get This Book On Economical Home Heating **FREE**

Write today. See how nicely this furnace answers the heating problem in your home—and at a big, fat saving in price. Read letters from owners—get helpful hints on home heating—a money-saving book from cover to cover. Tells why and how we are enabled to make this sensational offer. How we sell **direct to you** at money-saving wholesale prices—how we give you better quality at prices that no one else can attempt to meet—and why our 300,000 or more satisfied customers go to the limit in boosting for Kalamazoo Stove Co. products.

Perhaps we can refer you to Kalamazoo owners near you. We have a big list of customers in almost

every section in the country—especially in Illinois, Ohio, Indiana, Michigan and nearby states.

But no matter where you live, and no matter what your home-heating plans are for this coming winter, get our new furnace book and see how you can save money on this popular one-register furnace. Write your name in the coupon **now—at once**—so you will be sure of mailing it and get this book of helpful hints—fresh from the hands of the Kalamazoo engineers who have had years of experience in designing heating plants for homes in all parts of the country.

Quick Shipment—and We Pay the Freight

Another reason why this is a sensational offer. With other factories crying for materials and boosting prices, we have been able to get all the material needed—and have kept our prices down.

Ask for Catalog No. 909

KALAMAZOO STOVE CO., Manufacturers, KALAMAZOO, MICHIGAN

Over 300,000 families using Kalamazoo Stoves, Ranges, Gas Ranges, Furnaces, White Enameled Metal Kitchen Cabinets and Tables. We have three catalogs. If interested in other lines please say which you want

**"A Kalamazoo
Trade Mark
Registered Direct to You"**



Our big stock on hand insures quick shipment direct to you

HERE'S an astounding offer. The most sensational home-heating proposition ever made by the Kalamazoo Stove Co. And no home owner nor renter can afford to miss it. Think of getting a strictly high-grade furnace—**unbeatable quality construction**—for no more than the retail price of a good stove! That's exactly what this **Kalamazoo Pipeless Furnace** offer gives you—**furnace comforts at retail stove cost. Think of it!**

Easy to Install. One man could do it in a few hours' time. No pipes to fit except smoke pipe and cold-air returns. Simple as A B C and gives you the maximum amount of heat from every pound of fuel you burn. **Heats the whole home through one big register.** Good, healthful, warm-air circulation from room to room.



Our big warehouses are now stacked to the roof with furnaces awaiting shipment. And with seven busy railroads running in all directions from Kalamazoo we can promise **quick and safe delivery** to your station, no matter what part of the country you live in. **And we always pay the freight.**

Our big output keeps the cost down and quality up. Our big, modern equipment—our acres of floor space—our own foundries—and our own buildings, factories and warehouses, all under our own control, and without a dollar of rent to pay—and with most convenient switching connections, it is natural that we can lead them all on high quality at the lowest price.

Write Today

Now is the time. Give your home the comforts of a good, warm-air furnace this winter. You have always wanted one. Here it is, and at a lower price than you expected to pay. Mail the coupon or write a postal at once for our book telling all about it.

And get our wholesale price for the complete outfit shipped ready to install—delivered safe and sound at your nearest railroad station. Write today.

We also sell Kalamazoo Pipe Furnaces and send **HEATING PLANS FREE**. Described in Catalog shown here—**Write for it—**

NOW

KALAMAZOO STOVE CO.

KALAMAZOO, MICHIGAN

Gentlemen: Please send me your catalog No. 909 on Kalamazoo Pipeless Furnaces.

Name _____

Street _____

Town and State _____

Mark [X] opposite other catalogs wanted.

Stoves and Ranges ☐ S 909 White Enameled Metal Kitchen Cabinets ☐ K 909

**Write Your Name
Here—Tear Off
and Mail
Today**

Owners and Renters of Stove Heated Homes

LISTEN!

YOU CAN burn less fuel and have warmer homes—less fuss and fuss—better health—by heating with the MUELLER ONE REGISTER PIPELESS FURNACE.

MUELLER PIPELESS FURNACE

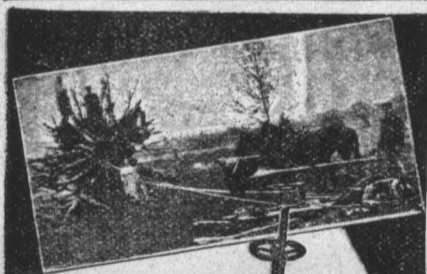
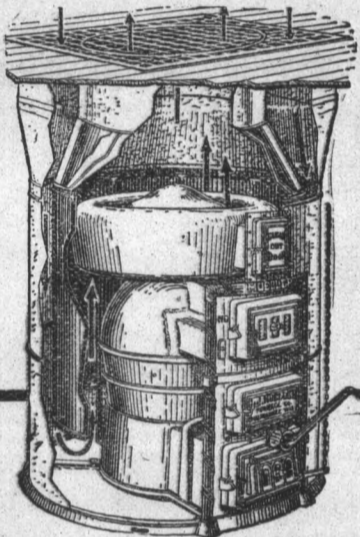
Heats every room in the house comfortably, cleanly, from one register. Keeps air moving, improves ventilation. Easily installed in old or new houses without tearing up walls or floors. Where no cellar, just dig a pit. Burns wood, coal or coke. Is made of solid cast iron and can be used a lifetime. Investigate NOW. Get the facts why the MUELLER PIPELESS is your best buy.

WRITE FOR FREE BOOKLET

Gives you all the facts about the Pipeless System of heating and the MUELLER PIPELESS FURNACE. Gives full details of construction and shows pictures of installation. Tells how to apply it to your own home, old or new; how to tell the difference between good and poor furnaces—the things to look out for and the things to avoid. This Booklet sent free on request.

L. J. MUELLER FURNACE CO.,
195 Reed Street Milwaukee, Wis.

As we are makers of heating systems of all kinds since 1857—regular hot air pipe furnaces, steam or hot water boilers and vapor heating systems—we are in a position to give you honest advice on your heating requirements.



Pull Out Stumps

With the Famous
Hercules!

Triple-Power

Pull an acre or more of stumps a day. Pull any stump in 5 minutes or less. Don't have to leave land when it's so easy and cheap to pull the stumps out! Make 100% profit by using the Hercules. \$1281.00 the first year on 4 acres! \$750.00 every year after. Let us prove it.

Low Price and Book Free!

Get the facts. Read our book. Tells what all steel, triple power means. Shows many features of the Hercules. Shows many photos and letters from owners. Postal will do.

HERCULES MFG. COMPANY
137 25th St. Centerville, Iowa

PAINT 75c PER Gallon

ORDER DIRECT FROM FACTORY

We will send you as many gallons as you want of the best quality red or brown BARN PAINT

upon receipt of remittance. We are paint specialists and can supply you with paint for any purpose. Tell us your wants and let us quote you low prices. We can save you money by shipping direct from our factory. Satisfaction guaranteed.

All paint shipped F. O. B. Jersey City

AMALGAMATED PAINT CO.
Factory: 371 WAYNE ST., JERSEY CITY, N. J.

When writing to advertisers please mention The Michigan Farmer.

Man's Humanity to Man

By ROSCOE M. SMALLEY

THE storm was howling fiercely around the old abandoned shed alongside the huge water tank No. 192 on the Canadian Pacific Railroad. All day long the blizzard had been raging, and when night came, it seemed to have redoubled its fury.

Within the shed sat a group of "Knights of the Rail and Ties," commonly called tramps, and the glow from a poorly nourished fire far from enhanced their weird looks. Their faces resembled veritable craters of burned out passions of every kind. In the corner lay a crumbled mass, once upon a time called a man, but now a mere shadow of a human being, whose soul was slowly entering upon the great divide.

One of the fellows, Texas Bill, began to hum, "My Heart's Tonight in Texas, Many Miles Away," when he was interrupted by Utah Slim.

"Ah, shut up! Dere are enough howlin' outside, without you buttin' in on the chorus."

"Well, maybe a little recitation would suit you better, Slim, something like this, 'It was on a dary, stormy night—'"

"Confound you, Reddie, if you air so fond o' dem book-larnin's, why didn't you stick to 'em when you got let loose from de college-factory, instead o' tryin' to drink up all de booze in de states?" Slim yelled at him.

"There, that's enough now, boys," remarked the youngest in the group, whose nickname was Reno Tom, "you all can settle that another time, but now don't forget that poor old Mack is suffering terribly, and the least we can do is to let him rest till he starts on his long last trip with no come-back to it."

A groan from the corner summoned the speaker at once to the sick man's side, "Well, Mack, old scout, how do you feel?"

"Same thing, kid, same thing. That cussed bullet is giving me the dickens, and the fever won't let up a bit," dropping his voice to almost a whisper, "Say, Tom, inside my shirt is an envelope addressed to the ole woman. You take it, and if I go the trip, you see she gets it. Promise me you will, boy, it will make it easier for me to slip over the bank."

"Come now, don't worry yourself, Mack," the young tramp retorted, complying with the request, by removing the letter from the prostrate man's body, "you may pull through this all right, and then you can deliver the letter yourself."

Returning to the fire, Reddie asked of him: "How did Mack get that piece of lead in his anatomy?"

Not deigning him a look, Tom answered, "Little children shouldn't ask too many questions, but since you have got to know, it came about this way: a brakie blazed away at Mack 'cause he didn't want to leave a warm 'sheep-puller' he was riding in. But by the way, you'd better go out and look for some more wood around the tank, or we won't have any fire at all, pretty soon. I got the last supply."

Reddie arose, and with a sarcastic "Thanks awfully, thanks for your kind information, and equally kind invitation," he vanished through the door in quest of the desired fuel.

A long shrill whistle announced the approach of a train.

"No. 6 goin' east," Texas Bill remarked, "wish we could hop her, and get out of dis miserable place."

"Well, you can go if you wish," Tom curtly stated, "I'll stay here with Mack till—well, one way or the other."

"Guess we'll all stick, for dis is better than ridin' the cold bumpers on a night like dis," Utah Slim joined in, drawing closer to the fire.

As No. 6 went by, shaking the very foundations of the earth as it appeared, the wounded fellow grew very rest-

less, and began to talk deliriously. "There, quick, pull out that red sign, and stop the express, an' while the conductor runs in fer orders, we've kin slip between the baggage and mail cars, and make our get-away."

Tom quickly rushed to his side, and stroking the fevered brow as gently as he could, endeavored to pacify him, whispering in his ear, "All right, Mack, we're off, and all O. K. Nobody saw us either."

Soon the regular but heavy breathing gave evidence that for a while at least, the patient was resting comfortably again.

Reddie stayed what seemed an interminable period, and the tramps' only source of warmth threatened to become a thing of the past. Finally that worthy ex-college luminary came in with a heaping arm-full of regularly cut and split stove-wood. Depositing his load with a grin, he exclaimed:

"Eh, me hardies, did you think I had mooched away? Fact was, couldn't find any wood around the tank, or anywhere around here, so I 'pronambled' to the junction, and was rewarded in more than one way; first, this wood was waiting for me back of the tavern, then I got a glimpse at good old times again. There weren't many customers in, and if it hadn't been for a fellow looking like the sheriff tacking a card on the wall with the butt end of an ugly colt, I believe I'd gone in and hit the bartender up for a wee shot in the arm. Couldn't make out all of the card, only saw the head line, 'Reward for Capture—' By Jupiter, I wish I'd got that weet shot."

"Very kind of you," Slim dryly remarked, "to get the dope, and us fellows only see how it worked on you!"

For a while silence reigned supreme, only the crackling of the newly acquired fire-wood, and the laborious breathing of Mack, interchanging in rhythmic cadences, could be heard. Reno Tom stared into the ever-varying blaze, apparently lifeless, like a statue hewn out of rock, save for the expression and lustre of his eyes, which pre-saged a firm resolution. Suddenly he spoke up:

"Boys, what Reddie saw tonight, might sure be more truth than poetry. I reckon the sheriff is looking for someone, and let me say to you, it's me, me only. Now if we can't get away from here before they locate us I want you all to be still. Let me do the talking. I'll square you fellows all right. Only if I should be taken away, don't forget Mack. See that he gets in a box car, and—if he dies before that, leave him here. They," pointing in the direction of the junction, "will at least bury him."

Stepping over to Mack's side, he removed his own coat, and exchanged it for the one the sick man was covered with, explaining this act by saying:

"My coat's heavier than his'n," then with a quick, stealthy movement he took Mack's old, faded, red tie, and carelessly wound it round his own neck. His companions who had watched his maneuvers, seemed paralyzed with apprehension, till the imperturbable Reddie began to quote, "There's mystery stalking 'bout us like a ghost!"

Suddenly voices without were heard, followed by the immediate entrance of a stalwart young man, with a sheriff's badge on his coat, and two equally as sturdy deputies behind him.

"Hello, gentlemen! Hate to intrude but we want to look you over, for when leaving the tavern yonder a while ago, Pete here, saw a stick of stove-wood, and fresh foot prints in the snow, and so we just thought we'd better follow them up and see who's who."

"Fool you air," Slim snarled in an undertone to Reddie.

"By George!" the sheriff shouted to his deputies, "that's what I call quick

work. Here's the very fellow we want, 'grey coat, red tie, black cap,' only the face don't tally with that given as about fifty years old," and in an instant he had Tom covered with his number forty-four.

Calmly, Tom arose, with hands up-lifted:

"Yes, sheriff, I'm your man—the jig's up. These fellows were not with me on that deal. I just rolled off No. 6, gone by an hour ago, for it's a bad night to ride blind passenger way," he blandly added.

Tom was securely manacled, and the sheriff was so elated over the sudden, unexpected capture of the man described in the placard on the tavern wall, and, too, the thought of the snug reward offered by the railroad company for the apprehension and conviction of the bold, express office robber, led him to forget all about increasing the number of guests at his hotel "Bastille de Williams," and thus he left the rest undisturbed.

After a while, when it seemed safe to talk, subduedly at that, Reddie stated:

"Never was nearer death in my life, upon word of honor."

"Wished you had died before you got the wood, instead of stumblin' and leavin' bear-tracks for these cussed man-hunters to trail after," Slim angrily replied, "now it is a ten to one shot if we don't make that No. 21 at four in the mornin', the sheriff might change his mind and give us an invite to dinner."

"What about Mack?" Utah Bill asked.

"Wal, you heerd what Tom said, an' we'll do it, for he shorely did square us up for a little while."

Tom, in the meantime had been deprived of that fatal grey coat and tie, and was safely landed in a cell. The sheriff and his deputies still rejoiced over their good luck, decided to return to the tavern, to remove the card, and to celebrate the event with "a smile or two." But these bitter cold nights pass quickly in company with "good fellows," and thus it was that the tavern-keeper had an "all night stand" of it. For not until the long freight, stopping for water, had laboriously pulled up grade, past the junction, did that worthy trio of representatives of law and order quit the place.

Tom didn't sleep a wink, but paced up and down his narrow cell until he heard the whistle of the freight, as she pulled away from the tank.

"Thank God!" he murmured, "Mack's safe." Little, however, did he know that the poor mortal had breathed his last, and was now without the pale of the law.

When Sheriff Williams returned to his office, after bidding his deputies a laughing 'good-morning,' his eyes beheld the grey coat on the wall.

"Hm, forgot to frisk that fellow's coat pockets. Wonder if he has anything in them to further identify and incriminate him," and thus it was he found Mack's letter entrusted to Tom's care for safe delivery.

"Mrs. Anna Williams," were the words the sheriff read, and with a sudden premonition, he opened the envelope, to find in it, a much thumbbed, old-fashioned photograph of a woman and a little boy.

"My—my mother! And that little kid is me!" With feverish haste, he began to decipher the poorly-written letter, a pitiful narrative of life's direst vicissitudes, a manful struggle in the earlier days to overcome same, and then ultimate failure. A life of excesses and exposure, and having reached the bottom of the ladder, hope, character, self-respect all gone, nothing but a hopeless human derelict left, subscribing himself in a semi-desperate, semi-maudlin manner, "Ever your lovin' husband, James Mack Williams."

How long the sheriff glared at those wretched lines of equally as wretched human misery, no one will ever know, not even he himself. At last he went

to the cell where Tom was housed, and in a voice hardly under control, he asked:

"What's your name, young fellow, and how came you in possession of this letter?"

Tom stated that his sobriquet was Reno Tom, but as to his real name it didn't matter, for on account of the folks' sake, "down in Virginy," where he was born and raised, he cared not to divulge it. How he came to have the letter we know, and telling the sheriff about it, he added:

"Guess it's safe now to tell you all of the whole affair, as by this time my companions of a few hours ago, are miles away from this place, and your jurisdiction." Thus Sheriff Williams was apprised of the details of the daring holdup, and shooting affair, sixteen miles west of Scotia Junction, four days ago.

Mack had suggested to Tom to "pull off a stunt," which would make them rich quick, and then go home; Mack to his wife and kid, which latter by this time must be a strapping young fellow; and Tom back to "Ole Virginy" to a certain brown-eyed little girl, who promised she would marry him "if he ever made good." The holdup was a failure. Mack kept watch outside, while Tom was to cover the night operator. This fellow, though, "had grit," and showed fight. Tom shot the gun out of his hand, for they had not intended to go in for killing if they could help it. Gaggling and binding the operator to a chair, Tom went in search of the big sum of money left there by the express company. The shot fired, however, attracted the attention of the town marshal, also a plucky fellow, and he came upon Mack, flashing a bull's-eye lantern on him, thus getting the exact description afore named. Both fired at once, but missing each other, and Tom fearing capture rushed out to Mack's assistance, and with a well directed blow knocked the marshal out. By this time, however, others came running to the scene of the conflict, and the robbers had nothing left but to flee, one random shot striking Mack and felling him. Tom, though, aided by the darkness, managed to drag his wounded companion along, until they found a lonely, sheltering straw stack, where the remained two days and nights. But fear of detection, cold, hunger and Mack's bullet-wound drove them on the highway again, and thus it was they landed yesterday afternoon at the old shed, finding it already occupied by some other samples of the world's unfortunates.

"And the rest you know, Sheriff," he concluded.

After a pause, Williams asked: "One more question, Tom. How came you to change clothes with Mack?"

"Well, Sheriff," he was sick, very sick, then I knew his very heart was being ate out, by a longing once more to see his wife and kid, and so I thought perhaps he might pull through after all, and get to go home, even if a tramp, or if he didn't, it would be better to die a free man than in prison, and so I took his place, changing clothes and all, only I couldn't make my mug look like that of an old man."

"How about yourself, though, and the little girl who is waiting for you to make good?"

After a moment's hesitation, Tom replied, "Guess she got tired waiting by this time, for it's six years since they all heard from me. But I am tired of this life, freezing, starving, mistrusted, cussed and cuffed at, and so I thought I'd run my chances, for worse it cannot be at least."

The sheriff slowly unlocked the cell, and told his prisoner to follow him into the office. There he bade him don some other clothes, a variety of which were hanging along the wall, and then with a look at the old clock remarked:

"In ten minutes the Overland Express stops for a moment only at the junction. Here—handing him a roll of money, the size of which Tom had

not seen in all his life, "hustle over there, board her, pay your fare to Montreal, and from thence get a ticket home, and tell the little girl from ole Virginy I said, 'You made good.'"

Tom stood still amazed at the sudden turn affairs had taken, and stammered:

"What does this—" when the sheriff led him to the outer door, and gently, but firmly pushed him out, saying huskily:

"Tom, my lad, that man Mack was my father. Run! There comes the train now."

A squeaking of brakes applied, a sudden stop, followed by two quick shrill whistles, and the monster iron steed rushed on with its heavy load of human lives behind it, little knowing that another life had been added to enter upon a new life indeed.

In the county jail office stood a man with bared head, leaning heavily against the window, watching the receding train, while he slowly repeated to himself over and over again, Bobby Burns' time-honored quotation, "Man's Humanity to Man."

JOHN CHAPMAN—RURAL BENEFACTOR.

(Continued from page 322).

Many similar instances may be related of his self-sacrifice and even endangerment of life in behalf of the protection of the humblest forms of animal life. The most cursory knowledge of the life and belief of John Chapman is convincing as to his tenderness of heart and childlike simplicity of faith. He loved nature in all her forms with a strong and passionate devotion.

In spite of his grotesque apparel, unnatural manner of living and crude method of dealing, he was nevertheless greatly respected by all who came in contact with him. "Appleseed Johnny" was a man of strong character, deep philosophy and solely impelled by the motives of humanity and benevolence. His religious texts were the essence of primitive Christianity, namely, love thy neighbor as thyself. Like Thoreau he did not wish to accumulate any property. He had no use for worldly goods.

Before coming to Niagara county John Chapman worked along the shores of Lake Ontario and is accountable for the wonderful apple crops in the northern tier of counties, St. Lawrence, Oswego and Lewis. He had worked his way across from New England and was bent on following the lakes which he knew was a rocky country and adapted to the production of apples. After leaving this section he went through Ohio and located in Richland county, which is now the center of the state's great apple orchards. At Mansfield, Ohio, a monument in his honor was unveiled in November, 1900.

John Chapman was stricken with pneumonia while at Fort Wayne, Ind. He was taken in by hospitable pioneers and while on his sickbed he received word that cattle had broken into his nursery at Saint Joseph township and he got up and started on foot to look after his property. The distance was about twenty miles and the fatigue and the exposure of the journey were too much for him and on the way he made a request for accommodations at a farm house. He declined supper. He sat on the doorstep and cast wistful eyes toward the west. He then retired. In the morning he was found in a high state of fever. A physician was summoned, but he was beyond medical aid. It is said by those who stood by his deathbed that never was there a man so calm, for upon his wan face there was an expression of happiness and upon his pale lips there was a smile of joy, as though he was communing with loved ones who had come to meet him and to soothe his weary spirit in his dying moments.

And his eyes shone with the beautiful light when supernatural God touched him with His finger and beckoned him home. He was buried at Fort Wayne, Indiana, in the year 1847.



Get Stumps Out With Less Work

Pulling stumps is slow and costly. "An explosive reduces the labor of clearing land to the minimum. It may be used by any intelligent man," says Minnesota Farmers' Bulletin 134. Get any stump out quickly, and at the same time split it into pieces easily handled, by using

Atlas Farm Powder

THE SAFEST EXPLOSIVE
The Original Farm Powder

Atlas Farm Powder is made especially for farm use. It is easy to use—no experience needed. Just bore a hole, load, fire, and work that otherwise would take hours or days is done instantly! Ask your dealer about Atlas Powder today.

You can save money and make money by using Atlas Farm Powder to blast out stumps and shatter boulders, break up hard-pan, do ditching and dig holes for trees or posts. It is the cheapest farm hand you can possibly find.


Send for "Better Farming" Book—FREE
Our illustrated book, "Better Farming," tells how to improve the fertility of the soil, how to grow bigger crops, reclaim waste land, improve orchards, etc., with Atlas Farm Powder. Valuable to every land owner. Mail the coupon.

ATLAS POWDER COMPANY
General Offices: Wilmington, Del.
Sales Offices: Birmingham, Boston, Houghton, Joplin, Kansas City, Knoxville, New Orleans, New York, Philadelphia, St. Louis

FREE BOOK COUPON
ATLAS POWDER CO., Wilmington, Del.
Send me your 74-page book "Better Farming." I am interested in the use of explosives for the purpose before which I mark X. MF2

<input type="checkbox"/> Stump Blasting	<input type="checkbox"/> Tree Planting
<input type="checkbox"/> Boulder Blasting	<input type="checkbox"/> Ditch Digging
<input type="checkbox"/> Subsoil Blasting	<input type="checkbox"/> Quarrying-Mining

Name _____
Address _____



Smoke Out Skunk, Coon, Opossum, Mink, and other Fur Bearing Animals

The Smoker gets the game, no waiting, no traps, or digging them out. It takes from ten to thirty minutes, and you have your game, quick action and big money when you use a Lytle Smoker. Recognized as a little wonder by all those having or using one. Outfit consists of Smoker, Smoke Power Graphite Paste and Twenty inches Extension Nozzle. Price Post Paid To Any Address in U. S. A. For \$2.00. Post Paid To Canada 20c extra. Order today on our guarantee. **Lytle and Co., Fredericksburg, O.**



The Crowe Mechanical Fan Belt for FORDS

will outwear two dozen best leather belts.
No stretch, no slip, no break. A steel chain belt with leather tread. NOT affected by Oil, Water or Heat. Runs on same pulleys as leather belt and with twice the pull.

Satisfaction Guaranteed
Can be installed in one minute. Buy one today and stop your fan belt trouble. Ask your dealer for the "CROWE." Accept no substitute.

PRICE \$1.00 POSTPAID
ANISER MANUFACTURING CO.
1202 Frederick Ave. St. Joseph, Missouri.



NOW

is the time to have that

Fur Coat, Fur Lined Coat and Robe

fixed up for the coming season. You run no risk in sending your work to

The Blissfield Robe & Tanning Co.
Blissfield, Michigan
Free price list for the asking.

Experienced Young Man wants position as foreman on stock farm. Single, best of references. **HENDEE, PINCKNEY, MICHIGAN.**

LET US TAN YOUR HIDE.

Cattle or Horse hide, Calf, Dog, Deer or any kind of skin with hair or fur on. We tan and finish them right; make them into coats (for men and women), robes, rugs or gloves when ordered. Your fur goods will cost you less than to buy them, and be worth more. Our illustrated catalog gives a lot of information which every stock raiser should have, but we never send out this valuable book except upon request. It tells how to take off and care for hides; how and when we pay the freight both ways; about our safe dyeing process which is a tremendous advantage to the customer, especially on horse hides and calf skins; about the fur goods and game trophies we sell, taxidermy, etc. If you want a copy send us your correct address.

The Crosby Fur Company,
571 Lyell Ave., Rochester, N. Y.

TAYLOR

PAYS MORE FOR FURS
Trapping pays big if you sell where you get the most money. St. Louis is world's greatest fur market and F.C. TAYLOR FUR CO. is oldest and largest house here. It will pay you to join the happy family of Taylor shippers.

TRAPPERS WRITE FOR THIS FREE BOOK
Our catalog-Booklet entitled "Opportunities for pleasure and profit in trapping" is different: you will say so when you get your copy. It's FREE if you mail a postal to-day. Our trappers supply department will help you get started. Write Today.

SHIP YOUR FURS TO F.C. TAYLOR FUR CO.
240 FUR EXCHANGE BLDG. ST. LOUIS, MO.

Raw Furs

We pay highest prices for raw furs, remit promptly and pay all express and postage. We give you an absolutely fair sort. Write today for price list.

Miller & Fineberg
Dept. D. 25 Jefferson Ave., Detroit, Mich.

FREE TO TRAPPERS
Get started right this season and make more money. Send your name today for **RUMBAUGH'S MARKET REPORTS** now ready to mail. They quote latest market prices. Furs from northern states are my specialty and I'll pay the most money for them. Correct grading means more money for you. I guarantee my grades or return your furs. Write today.

W. R. RUMBAUGH, 205 Court Ave., Des Moines, Ia.



Perfection Smokeless Oil Heater

—a Household Necessity

In the fall before the furnace fire is needed—in cold weather, when the furnace fails to keep the corners warm, a Perfection Heater takes the chill away and makes the whole house comfortable.

The Perfection Smokeless Heater may be easily carried about from room to room—the handle does not get hot. No smoke, no dust, no ashes.

It Is Odorless

Can be regulated so the heat will radiate straight up or outward—pure and sweet air.

Burns kerosene—cheap and always available. Any good kerosene will give satisfaction, but for best results use Perfection Oil.

It is easy to fill and regulate. 25 inches high, 12 inches in diameter—finished in polished steel or blue enamel—trimmings are nickel or black Japan. It is an ornament—and in use in more than 2,000,000 homes.

Price varies from \$4 to \$7.25, according to finish. Look for the triangle trade mark.

Rayo Lamps give that soft mellow light which enables you to read without eye strain. Get one.

STANDARD OIL CO.
(Indiana)
72 W. Adams St., Chicago, U.S.A.

63



Coleman Air-O-Lite
Makes and Burns Its Own Gas.
Gives a brilliant mellow light of 300 candle power. Costs less than one-third of a cent per hour to run. No wick to trim, no chimney to clean, no greasy oil to handle, no smoke, no odor. Nothing to get out of order. Can't spill, can't explode and no danger if tipped over. Fill it only once a week. Clean it only once a year. If not on sale at your dealer's write for catalog showing many beautiful styles.
THE COLEMAN LAMP COMPANY,
1106 Summit St., Toledo, Ohio.
Wichita, St. Paul, Dallas, Chicago.

Buy Your **COFFEE** WHOLESALE IN 5-LB LOTS
Get the BEST and SAVE 10 cts per pound.
WE PAY POST, EXPRESS or FREIGHT
IF YOU LOVE GOOD COFFEE SEND FOR PRICE LIST
JEVNE COFFEE CO. (Est. 1881) Coffee Specialists
Dept. 7, 2855-57 W. Madison St., CHICAGO.

Woman and Her Needs At Home and Elsewhere

Keeping Up With Fashion

"In words, as in fashions, the same rule holds true—
Alike fantastic, if too old or new—
Be not the first by whom the new is tried,
Nor yet the last to lay the old aside."
—Pope.

Every reformer who has a pet evil he wishes to down blames his particular hobby for half of the divorces. Thus the anti-saloon element blames drunkenness for half of the divorces in the country; domestic science fiends lay half of them to poor cooking; foes of gambling blame cards and race tracks for half, and men who don't want their wives to spend a cent without their approval are sure that extravagance is the cause of still another half. The great American evil being taken care of so generously, may we not add another contributing factor and blame at least a half of the separations to the Great God Fashion?

A large number of men whose pocketbooks are flattened regularly with the seasons by the demands of the god will rise to shout "aye." But a still larger portion, upon whom the god has made no ravages, would, if they were honest, vote with the affirmatives also. For this god is double dealing and smites both those who serve her and those who serve her not.

Make no mistake, little lady who makes over her last year's suit to please friend husband. For unless he is that rare specimen of American man, a miser, he would much prefer to have you buy new and look as well as the woman across the street. Remember this, that no matter how much men may prate of the beauty of the modest violet, they never notice one in a bed of poppies. And all your efforts to attract attention by sensible wearing apparel when frivolous garments are the vogue, are worse than wasted.

Not that I would advise any woman to be extravagant. In many homes there is no money to buy new clothes every time the styles change and these women are deserving of all honor who bravely wear the old. But in many more are women so fond of the dollar that they wear garments which are not only out of style but most unbecoming, simply because they are still serviceable. How much better for the woman who can afford it, to give the 1910 models to less fortunate sisters to cut over for the children and buy clothes that are new and modish.

Prate as we will about the curse of fashion, there isn't a human being, male or female, who doesn't secretly admire new and unusual modes, nor who does not feel better able to cope with any situation when well and suitably clothed. Fashion may be a false god, but it has been with us ever since Eve introduced the first fall modes, and from all indications it is likely to stay so long as the world lasts. The best way, then, to deal with it is to bow to a degree to its mandates and if we can't afford the 1917 spring models in the fall of 1916, at least shed the shell of year before last. Paper patterns may be bought for ten cents and every newspaper and magazine shows prevailing styles. So there is no excuse for any but the poor or the over-worked woman from keeping at least in the rear of the procession.

And to hark back to the original argument, many a divorce might be averted if the wife would take more pains with her personal appearance. None of us have any respect for the husband who leaves a hard-working,

faithful wife for a younger, smarter-appearing woman. But a word might be said for the villain even in such cases. Decry it if you will, it is only natural for us to admire the beautiful and prefer it to the ugly, and the wife should take pains to see that she keeps from getting ugly in temper and in looks. It is the chief duty of woman to please man, strong minded new women to the contrary notwithstanding. That has been woman's mission and pleasure all down the ages and will continue to be so as long as the world stands. Doubly is it the duty of the wife to please the husband. And it is as much her duty to please his eye as to please his palate. "The way to a man's heart is through his stomach," may have been true of men when first the saying saw light, but the modern man's heart is more often won by the way of bright and shining apparel.

DEBORAH.

WASHING A LACE WAIST.

BY EMMA GARY WALLACE.

A delicate lace waist had become somewhat soiled, and a previous experience had taught me that the fine, cobwebby fabric would not stand much handling.

A nice suds was made of white soap and borax and the garment rinsed up and down in this. The soiled portions about the wrist were rubbed with the soap and then patted between the hands. A fresh suds was made and the waist allowed to soak for half an hour. The patting process was repeated. Then it was rinsed up and down in several waters, the first two of which contained a little ammonia. It was now ready for the finishing touch.

It was quite as impossible to wring the waist as it would have been to rub it, so it was laid out at full size in a piece of clean cheesecloth sufficiently large to enfold it. The cheesecloth was patted until it became quite wet from the absorbed moisture. A second piece of cheesecloth was used. Then the garment was allowed to lie upon this cloth on a table in the sunshine until it was almost dry. It was then pressed with quite a hot iron, for there must be no more rubbing than was necessary.

The waist came out looking like new. A tablespoonful each of borax and sugar dissolved in the last rinsing water had given it just the right amount of stiffness.

THE PASS-IT-ALONG CLUB.

BY ELLA E. ROCKWOOD.

Economies being the topic of the day, each one of the members came with her favorite method ready to offer it for the general good. In opening the meeting the chairman expressed a wish for full and free discussion. "Economy," she remarked, "stands for thrift, and many are the forms in which it may be demonstrated. Mere doing without may not be economy at all. Indeed, there is true economy more frequently in judicious expenditure than in parsimony which merely adds to the bank account. True economy may be defined as a wise and careful administration of means at one's disposal. Economy manages, frugality saves, providence plans, while thrift at once earns and saves with a view to wholesome and profitable expenditure at a fitting time."

As the roll was called each response was met with a seriousness which showed the ladies felt the importance of the topic.

Mrs. Smith opened the program with her contribution, which was on the care of table and bed linen. "I feel," she said, "that it is economy to buy good material in the first place, and I follow this up with giving my purchases the best of care until they are worn out. Table linen is never left to wear through entirely as long as careful mending will prevent it. For this purpose I save the trimmings when hemming tablecloths, which are always cut by a thread, and those are used to darn thin places in tablecloths, napkins and towels as they appear. These threads being linen match the material so closely that the stitches cannot be detected after laundering. I simply darn back and forth until the thin places are covered.

"In using our electric washing machine, which the gas engine operates, one of my new tablecloths became badly torn, an unusual accident but very annoying because it happened to be the best one. I put the torn part in embroidery frames and sat down with my roll of linen threads. It was a tiresome job but the result was so satisfactory that I felt well repaid. After it was washed and ironed the place could scarcely be detected. I was careful to match the pattern by holding the torn edges exactly as they were before. My table linen is never allowed to flap on the line when the wind blows, nor any of my laundry for that matter, for nothing wears the fabric faster than that. I turn my pillow slips at the first sign of wear by ripping the bottom and resewing to bring the wear on the parts which were at the sides. I also rip the sheets and turn outside edges in the center, even though this means a narrow hem at the sides. For this reason I usually buy the 40-inch sheeting for every-day wear and overhand the seam as we used to do, as then, when turned, no hem is required."

In following the first speaker, Mrs. Strong expressed her thanks for the mending idea, which she proposed to adopt in her own home. "By the way," she continued, "that suggestion about using mending threads of the same kind as the material to be repaired can be carried out to good advantage with any kind of cloth. I have found that a tear or break in men's suits can be darned most successfully with threads drawn from the material. The leg seams being straightway of the cloth, or nearly so, will afford some long threads without in the least affecting the garment. Draw these from the inside of the trousers, close to the edge and when the garment has been darned and pressed the break cannot be detected. Even the dreaded three-cornered hole yields to this way of mending, and I frequently employ it on gingham or fine percale. Clip off any upstanding ends after pressing. But," the speaker concluded, "This is not what I brought for your consideration this afternoon. My pet economy is saving bread crumbs. This question of bread waste is a bugbear in many families but not at our house. Flour is too expensive at present to permit of waste, but saving the dry pieces, crusts and crumbs, has become a habit with me. Aside from toast, fried bread and an occasional pudding, which really takes very little, as a good bread pudding consists of plenty of other things and a small proportion of bread, all our bread scraps are dried

in the oven, put through the meat grinder and stored in glass jars for use in various ways. The children like them crisped in the oven and served in milk. I use them for breading veal or croquettes, also for all kinds of scallops where cracked crumbs are called for. These crumbs are in fine shape, too, for stuffing fowls or a roast. In fact, we never have too many of them on hand."

"There is one way of utilizing stale bread which Mrs. Strong failed to mention. It is using it in griddle cakes, and that variety is a prime favorite at our house," suggested Mrs. Turner, as she took up the topic when her name was called. "I soak the bread in milk over night, sweet or sour as the case may be. Next morning beat an egg or two, add to the bread and milk, beat thoroughly with a little salt and flour to make a batter. Use baking powder or soda as the milk is sweet or sour. Griddle cakes call for plenty of baking powder. Like Mrs. Strong, however, my economy suggestion for this afternoon was not along this line. My pet economy in summer when the gasoline stove is in use, is saving fuel. When we first bought it I used as much again gasoline for the same work as I do now. I never boil a tea kettle full of water unless I want to use it all. So much waste fuel goes into boiling a lot of water to get cold again. I measure the amount I am going to use, allowing some extra, but never a great deal more than I am going to want. If I am going to bake I plan to fill up the oven with different things. It is wasteful to keep the fire going for an hour or two for only one small dish. Frequently I get an entire dinner in the oven over one burner. By studying this matter it is surprising what a saving may be accomplished. I bought one of the gasoline laundry irons last summer and got such a lot of satisfaction from it that I want to recommend these labor-savers to the club. They are perfectly safe and economical of fuel. Ironing with one is a pleasure. In fact, I would not exchange mine for either an electric or gas iron as there is no cord or tube in the way. Two or three cents worth of gasoline will do a large ironing and with scarcely any additional heat in the room."

"I feel almost ashamed to tell about my pet economy," hesitated Mrs. Traves, in following the last speaker, "because there has been a good deal said against practicing it. However, I will say that it is buying by mail. I look at it this way: It is my privilege to buy where I can get the most for my money, the same as it is the home merchant's privilege to set his own price on what he sells. By patronizing a reliable house I can save money on about everything I need in the home. Of course, I do not carry it to this extreme but I do know that on certain articles I save sometimes almost half. Here is one item. We sent to a well known firm which advertises in the Michigan Farmer, for some children's clothing. Among the items was a pair of sandals for which our home shoe store was asking \$1.39. The list price at the mail order house was 89 cents. When the sandals came they proved to be exactly the same thing as the others. The leather was the same, the soles the same, even the fasteners and the perforations on the top were the same. We have come to the conclusion that, regardless of sentiment about home industries, we are going to buy where we can do so to the best advantage."

"We make a great saving," responded Mrs. Walters, when her name was called, "by purchasing in quantity, but we buy of our home merchant. We buy flour and sugar by the barrel, soap by the box, and all staple groceries by the case. We have figured out a saving of from six to ten per cent, and on some articles even more. I am often called on to entertain guests unexpectedly, like every farmer's wife, and I keep a supply of certain varie-



To Light Your House and Barn To Cook Your Meals

Ask the good woman who cooks on a *carbide range* and lights her home with *carbide lights*—
She will tell you that *Union Carbide* is doing more for country home folks and country home life than any discovery or invention of this age.

She will tell you that her Carbide-range has added to her health and happiness by shortening her kitchen hours and by making her cooking a much simpler and easier task.

She will tell you that the range is a practical duplicate of her city cousin's gas range and that she turns the fire off and on with a twist of her wrist—saving all the time and doing away with all the bother and dirt connected with handling fuel and ashes.

She will tell you that all these advantages are the biggest kind of a help towards keeping both herself and her kitchen clean and cool during hot weather months.

She will tell you that her carbide lights in every room and out on the porch are the cleanest, whitest and most beautiful lights in the world.

She will tell you too, that all these lights are equipped with "friction igniters" to "light up" instantly with the pull of a little ornamental brass wire rod.

She will tell you that the handsome bronze and brass fixtures and the brilliancy of the light itself, has doubled the attractiveness and beauty of her home.

You must ask, too, the man of the house about *Union Carbide* itself—

He will tell you that in weight and bulk *Union Carbide* is quite like coal—that he gets his supply at factory prices, and that he gets it direct from the company's warehouse in his district.

He will tell you that his *Union Carbide* comes in blue and gray 22 inch—hundred pound "drums" (cans)—easy to handle, easy to store.

He will tell you that he keeps a six month's or a year's supply on hand in a corner of his barn or shed.

He will tell you that he, himself, not only comes in for his share of the benefits of the range in the kitchen and the lights in the home but he has his own carbide lights throughout his barns and in the center of the yard round about—big brilliant ball lights operated the same as the house lights without matches.

He will tell you also that the double benefits of both lighting and cooking make *Union Carbide* by far the most economical and desirable lighting and cooking service for country homes.

And he will tell you that the best proof that this is all so is the fact that he is only one of over 300,000 country home users to whom we now supply *Union Carbide* in the little blue and gray drums.

Send this coupon for our handsome advertising booklets giving complete information—with many illustrations.

Union Carbide Sales Company, Dept. 17
New York City Chicago, Ill. San Francisco, Cal.
42nd St. Building Peoples Gas Building Kohl Building

Union Carbide Sales Company Dept. 17
New York Chicago San Francisco

Send me your advertising literature.

Name

Address

(1)

Old Dutch

quickly and thoroughly cuts milk clots and scummy accumulations from milk pans and pails—No greasy film left on the article cleaned.



30 DAYS FREE TRIAL
and freight prepaid on the new 1917 "RANGER" bicycle. Write at once for our big catalog and special offer. Marvelous improvements. Extraordinary values in our 1916 price offer. You cannot afford to buy without getting our latest propositions. Boys, be a "Rider Agent" and make big money taking orders for bicycles and supplies. Get our liberal terms on a sample "RANGER" to introduce. Tires, equipment, sundries and everything in the bicycle line half usual prices. A few second-hand bicycles \$5.00 to \$8.00, to clear.
HEAD CYCLE CO., DEPT. G-77 CHICAGO

HONEY 5 lb. pail extracted honey, by parcel post, for 75c.
M. H. HUNT & SON, LANSING, MICH.

AGENTS WANTED

to represent a reliable concern canvassing among farmers in you own neighborhood or elsewhere. No experience necessary. Liberal pay and supplies furnished free to right parties. Reference required. Address,

ADVERTISER, CARE THE MICHIGAN FARMER, Detroit, Michigan

When writing to advertisers please mention the Michigan Farmer.

Idle talk and overstated claims are brushed aside by goods that possess real merit and superior quality.

That is why

Lily White

"The Flour The Best Cooks Use"

has been leading for more than thirty years, and why it will lead for thirty more.

Your bread and pastries will be a delight to the entire family when baked from Lily White Flour.

VALLEY CITY MILLING CO.,
Grand Rapids, Mich.



Can You Bake Cake Like This?

If you can't, you don't use Rumford Baking Powder. It gives such splendid results that Prof. Allyn, Chemist of Westfield Board of Health calls it "A healthful, efficient and economical leavening agent." You can prove that this is so, if you will sit right down and—

Write for **FREE** Trial Size Can of

Rumford
Chemical Works
Dept. 36
Providence, R. I.
Please send me
5 oz. Trial Can
and Cook Book
FREE.

Name _____

Street _____

City _____

(Publication) _____

C 67 8-16

Rumford

THE WHOLESOME
BAKING
POWDER

Comfort Indoor Closet Odorless Sanitary Germ-Proof

Every home without sewerage needs one. Most convenient, meritorious home necessity in a century. A boon to sick people. Can be placed anywhere in house.

Makes Outdoor Privy

Unnecessary

Put a warm Comfort Toilet in your home, a guarantee of healthy, sanitary conditions. Germ-life killed by chemicals in retort. Emptied once a month—no trouble. Needs no other attention. Boards of Health endorse it. Write now for literature, prices, etc. Agents Wanted—Excluding territory.

COMFORT CHEMICAL CLOSET CO., 670 FACTORY BLDG., TOLEDO, OHIO



SENT ON 30 DAYS
FREE Trial

"ROUGH ON RATS" ends RATS, MICE, Bugs, Don't Die in the House. Unbeatable Exterminator. Ends Prairie Dogs, Gophers, Ground Hogs, Chipmunks, Weasels, Squirrels, Crows, Hawks, etc. The Recognized Standard Exterminator at Drug & Country Stores. Economy Sizes 25c, 50c, Small 15c. Used the World Over. Used by U. S. Gov't. Rough on Rats Never Fails. Refuse ALL Substitutes.

WEAR YOUR OWN WOOL

Have it made up by the only complete custom and mail order woolen mill in Michigan. Write for prices today. REED CITY WOOLEN MILLS, Reed City, Osceola Co. Mich.

When Writing to Advertisers Please Mention The Michigan Farmer.



For rough chapped hands, and broken blisters; for piles and hemorrhoids; for burns, cuts and all irritations of the skin use.

Vaseline

Petroleum Jelly

Put up in handy glass bottles; at drug and general stores everywhere. Illustrated booklet describing all the "Vaseline" Products mailed free on request, together with "Vaseline" Poster Stamps.

CHESEBROUGH MFG. CO.
(Consolidated)
33 State Street, New York City

ties of canned goods on hand ready for an emergency. We get tuna fish and salmon by the dozen cans. They keep indefinitely. Certain other staples, like rice and beans, we buy in quantities. Baking powder, if kept sealed, does not deteriorate, nor does tapioca, spaghetti and macaroni, of which latter we use a great deal. Our saving by this method figures up to a goodly sum in the course of a year. Besides that there is not the annoyance of bringing home small quantities and running out every little while. We get kerosene and gasoline by the barrel also, and store it in galvanized iron tanks away from any building."

The concluding suggestion was from the hostess, who said: "Last summer when eggs were cheap I went to our druggist and bought some sodium silicate. I mixed it with ten times the amount of boiled (not boiling) water, clean and cold. I planned to preserve the eggs until cold weather as I knew the formula was reliable. I gathered the eggs faithfully while perfectly fresh, discarding any that were doubtful. I placed them carefully in stone crocks of three-gallon capacity and covered them with the solution. I set them in the cellar and watched from time to time to see if the liquid covered them completely as more or less evaporation will take place. I kept the jars full so the eggs were always covered. A three-gallon crock will hold 120 eggs."

The meeting closed and was voted by the members the best they had yet held.

ROOT BEER AND OTHER NEAR-BEERS.

BY L. K. HIRSHBERG.

When facts are presented to show that beer has one and two per cent of alcohol in it, often more, the dear, good public hates to remember it. Hardly does my typewriter cease writing an article against alcoholic liquors, before inquiries reach me, and say, "But, doctor, you'll allow me to have one or two glasses of beer, will you not?"

To which I must perforce reply, too tired to repeat the explanation, "I will not!"

But worse is yet to come, if the pharmaceutical researches of Dr. Chas. H. La Wall are correct as presented before the June meeting of the American Pharmaceutical Association. He points out that it is a fact well known to biologists and chemists that whenever yeast is added to anything with sugars and sweets in it and kept warm and moist as mother does the bread dough, the yeast begins to grow, thereby making alcohol as well as gas bubbles.

If the material is a liquid instead of dough, the carbonic acid gas escapes as bubbles which effervesce. Effervescence, fermentation and boiling are all the same. It is the liberation of gas whether it is air or some other gas.

The alcohol simultaneously produced in effervescence, or fermentation, may itself escape to a small extent by evaporation. As a rule, however, enough of it remains to be measured, indicted and found guilty.

When mother makes bread at home alcohol can be found in the freshly baked loaf. As soon as the loaf is cut it begins to escape, which perhaps explains why you and I and some others prefer the ends of the uncut loaf and dislike stale bread without even a trace of its presence. Even the unfermented grape juice of the market nearly always contains small amounts of alcohol, from half of one-tenth per cent to half a per cent. The best bottled grape juice has almost none in it. Let it be said, to the confusion of local optionists, prohibitionists, and others who try to force people away from alcohol, that it is very difficult in this vale of tears to get away from alcohol. A rotten apple, a specked peach, over-ripe, juicy fruit of almost any sort

is likely to contain small amounts. Vinegar often has in it more than beer has. Canned fruit, preserves and numerous other products often have more than one per cent of it.

It was the evident "over-seas" effect of root beer upon a person who drank a glass of it, which led Professor La Wall to conclude that properly carried forth researches would show that home-brewed root beer has more alcohol in it than is commonly supposed. Accordingly he made his investigations to find out the truth. Root beer over a week old was found to contain from one to nearly two per cent of alcohol. If it was allowed to stand for three hours before it was bottled, still more alcohol was discovered in it. Since koumiss, which is made from milk fermented under similar conditions, sometimes contains over two per cent of alcohol, it is high time that these two "temperance drinks" come under the same category as the average beer with its four per cent alcohol. Three glasses of root beer or kozak, koumiss, zakol and other fermented milks are more intoxicating than one glass of beer.

TAKE CARE OF THE WINDOW SCREENS.

MRS. E. O. SWOPE.

As our home is quite large and contains a great many windows it is necessary to have a large number of screens in use during the summer. Some of the screens are larger than others, and the windows are not all the same width, so in putting them away for the winter it was necessary to think up some plan so that when wanted again, I would know just which screen belonged to a particular window. In removing the screens from the windows and doors, I used a small note book and gave each window a number. Each screen fitting that particular window was given the same number. These numbers were written on a plain piece of paper and pasted on each screen. All windows down stairs were numbered in order first, then we finished by numbering all of those up stairs. Perhaps this method of mine is not anything new, but it will be found very handy and save a lot of trouble when ready to put the screens back into the windows next year.

The screens are dusted thoroughly and put in a place out of the way for the winter, being careful that they are put somewhere that is dry so they will not rust.

In case the screening has become rusty and has holes in places, it will be a good thing to make a note of such defects and when time comes around to use the screens again it will pay to put in new screening.

Another thing of importance is the painting of the frames to preserve the wood. Where small screens are in use we usually apply a walnut or oak stain and brighten them up each year with a little varnish. Screens properly cared for will last many years.

SOME FIRELESS COOKER RECIPES.

Beef Roll.

Procure a cheap piece of lean, flank beef, weighing three or four pounds. Spread with a small quantity of poultry stuffing well seasoned with onion, sage, and salt. Roll the piece of beef and fasten tightly with skewers or tie with clean twine. Roll in flour and sear all over in hot fat. Do this in the fireless cooker container in which it is to be cooked. Add one cup of boiling water and cover it tightly. Boil for five minutes, transfer to the fireless cooker nest and cover tightly. If there is a hot plate in the nest, the meat will be done in three and a half hours. If there is not, remove the kettle at the end of three hours, and heat for ten minutes on the stove. Return for two hours. It will now be tender and nicely seasoned. It may be serv-

ed at once, or reheated and the gravy thickened, or allowed to cool and sliced very thin.

Economical Beef Stew.

Take three pounds of tough beef cut from the soup shank. Trim into one-inch pieces and roll the pieces in flour. Sear all over in hot fat in the cooker kettle. Add one quart of boiling water, one sliced onion, a bay leaf, two stalks of celery diced, one-half a green pepper, salt and pepper. Cook on the stove five minutes. Transfer to the cooker nest. After three hours more, the stew will be tender and delicious. If a commercial cooker is used it will be ready to eat much sooner, as the hot radiators hasten the process.

Steamed Pudding.

Melt one-fourth cup of butter, add one-half cup of molasses, one well beaten egg, and one-half cup sweet milk. Mix one-half teaspoonful baking powder, one-half teaspoonful soda, one teaspoon of salt, one cup seeded raisins, one and one-half cups graham flour. Mix the dry ingredients thoroughly and add slowly to the liquid mixture. Pour into a well-greased mold not filling over two-thirds full.

Place the mold on a small rack, such as a perforated coffee can top, in the cooker kettle. Pour warm water around the pudding mold, allowing it to come within a couple of inches of the top. Bring the water to the boiling point and boil briskly for 35 minutes. Place the pudding in the cooker, tightly cover for five or six hours. Serve with foamy or lemon sauce, or whipped cream.

Pineapple Tapioca.

Soak one-half cup pearl tapioca for an hour or more. Place in the cooker kettle with one quart water. Bring to the boiling point. Add two cups of diced pineapple, three-fourths cup of sugar, a few grains of salt, and two tablespoons of butter. Bring once more to the boiling point and remove to the cooker nest. Leave in the cooker one hour and a half. Remove, turn into a mold, and chill thoroughly. Serve with whipped cream.

MICHIGAN FARMER PATTERNS.


Our latest Fashion Book, containing illustrations of over 1,000 designs of ladies', misses' and children's garments in current fashions, also newest embroidery designs, and articles which give valuable hints to the home dress-maker, will be sent to any address upon receipt of ten cents.



No. 8024—Ladies' Shirt Waist. Cut in sizes 36 to 44 inches, bust measure. The waist has full-length sleeves gathered into bands.

No. 8032—Girls' Dress. Cut in sizes 6, 8, 10 and 12 years. The dress closes at the front and has a three-gored gathered skirt.

No. 8029—Ladies' Dress. Cut in sizes 36 to 42 inches, bust measure. The dress is cut in one piece and has a yoke at the back.



Have Your Own Electric Light Plant

Let your gas engine furnish electric lights for your house and barns while it is doing other work. Just run a belt from the engine to a

Thomas A. Edison

TRADE MARK

Electric Light Plant

Store up enough electricity to furnish light for several nights. Mr. Edison worked days and nights for years to make the Edison Storage Battery absolutely reliable. He succeeded. Read what he says. Edison Batteries demand no care; do not get out of order and can be charged at any time. Hundreds of farm homes are equipped with Edison Batteries. Read in our booklet how well satisfied they are.

Send for Mr. Edison's Book

It tells you all about this wonderful system. Just fill in the coupon and mail today.

EDISON STORAGE BATTERY COMPANY
237 Lakeside Ave., Orange, N.J.
or 2025 Michigan Ave., Chicago

Edison Storage Battery Co.
Orange, N. J.

Please send me at once Mr. Edison's Book X on Electric Light Plants.

Name _____
Address _____
R. F. D. _____

Stick this Coupon on a Post Card and mail today

I have been experimenting for many years to produce a reliable storage battery for use in connection with the lighting of country houses and I did not offer it to the public until I knew it would give satisfaction.

Thomas A. Edison

What Owners Say:

"Has given perfect satisfaction."
W. W. Sanders, DeKalb, Texas

"Never a night when the light was not good."
J. S. Lockwood, Torredale, Pa.

"Costs as near nothing to operate as anything could."
Polosi Mill & Elevator Co., Polosi, Mo.

Let Us Send This Great Stove Book FREE

Mail Postal Today!

Get a High-Quality Kalamazoo at a Wholesale Price

Find out what you can save on a Kalamazoo. Over 300,000 satisfied owners recommend Kalamazoo quality, and say that no one can attempt to match our prices. Get our catalog and see why we can lead them all on big value at a low price—quick service and give you your choice of

Hundreds of Up-to-Date Styles and Sizes

All at manufacturers' cash or easy payment prices. 30 days' trial, 360 days' approval test, \$100,000 Bond Guarantee. We pay freight and ship within 24 hours. Write today. Ask for Catalog No. 113

KALAMAZOO STOVE COMPANY
Manufacturers
KALAMAZOO, MICHIGAN

We make Ranges, Gas Ranges, Furnaces and White Enameled Metal Kitchen Cabinets. We have three catalogs. Please mention which you want.

CASH or CREDIT **A Kalamazoo** **We Pay**
30 DAYS' TRIAL **Direct to You** **FREIGHT**

APOLLO ROOFING



Fireproof, weatherproof, strong, rigid, durable—specially adapted to the construction of farm buildings. Formed from APOLLO-KEYSTONE Copper Steel Galvanized Sheets.

APOLLO-KEYSTONE Sheets are the most satisfactory, rust-resistant sheets obtainable for Roofing, Siding, Culverts, Tanks, Silos, Cisterns and all exposed sheet metal work. Look for the Keystone added below regular Apollo brand—it indicates that Keystone Copper Steel is used. Demand the genuine—accept no substitute. Sold by weight by leading dealers. Our free booklet "Better Buildings" contains building plans and valuable information. Send for copy today.

AMERICAN SHEET AND TIN PLATE COMPANY, Frick Building, Pittsburgh, Pa.



Indoor Closet

More Comfortable, Healthful, Convenient

Eliminates the out-door privy, open vault and cesspool, which are breeding places for germs. Have a warm, sanitary, odorless toilet right in your house. No going out in cold weather. A boon to invalids. Endorsed by State Boards of Health.

ABSOLUTELY ODORLESS

Put It Anywhere In The House

The germs are killed by a chemical process in water in the container, which you empty once a month. Absolutely no odor. No more trouble to empty than ashes. Closet absolutely guaranteed. Write for full description and price.

ROWE SANITARY MFG CO., 1033 B. ROWE BLDG., DETROIT, MICH.
Ask about the Ro-San Washstand—Hot and Cold Running Water Without Plumbing

HOOSIER STOVES & RANGES FREE


To try in your own home 30 days free, no matter where you live. Show your friends. Send it back at our expense if you do not want to keep it. Hundreds of thousands in daily use. Perfect bakers, efficient heaters, made of high grade material, beautifully finished, smooth design, guaranteed for years by our Two Million Dollar Bond.

Ask your dealers to show you Hoosier Stoves. Write for our big free book showing photographs, describing large assortment of sizes and designs to select from, explaining our free trial. Send postal today. Write your name and address plainly. No obligations.

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


When writing to advertiser please mention The Michigan Farmer.

The BEST LIGHT



Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog.

THE BEST LIGHT CO.
280 E. 5th St., Canton, O.



BEST FOR THE READER THEREFORE BEST FOR THE ADVERTISER

	Guaranteed Circulation	Rate Per Page Line
Michigan Farmer, Detroit, Mich. (Rate 40c per line.)		
Ohio Farmer, Cleveland, Ohio, (Rate 60c per line.)	270,000	\$1.17
Pennsylvania Farmer, Philadelphia, Pa. (Rate 30c per line.)		
Indiana Farmer, Indianapolis, Ind.	57,101	.25
The Progressive Farmer, Birmingham—Raleigh, Dallas—Memphis	174,121	.80
Breeder's Gazette, Chicago, Ill.	90,000	.60
Prairie Farmer, Chicago.	100,000	.50
Hoar's Dairyman, Ft. Atkinson, Wis.	67,820	.45
Wisconsin Agri-culturist, Racine, Wis.	63,454	.30
The Farmer, St. Paul, Minn.	140,855	.60
The Farmer's Wife, St. Paul, Minn.	750,000	3.00
Wallace's Farmer, Des Moines, Ia.	80,000	.40
Pacific Rural Press, San Francisco, Cal.	22,000	.16
	1,805,351	\$8.23

These publications are conceded to be the authoritative farm papers of their individual fields. For further information address

GEORGE W. HERBERT, Inc.
Western Representative, Advertising Bldg., CHICAGO, ILL.

WALLACE C. RICHARDSON, Inc.
Eastern Representative, 381 Fourth Ave. NEW YORK CITY.



Spend two weeks in seeing California farms and San Diego Exposition; also Salt River Valley, Arizona.

This tour is especially for rural folks and others interested. We want you to see these sections of the Santa Fe Southwest and talk to those who live there about the greater production per acre, the balmy, healthful climate, the year-round growing season. You will visit many communities in Salt River Valley, Southern California and San Joaquin Valley. You will be taken on auto trips to see their farms, orchards and homes. We have no land to sell. We want you to see and know for yourself.

Let us tell you at what reasonable cost this trip will be made. Our party will live on special cars most of the time, thus saving hotel bills. Go with us on the Santa Fe and return Santa Fe or any direct route.

This party will leave Chicago November 9, reach San Francisco about November 25, and return from there at your pleasure within nine months, which enables you to spend the winter in California, if desired. You'll see rural California—as you could see it in no other way. You'll see the San Diego Exposition. Also you'll see the Grand Canyon of Arizona.

Ask any of your neighbors who went on last year's Santa Fe Farmers' Special about the good time they had.

Make reservations promptly, to insure getting space on this train. Write me to-day for itinerary and rates.

C. L. Seagraves, Industrial Commissioner
Atchison, Topeka & Santa Fe Ry.,
2264 Railway Exchange, Chicago

GALLOWAY'S 1917 MODEL NO. 8 SPREADER



JUST READ THESE IMPROVEMENTS

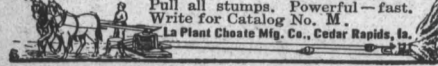
They mean that every Galloway Spreader is BUILT STRONGER AND BETTER THAN BEFORE. The beater bolts are 1-16 in. larger with lock nuts. Beater bar bolts increased in size and strength. Beater teeth longer and stronger than ever which means ever and spread it easier. Heavier bolts hold the beater bars in the beater head. Rear shaft is increased in strength—higher carbon steel used. Additional bolts strengthen the beater bracket. Larger on (beyond actual necessity) the beater bracket. Larger drive sprockets, which mean LIGHTER DRAFT THAN EVER. The fifth wheel castings are larger and increased in strength; spreader box STEADIER in turning. Rear conveyor shaft now made of No. 40 carbon steel. All steel tongue. All metal parts thoroughly coated with asphaltum weather-proof paint. SPREADING V-LAKE on every machine WORTH \$15 on any spreader. COSTS YOU NOTHING EXTRA. INVINCIBLE. IRRESISTIBLE. PATENTED ROLLER FEED—AN EXCLUSIVE GALLOWAY FEATURE, makes it superior to all other feeds on all other machines—the SECRET OF OUR LIGHT DRAFT. The mechanical principle is the same as MOVING A HOUSE ON ROLLERS. THIS AGAIN ON the Galloway, costs you NOTHING EXTRA. PATENTED AUTOMATIC STOP uniform clean out push board WORTH \$10 EXTRA on any spreader. EXCLUSIVE on the Galloway, costs you NOTHING EXTRA. These are a few of the features you will find on the Galloway, which are PROTECTED BY GALLOWAY PATENTS. Don't buy a spreader of any make or kind until you have tried a genuine GALLOWAY 1917 MODEL No. 8. No. 1A or No. 8 at our risk, without obligating yourself in any way. Thirty days' field trial and returnable to us within one year if not perfectly satisfactory. Remember, we manufacture this spreader in our own factories and sell it direct from factory to farm. Do not confuse the Galloway spreader with lower priced machines made to sell for a price, which are all cheap, worthless imitations. Over 60,000 Galloway Spreaders in use. These and other features make the Galloway Spreader more invincible than ever in actual field work. No big, cumbersome, four-horse or three-horse team needed to handle a Galloway. Two average horses can spread with the Galloway anywhere. Complete particulars and details of this 1917 model spreader now ready. Ask for my big 250-PAGE CATALOG, also my FALL HAIL-GAIN BOOK. A postal gets them. WM. GALLOWAY, Pres., WM. GALLOWAY CO., 189 Galloway Station, Waterloo, Iowa

9 CORDS IN 10 HOURS



BY ONE MAN. It's KING OF THE WOODS. Saves money and backache. Send for FREE catalog No. B 44 showing low price and latest improvements. First order gets agency. Folding Sawing Machine Co., 161 West Harrison St., Chicago, Ill.

STEEL GIANT STUMP PULLERS



Pull all stumps. Powerful—fast. Write for Catalog No. M. La Plant Chain Mfg. Co., Cedar Rapids, Ia.

Farm Commerce.

Curing Meats for Home Use

CURING meats with brine is a good method for farm use. It is less trouble to pack the meat in a barrel and pour brine over it than to go over it three or four times and rub in salt, as in the dry-curing method. The brine also protects the meat from insects and vermin. Brine made of pure water and according to the directions in the following recipes should keep a reasonable length of time. During warm weather, however, brine should be watched closely, and if it becomes "ropy," like syrup, it should be boiled or new brine made. A cool, moist cellar is the best place for brine curing.

Pure water, salt, sugar or molasses, and saltpeter are all the ingredients needed for the ordinary curing of meat. The meat may be packed in large earthen jars or a clean hardwood barrel. The barrel or jar may be used repeatedly unless meat has spoiled in it. It should be scalded out thoroughly, however, each time before fresh meat is packed.

Curing should begin as soon as the meat is cooled and while it is still fresh. Ordinarily 24 to 36 hours after slaughter are sufficient for cooling. Frozen meat should not be salted, as the frost prevents proper penetration of the salt and uneven curing results.

Corned Beef.

The pieces commonly used for corning are the plate, rump, cross ribs, and brisket, or, in other words, the cheaper cuts of meat. The loin, ribs, and other fancy cuts are more often used fresh. The pieces for corning should be cut into convenient-sized joints, say five or six inches square. It should be the aim to cut them all about the same thickness so that they will make an even layer in the barrel.

Meat from fat animals makes choicer corned beef than that from poor animals. When the meat is cooled thoroughly it should be corning as soon as possible, as any decay in the meat is likely to spoil the brine during the corning process. Under no circumstances should the meat be brined while it is frozen. Weigh out the meat and allow eight pounds of salt to each 100 pounds; sprinkle a layer of salt one-quarter of an inch in depth over the bottom of the barrel; pack in as closely as possible the cuts of meat, making a layer five or six inches in thickness; then put on a layer of salt, following that with another layer of meat; repeat until the meat and salt have all been packed in the barrel, care being used to reserve salt enough for a good layer over the top. After the package has stood overnight add, for every 100 pounds of meat, four pounds of sugar, and four ounces of saltpeter dissolved in a gallon of tepid water. Three gallons more of water should be sufficient to cover this quantity. In case more or less than 100 pounds of meat is to be corning, make the brine in the proportion given. A loose board cover, weighted down with a heavy stone or piece of iron, should be put on the meat to keep all of it under the brine. In case any should project, rust would start and the brine would spoil in a short time.

It is not necessary to boil the brine except in warm weather. If the meat has been corning during the winter and must be kept into the summer season, it would be well to watch the brine closely during the spring, as it is more likely to spoil at that time than at any other season. If the brine appears to be ropy or does not drip freely from the finger when immersed and lifted it should be turned off and new brine added after carefully washing the meat.

The sugar or molasses in the brine has a tendency to ferment, and unless the brine is kept in a cool place, there is sometimes trouble from this source. The meat should be kept in the brine 28 to 40 days to secure thorough corning.

Dried Beef.

The round commonly is used for dried beef, the inside of the thigh being considered the choicest piece, as it is slightly more tender than the outside of the round. The round should be cut lengthwise of the grain of the meat in preparing for dried beef, so that the muscle fibers may be cut crosswise when the dried beef is sliced for table use. A tight jar or crock is necessary for curing. The process is as follows: To each 100 pounds of meat weight out five pounds of salt, three pounds of granulated sugar, and two pounds of saltpeter; mix thoroughly together. Rub the meat on all surfaces with a third of the mixture and pack it in the jar as tightly as possible. Allow it to remain three days, when they should be removed and rubbed again with another third of the mixture. In repacking, put at the bottom the pieces that were on top the first time. Let stand for three days, when they should be removed and rubbed with the remaining third of the mixture and allowed to stand for three days more. The meat is then ready to be removed from the pickle. The liquid forming in the jars should not be removed, but the meat should be repacked in the liquid each time. After being removed from the pickle the

meat should be smoked and hung in a dry attic or near the kitchen fire where the water will evaporate from it. It may be used at any time after smoking, although the longer it hangs in the dry atmosphere the drier it will get. The drier the climate, in general, the more easily meats can be dried. In arid regions good dried meat can be made by exposing it fresh to the air, with protection from flies.

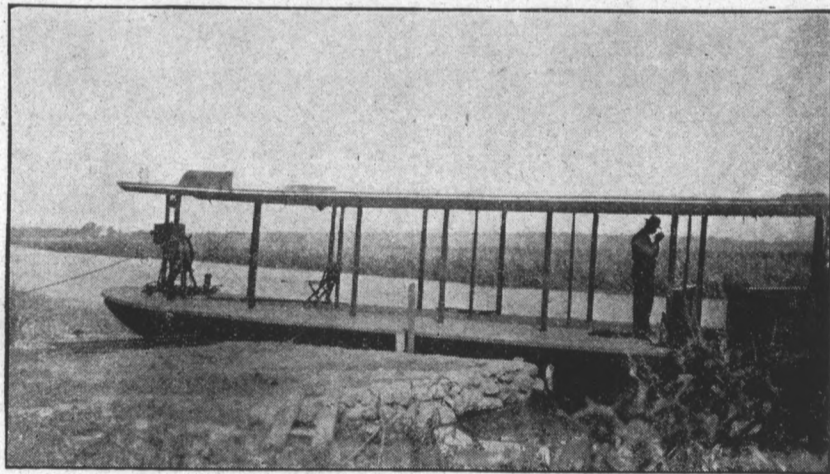
Plain Salt Pork.

Rub each piece of meat with fine common salt and pack closely in a barrel. Let stand overnight. The next day weigh out 10 pounds of salt and two ounces of saltpeter to each 100 pounds of meat and dissolve in four gallons of boiling water. Pour this brine over the meat when cold, cover and weight down to keep it under the brine. Meat will pack best if cut into pieces about six inches square. The pork should be kept in the brine until used.

Sugar-cured Hams and Bacon.

When the meat is cooled, rub each piece with salt and allow it to drain over night. Then pack it in a barrel with the hams and shoulders in the bottom, using the strips of bacon to fill in between or to put on top. Weigh out for each 100 pounds of meat eight pounds of salt, two pounds of brown sugar, and two ounces of saltpeter. Dissolve all in four gallons of water, and cover the meat with the brine. For summer use it will be safest to boil the brine before using. In that case it should be cooled thoroughly before it is used. For winter curing it is not necessary to boil the brine. Bacon strips should remain in this brine four to six weeks; hams six to eight weeks. This is a standard recipe and has given the best of satisfaction. Hams and bacon cured in the spring will keep right through the summer after they are smoked. The meat will be sweet and palatable if smoked properly, and the flavor will be good.

Capitalizing a Natural Advantage



HERE is a type of gasoline power from the farm packing house to the boat used on Kalamazoo river boat landing. It saves the farmer the to gather fruits from the adjoining farms. This boat, when loaded with fruit is billed from the river landing, kinds of marketable fruit, runs to deep water, transfers its cargo to a huge lake liner. The fruit is hauled direct

J. L. GRAFF.

Advertising Farm Crops I.

By I. J. MATTHEWS

AN advertisement is the connecting link between a producer and a consumer, and many farm products go back into the ground for the lack of this link. In order to "cash in" on the work already done by our experiment stations and agricultural colleges in increasing the output of the average American acre, farm products must be advertised.

Advertisements must do the first two, and may do all the following four things: First, they must attract the attention of the reader; second, they must interest the reader; third, they

should convince him that the advertised article is what he has been looking for, and, fourth, the successful advertisement ought to move the prospective customer to action and cause him to mail his order. In these respects, farm advertising is not different from other advertising but because the average farm cannot supply products the year around and because these articles cannot be supplied in quantities, the methods of advertising farm products must be somewhat different than those employed in disposing of manufactured commodities such

as chairs or tables that can be had throughout the entire year and in whose manufacture the supply can quite easily be increased to meet a growing demand.

Despite the fact that the farming business yields so few crops that are capable of continuous publicity, the actual make-up of such advertising copy does not vary materially from that employed in selling other articles from chewing gum, to automobiles. Legitimate methods of selling farm-produced commodities are in some use of periodicals, bill-boards, letter-heads, calling cards and trade-marks.

Probably the chief reason why farm products have been largely unadvertised except in a farmer-to-dealer, or farmer-to-customer way, is because the farmer has produced such a small quantity of any given product that he has not seen the necessity of building up a confidence in and desire for his wares. In apples, the farmer having only a small orchard knows that he will never have more than three or four hundred bushels of apples to dispose of and hence he has seen fit to indulge in "stovepipe" packs and other practices bent on deceiving the buyer so that the apples might command a higher price than they merited. Farmers are only beginning to learn that trade is built on confidence and that the sales of twenty years from now are dependent upon the quality of the goods delivered this year. When this knowledge becomes common property and each farmer specializes in dairy cattle, market eggs, beef cattle, apples, seed corn or some other special line of agriculture, then and not until then will it pay to advertise the farm business. Advertising must always be preceded by the production of a commodity that will bear publicity and scrutiny. That done, selling is next in order.

Under the present conditions of diversified farming and other tendencies resulting from the act of the federal Department of Agriculture in recommending such systems, the dairyman who sells milk and its products, the poultryman selling eggs and various poultry by-products and the orchardist are practically the only types of farmers that can use the continuous magazine or periodical advertisement profitably. Breeders of different types of cattle, breeds of draft horses, sheep etc., can use some form of periodical advertising but it must be in a class periodical; in other words, it surely pays these men to advertise in a periodical that regularly goes to the farming class because this class wants what these men have to offer.

The monthly magazines have not been used, except in a very limited way, for any farm products publicity propaganda. It is possible to use space in these magazines to call attention to deserving products, but the article must, of necessity, be first-class and high-grade in every respect before such publicity would be at all warranted. The reason for this lies in the fact that the advertising rates of such publications are high and the number of readers who would likely be buyers of the advertised product are small. Such food materials as fruits, honey, eggs, and dairy products might be advertised through this medium, but before such a policy were carried out, a supply of very choice goods must needs be in sight to make quantity of sales an object.

Before advertising of farm-raised food products becomes general, buyers must purchase in larger quantities, there must be definite quality standards set and C. O. D. and credit systems must be improved.

(This is the first of a series of five articles on the above general theme).

The Bean Situation In the State

THE recent action by bean growers in recommending a \$5 minimum basis for October beans has aroused the men who buy, and particularly the ones who speculate in beans. They declare that the price is impossible and foolish and that growers are killing the goose that lays golden eggs so far as Michigan white pea beans are concerned. The jobbers just now (September 25), are quoting on a \$4 basis as an average in the state, making a difference of \$1 between jobber and grower.

Great differences of opinion still exist between buyer and seller as to what the Michigan bean crop will amount to. Frosts have come but the jobbers maintain that no damage to speak of was done. No threshing except odd jobs has been done, so the market for the new crop has not fairly opened. Jobbers claim that there are still 150 cars of old beans in Michigan, that they can get California beans laid down here for much less than the minimum price as fixed by the Michigan growers, and that the beans of other western states will be available.

Bean growers have showed no signs of fright as yet. A big noise was made last year when growers set the price at \$3 but the jobbers who cleaned up later at \$6 and \$7 have forgotten this.

"We expect the growers will assist in keeping the price where the state association decided it ought to be," says the Montcalm County Growers' Association. "We have nothing to say against the bean jobbers. Most of them are gentlemen and, of course, it is rather annoying to them to have these growers getting together, as they have this year and last, to have something to say about what their product ought to be worth. It is something the jobbers have not been used to. It does not leave much chance for speculation, but they will have to get used to it, for the growers' association has come to stay."

President A. B. Cook of the State

Growers' Association, says there is much sentiment in favor of establishing co-operative elevators or storage places for farmers who feel that they must market their crop soon. Banks would accept warehouse certificates and advance the cash on same, which would put farmers in position to hold their crop for the higher market. Mr. Cook hopes, however, that business may be done with the jobber on terms fair to both parties.

Newspapers of the state do not seem disposed to criticize the growers and the Pontiac Press Gazette, in an editorial which has been widely copied by other papers, says in part: "It occurs to us that it is quite as fair for the farmers of Michigan to pool their issues as represented by the bean crop, as it is for that vast horde of others who sell to the farmers and who do not hesitate to 'fix prices.' There are the railroads which maintain a uniform freight and passenger rate, due to pools and agreements. There are the telephone companies which have their traffic agreements which determine prices. There are the boat lines which make uniform charges. There are the labor unions and the brotherhoods which stipulate what wages shall be paid to members and under what conditions they shall work, and how long. Then there is all the vast horde of 'gentlemen's agreements,' secret and open, and the associations, federations and combinations of every name and nature, the one and sole object of which is the boosting of prices as high as the traffic will bear.

"Why do the farmers stand in any different relationship to the public than all the rest? This noise about a 'farmers' trust' is not without its decidedly humorous aspect when we behold its origin in sources that have been 'price fixers' these many years. What is sauce for the goose surely must be sauce for the gander."

Kent Co.

ALMOND GRIFFEN.

Dividends of
real tobacco
happiness for
you, via



IRON TAIL,
the distinguished Indian, whose
face adorns the Buffalo nickel,
one of the star attractions, until
his death, with "101 Ranch" and
"Buffalo Bill's Wild West"
shows combined.

Copyright 1916 by
R. J. Reynolds Tobacco Co.

why it hits the cheer-up spot in your system, sunrise-to-taps! Just does pour in the smokesunshine, it's so chummy to the fussiest taste and tenderest tongue!



You put a pipe on the job with Prince Albert for "packing" and find out for yourself that P. A. will beat your fondest expectations of tobacco enjoyment for flavor, fragrance and coolness!

Buy Prince Albert everywhere tobacco is sold
in top red bags, 5c; tidy red tins, 10c;
handsome pound and half-pound tin humidors
and in that clever pound crystal-glass humidor
with sponge-moistener top that keeps the tobacco in such fine condition.

R. J. REYNOLDS TOBACCO CO.
Winston-Salem, N. C.

Studebaker

Has Been Continuously Making
WAGONS—BUGGIES—HARNESS
for Every Farm Use Since 1852

SEE THE STUDEBAKER DEALER

Farms and Farm Lands For Sale

**This New Farm
Ready For You**

Ready to live on and cultivate; new house and barn, well, fencing, etc.; one fresh, high grade cow, two blooded pigs, dozen chickens. Crop plan and help of our farm experts will guide you from planting to marketing. By your success and shipments our profits will be measured.

**In Dixie Corn Belt
On Carolina's Coast**

Long settled community, good roads, schools, churches, thriving town nearby; big yields grains, grasses, clovers, fruits, vegetables; splendid live stock section. Seaboard carries products quickly to great market centers. Land values increasing. 25 acres, \$2,100; 50 acres, \$2,750; 100 acres, \$4,100; —part of each farm just cleared, and improved as above. Easy terms—write today for particulars.

**B. L. Hamner, Gen. Dev. Agt.
Seaboard Air Line Railway Co.
759 Royster Bldg., Norfolk, Va.**



235 Acres, 3 1/2 miles from Battle Creek, Mich. sold at auction October 14th. For further particulars, address C. Van Gieson, Owner, Battle Creek, Mich.

\$400 Down Secures

150 Acre Dairy Farm

20-cow pasture, 75 fertile tillage; said to be wood and timber to pay for farm, a lot of apples; only 1/4 mile to school, 6-rm house, 40-ft. barn, spring water. City owner makes quick sale price \$1200 with 1/4 down. One crop of potatoes should pay for it. For traveling instructions see page 17. "Strout's Big Bunch of Bargains," copy free. E. A. STROUT, FARM AGENCY, Dept. 101, 150 Nassau St., New York.

FARMS Before buying, investigate Alabama farms. They are unsurpassed by farms in any other part of the U. S. Fine climate; long farming season, making two crops possible; good water and plenty of it; mild winters; the stockman's haven—come and see. Lands from \$7.50 to \$40.00 per acre. Never again so cheap. Let us show them to you. **H. V. HUDSON, Livingston, Ala.**

New Land,

In Gladwin and Midland Counties, Michigan. Well located. Low prices and easy terms. **Stafford Bros. (owners), 15 Merrill Bldg., Saginaw, (west-side), Mich.**

Fine Dairy Farm For Sale—160 acres, cultivated, close to city in Michigan, stone roads, school, etc. Modern Dairy barn equipped with milking machine, cows, horses and other farm stock. Farm tools and equipment. Three houses, milk house, barns, sheds, etc. Milk routes and wagons. Price and terms reasonable, rare bargain. Address Box 517, In Care Michigan Farmer.

160 Acres, level clay loam, no waste, pastured, level, with creek, timber, modern dwelling, basement barn, good repair, \$70.00 acre, terms. **Glasco, The Farm Man, Greenville, Mich.**

THREE Grain and Stock Farms. Good Land, good buildings, cows, horses, sheep, hogs, machinery, 525 acres, including stock. Write me, Shaban, Port Henry, N.Y.

Will Exchange my equity in a double house located in Marion, Ohio, for a small Michigan farm, near some body of water preferred. For full particulars write Wm. F. Strawser, 525-5th St., Detroit, Mich.

Markets.

GRAINS AND SEEDS.

October 3, 1916.

Wheat.—Last week's advanced prices for wheat have been maintained. The statistical situation in the wheat trade seemed to favor dealing, not only on the present level, but rather point to a higher basis of operations. Primary receipts reported on Monday ran over a half million bushels less than for the corresponding time a year ago. Foreigners are buying on every dip of the market and the demand from abroad will require an unusually large amount of the grain before being satisfied. Millers and exporters are competing for the cash offerings. Reports from Argentine are also very bullish, heavy damage having been done by dry weather. A year ago No. 2 red wheat was quoted on the Detroit market at \$1.07 per bushel. Last week's Detroit quotations were:

	No. 2	No. 1	
	Red.	White.	Dec.
Wednesday	1.54	1.49	1.56½
Thursday	1.56	1.51	1.58½
Friday	1.55½	1.50½	1.58
Saturday	1.55½	1.50½	1.57½
Monday	1.57½	1.52½	1.60
Tuesday	1.59½	1.54½	1.63

Chicago.—Dec. wheat \$1.58¾; May \$1.57¾.

Corn.—Another cent has been added to corn prices this week. A good general demand exists which, with the shortage of the crop and the small wheat yields ought to keep values on a high level. New corn is being offered in some parts of the corn belt. Lack of cars prevents a freer movement of the grain. A year ago No. 3 corn was quoted at 64c per bushel. Last week's Detroit quotations were:

	No. 3	No. 3	
	Mixed.	Yellow.	
Wednesday	87½	89	
Thursday	88½	90	
Friday	88½	90	
Saturday	88½	90	
Monday	88½	91	
Tuesday	89	91½	

Chicago.—December corn 74½c per bushel; May 77½c.

Oats.—This cereal is firmer at fractionally higher quotations. The influence of corn and wheat are felt in the trade, although foreign buying and the expectation of heavy exports has added to the firmness of the trade. Standard oats a year ago were quoted at 39½c per bushel. Last week's prices were:

	Standard.	No. 3	
		White.	
Wednesday	51	50	
Thursday	51	50	
Friday	51½	50½	
Saturday	51½	50½	
Monday	51½	50½	
Tuesday	51½	50½	

Chicago.—December oats 48½c per bushel; May 51½c.

Rye.—Market is steady and inactive. Prices a cent above last week's quotations; No. 2 cash being quoted Tuesday at \$1.24 per bushel.

Beans.—There is lacking the usual activity in this trade due, of course, to the very small crop and the prevailing high prices. Bean threshing has only begun but results indicate that estimates are as yet plenty high. On the Detroit market cash beans are quoted at \$4.90 and October at \$4.75. At Chicago pea beans are quoted at \$6.25 and red kidneys \$5.75 per bushel.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$8.40; seconds \$8.20; straight \$8; spring patent \$8.90; rye flour \$7.40 per bbl.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$26.50; standard middlings \$28; fine middlings \$35; cracked corn \$39; coarse corn meal \$30; corn and oat chop \$34 per ton.

DAIRY AND POULTRY PRODUCTS.

Butter.—Butter is in active demand and higher. Creamery extra 33c; do. firsts 31½c; dairy 25c; packing stock 24½c per lb.

Eggs.—Prices are higher; receipts are holding up well and quality is improved. Market is firm at 34c per lb.

Chicago.—Market is firm and higher. A good demand exists and storage stock is being drawn on. Creamery extras quoted at 34c; extra firsts 33½c per lb; firsts 32@33c.

Eggs.—Candled eggs are ½c higher and in demand; other kinds are unchanged. Firsts 31c; current receipts 28½c.

Chicago.—Market steady and higher. Trade is good for fine eggs. Ordinary lots are slow. Firsts 30@31c; ordi-

nary firsts 28½@29½c; at mark, cases included 22@29½c; firsts, storage paid 28½@28¾c.

New York.—Fresh gathered extra fine 38@39c; extra firsts 36@37c per dozen; firsts 32½@35c.

Poultry.—The market is easy and prices are lower. Live broilers 18@19c; No. 1 hens 18c; others 16@17c; ducks 17c; geese 13@14c; turkeys 24@25c per lb.

Chicago.—Liberal receipts brought lower prices for fowls. Springers are 1c higher. Turkeys 25c; fowls 15½@16c for general run; extra heavy 17½c per lb; light weight 14½@15c; roosters 13c; springers 19c; ducks 15c; geese 14@17c.

FRUITS AND VEGETABLES.

Apples.—Market is firm and prices are higher. Barreled stock \$3.50@4 or fancy; choice \$2@2.75; No. 2. 50c @ \$1 per bushel. At Chicago a steady feeling prevails for fancy stock which sells for \$2.75@4.50 per bbl; No. 2 stock \$1.50@2.

Pears.—Bartletts are steady at \$1.50 @1.75 per bushel; other kinds \$1@1.25. At Chicago pears are in good supply and No. 1 Bartletts bring \$5.50 @6.50 per bbl; Seckle \$3@4.50; other kinds \$2@3; No. 2 all kinds \$1.50@3.

Peaches.—Peaches are easy and lower. Fancy \$1.50; AA, \$1.25; A, \$1; B, 50c@1. At Chicago Michigan Smocks are selling at 25c@1 per bu; one-fifth bushel baskets 15@18c.

Grapes.—Delewares and Niagaras sell for 22@23c per pony basket, and Concord at 14@15c. At Chicago the market is steady and prices are higher. Concord in 8-lb. baskets (6@6¾ lbs. net) bring 19@20c; Delewares 22 @25c; Niagaras 15@18c.

Potatoes.—At Detroit potatoes in car lots bring \$1.40@1.50 for round and \$1.25@1.35 for long. No Michigan potatoes are quoted at Chicago but others bring from \$1.10@1.35 per bushel. At Greenville the farmers are getting \$1.05. The quality is improving but the movement is light for this time of the year.

GRAND RAPIDS.

The egg market keeps advancing, with quotations now at 32c. No. 1 dairy butter is worth 26c. Apples sell on the city market in a small way at 60@80c, and some sales of orchards of winter apples are reported in this vicinity at \$1 per 100 lbs. The peach season is almost over, with sales now around \$1.50 per bushel. Hay is \$1 per ton higher, with sales now at \$10@12. Potatoes have been quoted around \$1 per bushel at some of the buying points during the past week and 90c at other places. Heavy frosts have killed the vines and some damage may have resulted, though most of the late crop was pretty well along. Local bean dealers still insist that the \$5 minimum price that is talked of by the growers is unreasonable and buyer and seller seem to be about \$1 per bushel apart as yet. No. 2 red wheat is \$1.47; rye \$1.10; corn 90c; oats 50c.

DETROIT EASTERN MARKET.

There was the usually large market Tuesday morning, with prices holding firm in most lines. Tomatoes \$1@1.75; peaches \$1@1.60; apples 75c@1.25; grapes \$1.25; onions \$1.65@1.75; cabbage \$1.65@1.80; carrots \$1.50 @1.60; eggs 42@45c; butter 45c; small Leghorn chickens were offered at \$1 per pair; loose hay \$18@20 per ton.

LIVE STOCK MARKETS.

Buffalo.

October 2, 1916.
(Special Report of Dunning & Stevens, New York Central Stock Yards, Buffalo, N. Y.)

Cattle.—Receipts 180 cars; choice grades steady, and medium 15@25c lower; choice to prime native steers \$9.50@10.25; good to choice \$8.25@8.50; fair to good \$7.50@8; plain to coarse \$7@7.25; Canadian steers, 1300 to 1400 lbs., \$8.25@8.75; do. 1250 to 1350 lbs., \$7.75@8; do. mixed heifers and steers \$7.25@7.50; yearlings, dry-fed \$9.50@10; best handy steers \$7.25 @7.75; light butcher steers and heifers, mixed \$7@7.25; western heifers \$6.50@7; best fat cows \$6.50@7; butcher cows \$5.25@5.75; cutters \$4.25@4.50; canners \$3.50@4; fancy bulls \$6.75@7; butcher bulls \$6@6.25; common bulls \$5@5.25; good stockers \$6.25@6.50; light common stockers \$5.25@5.50; feeders \$6.50@7; milkers and springers \$65@100.

Hogs.—Receipts 90; market 15c lower; heavy \$10.40@10.50; mixed and yorkers \$10@10.25; pigs \$9.25@9.50.

Sheep and Lambs.—Receipts 35 cars; steady; top lambs \$10.40@10.50; few at \$10.60; yearlings \$8.50@9; wethers \$7.75@8; ewes \$7.25@7.50.

Calves.—Receipts 900; steady; top lambs \$13; fair to good \$12@12.50; fed \$5@5.50.



President Wilson Signing the Rural Credits Act

President Wilson

Has Won Real Freedom—
Has Secured Prosperity—

For the Farmer.

The Wilson Administration is the first that has dared to make common cause with the farmer against the usurer, the fake middleman, and the other human pests who in the past have grown rich on the fruits of the farmer's toil.

FOR the first time in our national history the farmer has been freed from the domination of the extortioner and slavery to the favored few. Under President Wilson the farmer has been treated as a *business man*, and accorded his full rights and advantages. Under the Wilson administration the average annual farm wealth production has been \$10,000,000,000—over a billion dollars more than the best previous showing. And the farmer has enjoyed the financial fruits of his work.

President Wilson Has Maintained Peace With Honor

No greater service has ever been rendered to any country by any man in any time. This alone warrants your supporting him. On the record of his administration's service to *you*, see what has been accomplished. In brief, here is the record:

1—Appreciation of the importance of agriculture has been shown through greatly and intelligently increased appropriations for its support.

2—Greatly increased provision has been made, through the enactment of the Cooperative Agricultural Extension Act, for conveying agricultural information to farmers and for inducing them to apply it.

3—Through the creation of an Office of Markets and Rural Organization, systematic provision has, for the first time, been made toward the solution of problems in that important half of agriculture which concerns Distribution—marketing, rural finance and rural organization. The appropriations for this Office, including those for enforcing new laws designed to promote better marketing, have been increased to \$1,200,000.

4—The United States Grain Standards Act will secure uniformity in the grading of grain, enable the farmer to obtain fairer prices for his product, and afford him an incentive to raise better grades of grain.

5—The United States Warehouse Act will enable the Department of Agriculture to license bonded warehouses in various states. It will lead to the development of better storage facilities for staple crops and will make possible the issuance of reliable warehouse receipts which will be widely and easily negotiable.

6—The Federal Aid Road Act will conduce to the establishment of more effective highway machinery, stimulate larger production and better marketing, promotes a fuller and more attractive rural life.

7—The Federal Reserve Act benefits the farmer by guaranteeing better banking, safeguarding the credit structure of the country and preventing panics, making larger provision for loans through national banks on farm mortgages and by giving farm paper a maturity period of 6 months.

The Federal Farm Loan Act

8—It was essential, however, that banking machinery be devised which would reach intimately into the rural districts, that it should operate on terms suited to the farmers' needs, and should be under sympathetic management. The need was for machinery which would introduce business methods into farm finance, bring order out of chaos, reduce the cost of handling farm loans, place upon the market mortgages which would be a safe investment for private funds, attract into agricultural operations a fair share of the capital of the nation, and lead to a reduction of interest. These needs and these ideals have been met by the enactment of the Federal Farm Loan Act.

This is not all but it is enough to indicate what has been accomplished.

That is Why the Farmer Will Vote
To Retain President Wilson In Office

This advertisement is published and paid for by the Democratic National Committee, 12nd St., Bldg., N. Y.

CHICAGO LIVE STOCK MARKETS.

October 2, 1916.

Cattle. Hogs. Sheep.

Receipts today..24,000 37,000 42,000
 Same day 1915..16,815 16,720 19,640
 Last week.....64,064 138,754 121,843
 Same wk 1915..46,235 99,725 82,650

Shipments from here last week embraced 17,166 cattle, 9,185 hogs and 32,190 sheep and lambs, comparing with 3,381 cattle, 21,693 hogs and 5,504 sheep and lambs for the same time last year. The hogs received averaged only 218 lbs.

This week opens with the worst hog market yet experienced, prices showing a further decline of 25c, and the best selling at \$10.25. Sheep and lambs show weakness, with the best feeding lambs going at \$10 and much lower prices talked of for prime range killing lambs. The packers received direct 5,500 hogs and 12,000 lambs. About 7,000 northern range cattle arrived.

Cattle receipts last week were on a liberal scale once more, although far smaller than the rarely equaled enormous supplies furnished a week earlier. Far more cattle were offered than for corresponding weeks in recent years, the offerings including the customary liberal supplies of grassers, with a generous representation from the northern range country. The corn-fed lots were too largely on the short-fed or warmed-up order, and because of the great scarcity of choice corn-fed cattle—both heavy steers and prime little yearlings—all such offerings sold especially well. By Thursday there was a rather general weakening in values, the better class of cattle excepted, but steers worth over \$9 sold at 15¢-25¢ higher prices than at the close of the previous week. The bulk of the steers received during the week brought \$7.25@10.75, with the choicer class of weighty cattle taken at a range of \$10.50@11.25, while cattle classed as good brought \$9.75@10.45, with sales of medium grade steers at \$8.50@9.70. Fair light-weight killing steers brought \$7.50@8.45, and inferior grassers sold at \$5.50@7.45. Good to prime yearling steers found a good outlet at \$9.50@11.10, with not many selling near the top price. Butchering lots of cows and heifers sold freely on the basis of \$5.10@8 for the former and \$4.50@9.50 for the latter, with an occasional sale of a fancy little yearling heifer at \$9.75@10 or even higher. Cutters brought \$4.45@5, canners \$3.50@4.40 and bulls \$4.75@8. Calves sold at an extremely wide range of prices, buyers paying higher figures for the best light vealers. Heavy calves sold at \$4.75@9.50, while light vealers brought \$11@13. Stockers and feeders were lower priced and only moderately animated at \$5@7.50. Western range cattle were plentiful for these times, and steers sold at \$6.50@9.65 for common to prime lots, few going near the top.

Hogs were marketed much more freely last week, and the demand continued mainly of a local character, with eastern shippers taking hold conservatively. The market developed a remarkably bearish tendency, and the declines in prices that were started during the previous week were followed up by further severe declines, causing much wonderment as to whether the latter part of the year is to witness a much lower range of values, with liberal receipts of spring pigs. Some observers of the hog trade are predicting marked gains in receipts of pigs and light hogs and a gradually increasing premium for heavy hogs. The market was its worst on Saturday when hogs sold at \$9.25@10.50 for the coarse heavy packers to prime selected butcher weights, while pigs brought \$6.50@9.35. The best hogs sold more than \$1 per 100 lbs. below the high time of a few weeks ago. Armour & Co., it was stated, received 7,000 hogs direct on Saturday from other markets.

Sheep, yearlings and lambs have been selling recently at much lower prices than heretofore, because of increased receipts in Chicago and other western markets, and the declines have taken in range feeding lambs as well as in breeding ewes and fat killing offerings. The weakness was intensified by the practice of the big packing firms of bringing in large numbers of range killing lambs consigned to them direct from other markets. Prices closed as follows: Lambs \$7.50@10.30; feeding lambs \$9.25@10.15; yearlings \$7.25@8.75; wethers \$7.25@8.25; ewes \$3@7.25; bucks \$4@6. Feeders bought yearlings at \$7.50@8.60, ewes at \$5@6.25 and wethers at \$7@7.25. Fat lambs closed 50¢-75¢ lower than a week earlier, while wethers and yearlings were 25¢-50¢ lower. Best range feeding lambs were 35¢ lower. Breeding ewes sold at \$7@9.75.

THIS IS THE LAST EDITION.

The first edition is sent to those who have not expressed a desire for the latest markets. The late market edition will be sent on request at any time.

DETROIT LIVE STOCK MARKET.

Thursday's Market.

October 5, 1916.

Cattle.

Receipts 2774. There was another heavy supply of cattle on hand this week, although some of the common stuff of last week had not all been disposed of up to Tuesday. The quality was very common, a large portion of the receipts being light stocking grades that should never be sent to market.

The trade in this department on everything but canners and best prime steers was 25¢-35¢ lower than last week, when it was thought they had sustained quite a strong break. Stocker buyers were more plentiful this week and helped out nicely. On Thursday the receipts dropped off and at the close the market was dull at the decline. Best heavy steers \$8@8.25; best handy weight butcher strs \$6.75@7.25; mixed steers and heifers \$6.25@6.75; handy light butchers \$5.75@6; light butchers \$5.25@5.75; best cows \$5.75@6; butcher cows \$5@5.50; common cows \$4.50@5; canners \$3.50@4.25; best heavy bulls \$5.50@6; bologna bulls \$5@5.50; stock bulls \$4.50@5; feeders \$6@7; stockers \$4.50@6.25; milkers and springers \$4@8.00.

Bishop, B. & H. sold Kull 3 butchers av 917 at \$6, 7 do av 700 at \$5, 3 do av 1053 at \$6, 7 do av 1093 at \$7; to Parker, W. & Co. 5 cows av 940 at \$4.15, 3 do av 950 at \$4.25, 8 butchers av 635 at \$5.25, 23 steers av 1130 at \$7.40, 2 butchers av 770 at \$4.15, 11 do av 877 at \$4.15, 4 cows av 1082 at \$4.85, 1 do wgh 1080 at \$5.50, 2 do av 945 at \$4.25, 4 do av 842 at \$4.25, 5 do av 794 at \$5.50, 10 steers av 1000 at \$7; to Reede 10 feeders av 833 at \$6.25, 4 do av 735 at \$6; to Goose 19 butchers av 732 at \$5.10; to Mason B. Co. 9 steers av 963 at \$6.50; to Hammond, S. & Co. 30 butchers av 797 at \$6, 2 steers av 1025 at \$7.25, 2 bulls av 1150 at \$6; to Parker, W. & Co. 5 heifers av 580 at \$5, 2 cows av 965 at \$4.50, 3 do av 953 at \$4.25, 3 steers av 950 at \$6, 6 cows av 870 at \$4.50; to Allen 18 feeders av 880 at \$5.50, 9 do av 918 at \$6; to Sullivan P. Co. 9 butchers av 804 at \$5.

Erwin, S. & J. sold Hammond, S. & Co. 14 steers av 1066 at \$8; to Rattkowsky 10 butchers av 739 at \$5.25; to Sullivan P. Co. 9 cows av 1020 at \$4.25, 8 do av 1002 at \$5; to Parker, W. & Co. 6 do av 953 at \$4.85, 5 do av 894 at \$4.25, 1 do wgh 900 at \$5; to Hertler 8 feeders av 665 at \$6.25, 1 do wgh 600 at \$6; to Thompson 3 bulls av 1083 at \$5.30; to Belfert 2 steers av 780 at \$6.35, 4 do av 790 at \$6.25; to Hertler 3 feeders av 866 at \$6.10; to Thompson 10 steers av 1071 at \$7.65, 3 do av 1000 at \$7.25; to Denton 6 feeders av 806 at \$6.50; to Rattkowsky 2 cows av 920 at \$5.25; to Hammond, S. & Co. 9 do av 900 at \$4.25.

Veal Calves.

Receipts 821. The veal calf trade for anything good was about the same as last week, but common and medium grades were lower and heavy grades fully 50¢ lower, this class selling at from \$5@7.50, a few extra fancy ones brought \$13, but the bulk of the good sold at \$11.50@12.50.

Haley & M. sold Nagle P. Co. 1 wgh 170 at \$12.50, 1 wgh 130 at \$12, 2 av 175 at \$9; to Thompson 11 av 150 at \$12.50; to Mich. B. Co. 20 av 135 at \$12.25, 16 av 150 at \$12.25; to Thompson 1 wgh 110 at \$12.50, 1 wgh 200 at \$11.

Sheep and Lambs.

Receipts 5387. The sheep and lamb trade was active and 10¢-15¢ higher than they were early in the week. As usual, the quality was of the common order, but several bunches of good were here and brought \$10.15@10.25. The close was steady as follows: Best lambs \$9.75@10.25; fair lambs \$9@9.50; light to common lambs \$8@8.75; fair to good sheep \$6.25@7; culls and common \$4@5.

Erwin, S. & J. sold Nagle P. Co. 30 lambs av 80 at \$10; to Mich. B. Co. 13 do av 75 at \$9.85; to Sullivan P. Co. 19 sheep av 105 at \$6.25, 30 lambs av 55 at \$8.75, 14 do av 50 at \$8.50, 20 sheep av 95 at \$6.50, 55 lambs av 70 at \$9.85, 76 do av 80 at \$10.15, 28 do av 55 at \$8.50, 27 sheep av 110 at \$6.50.

Haley & M. sold Nagle P. Co. 48 lambs av 75 at \$9.75, 12 do av 85 at \$10, 9 sheep av 135 at \$6.75, 9 do av 130 at \$6.25.

Hogs.

Receipts 8544. In the hog department the trade was a trifle more active than on Wednesday and prices averaged about 10¢ higher. Yorkers and heavy \$9@9.25; pigs \$8.50@8.75. This is 50¢-75¢ per cwt. lower than they were at the same time a week ago.



Nine Times Out of Ten the Trouble is WORMS

Whenever there is sickness among your farm animals—when they are off-feed, dull-eyed, rough of coat, and don't gain as they should, look out for worms and indigestion, the cause of 90 per cent of all live stock losses. Keep your farm animals free from worms; your stock will thrive better on no more feed; there'll be less sickness, fewer losses and bigger profits.



SAL-VET is the world's most widely used and successful preparation for destroying worms. It is easy to give—no dosing, drenching or starving. Animals eat it freely and rid themselves of the deadly parasites.

Fill out the coupon and I will send you a valuable

SAL-VET Live Stock Book FREE

and give you the name of my near-by dealer, from whom you can get enough SAL-VET to last all of your stock sixty days. He will refund your money if SAL-VET fails to rid them of stomach and free intestinal worms and put the animals in good condition.

THE FEIL MFG. CO., Chemists
 Dept. 80 Cleveland, Ohio

PROOF!

"My hogs were coughing terribly, and there were cases of cholera within a mile from my farm. I began to feed SAL-VET and found my stock simply wild for it. The coughing has stopped and the pigs are doing well."

C. W. S. Northrup,
 Rt. 6, Smith Center, Kas.

Costs But Little

—only one-twelfth of a cent a day for each hog or sheep; one-third of a cent for each horse, mule or head of cattle.
 Sold only in packages of 10 lbs., 20 lbs., 45 lbs., 100 lbs., 200 lbs., 300 lbs.—never loose or by the lb.

THE FEIL MFG. CO., Chemists
 Dept. 80-10-7-16 Cleveland, Ohio
 Send me your Free Book on care of live stock.

I have.....hogs.....sheep.....horses and
 mules.....cattle.

Name.....
 P. O.....
 Shipping Sta.....State.....



It is natural for a hog to wallow. Provide a wallow close to the feeding grounds, to which add Dr. Hess Dip and Disinfectant occasionally. The hogs will constantly pass back and forth from the wallow to the feed trough; while the DIP will kill the lice and cleanse the skin, the DRIP will destroy the germs of disease and the worms that pollute the ground.

Dr. Hess Dip and Disinfectant

One gallon makes 70 to 100 gallons solution is excellent for sheep dipping; it is a guaranteed remedy for sheep scab and ticks; it destroys germs and foul odors—in short, its use as a disinfectant around your farm will keep away disease. Invaluable for disinfecting sinks, drains, troughs, garbage cans, outhouses, etc. Good alike for home and stable. Sold in pint bottles, quart, half-gallon, gallon cans and barrels.

1 gallon can \$1.00
 Smaller pkgs. as low as 25c
 Except in far West and Canada

Dr. Hess Fly Chaser
 Does not gum, color or blister.
 Makes stock comfortable.

DR. HESS & CLARK
 Ashland, Ohio

Auto Insurance Popular

Dr. Curney, of Durand, while visiting the State Fair, had his automobile burn. He was insured in the Citizens' Mutual Auto Insurance Company, of Howell. He has just received a check for his loss and is well pleased with the treatment by the company. He says he believes every farmer and business man should carry automobile insurance. In case of loss the company will pay all fair claims. Thirteen thousand five hundred members are now insured in the Citizens' Mutual Auto Insurance Company, of Howell, Michigan.

AGENTS WANTED
 for independent hollow-wire lighting systems for homes, stores, etc.; also complete line of lanterns and portable and street lamps. Use common gasoline.
AKRON GAS LAMPS
 are most improved, simplest and safest of all. Best and cheapest illumination known. Shed a clear, soft, bright, white light of high candle power. Fully Guaranteed. Handy demonstration outfit. Our Agency Proposition cannot be beat. Exclusive territory. Write quick for Catalog and Terms.
 Akron Gas Lamp Co., 635 So. High St., Akron, O.

Farm Seeds WANTED
 We are in the market and prepared to pay cash for any quantity of Timothy, Clover, Timothy and Clover mixed—also other field seed. Send us samples, description, state quantity you have and quote cash price per bushel f. o. b. your station. No lot too small nor too large. Address
 Hyde Seed Farms, Pattonburg, Missouri.

CLOVER SEED WANTED
 Red, Mammoth and Alsike also Timothy and Alsike mixed. Send samples and prices to O. M. SCOTT & SONS CO., 16 Sixth St., Marysville, Ohio.

BOOKS
 For Hunters, Trappers, Fur Traders, Taxidermists, Fishermen, Sportsmen, Campers, Prospectors, etc. Farmers, Ginseng and Golden Seal Growers, etc. Descriptive Booklet Free. A. R. HARDING, Publisher, 71 North Ohio Avenue, Columbus, Ohio.

RUFUS B. HOLMES CO.
 High and Riopelle Sts. Detroit, Mich.

Commission Merchants
 Poultry, Live or Dressed, Dressed Hogs, Calves, Sheep and Eggs. Reference, Peninsular Savings Bank, Sullivan Packing Co. Shipments Solicited. Satisfaction Guaranteed.

Farmers: We are now paying from three to nine cts. above the highest Official Detroit Market Quotation for eggs, shipped to us by express. Write us for information. It will pay you. AMERICAN BUTTER & CHEESE CO., Detroit, Mich.

HAY Ship To The Old Reliable House Daniel McCaffrey's Sons Co., 623-625 Wabash Bldg., Pittsburgh Pa.

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

Farms For Sale
 For sale, 120 acres general farming land in Mecosta Co., Mich. New 7 room house, barn 20x34, 10x34 silo, and other necessary out buildings, good well and windmill, small orchard, 2 1/2 miles from town, 3/4 miles from school. Price \$4,000. Box 64, Altona, Michigan.

Finest Small Fruit Farm. Southern Mich. Excellent location and shipping facilities, near St. Joseph, fine bldgs., water system, fully planted, tools, etc. Paul Marzillier, 521 Jackson, Milwaukee, Wis.

A RAZOR SNAP
 A new lot of fine quality Imported Razors at 40 cents while the supply lasts, is now offered by the Michigan Farmer.
 The razors are made of the best cutlery steel, five-eighth-inch blade, and black handle. We will not say just what these razors ordinarily retail at, as prices on razors vary with each dealer, but we have seen razors no better sold at \$1.25 and \$1.50.
 So, only while our present supply lasts the price is 40 cents each, post-paid, or a half-dozen at \$2.00, post-paid. Address all orders to the Michigan Farmer, Detroit, Mich.

NO MONEY IN ADVANCE

Special Farm Credit

Supply all your roofing needs now with the famous Hercules Roofing and pay for it when convenient. No money in advance—no deposit—no C. O. D.—no reference asked. Mail coupon at once for Roofing Book and full line of free samples so that you can select just the weight that is best suited to your needs.



Big Bargains In ROOFING

Hartman's, with capital and resources of over \$12,000,000, buy in such vast quantities that we can afford to sell highest quality guaranteed roofing actually cheaper than others ask for inferior qualities. Order all you want. We will ship it at once. Examine it carefully—lay it on your roof—and if perfectly satisfactory, pay one-tenth in 30 days; balance in nine equal monthly payments; or pay one-sixth within 60 days, balance in five equal payments at intervals of two months each, giving you

A FULL YEAR TO PAY

Hercules Flint Surfaced Roofing is positively proof against all kinds of weather. Rolls 108 sq. ft. Free nails and cement. Only a hammer needed to lay. Made in all plys and weights. Highest quality long fibre roofing felt saturated with pure asphalt. Both sides coated with very fine sharp particles of crystal, which are firmly imbedded under enormous pressure, giving extra strength and long life without repairs. Write for

FREE Roofing Catalog

Drop us a postal or mail coupon for Hartman's Roofing Bargain Catalog and a complete assortment of free samples. Get our low prices, and order on our Farm Credit Plan.

The Hartman Co.,

4043-45 LaSalle St. Chicago, Ill.

—FREE BOOK COUPON—

THE HARTMAN COMPANY,

4043-45 LaSalle Street, Chicago, Ill.

Without obligating me, send me your Roofing Catalog No. R-256—free samples of your Hercules Roofing, and particulars of your Farm Credit Selling Plan.

Name.....

Address.....



MORE MONEY

for tenant more money for owner, in our Active Fertilizers.

Just ask nearest office for booklet. Agents wanted.

The AMERICAN AGRICULTURAL CHEMICAL COMPANY

New York, Baltimore, Buffalo, Philadelphia, Boston, Detroit, Cincinnati, Cleveland, etc.

For Sale AGRICULTURAL LIMESTONE

running 98% pure. This lime is in ideal condition for applying to the soil, either mechanically or by hand. Write for prices in car lots or in small quantities. E. I. du Pont de Nemours & Co., Bay City, Michigan

LIME

Pulverized lime rock for "sour" soils. Write for LOW PRICES DIRECT TO YOU and we will send sample and full particulars. Write to office nearest you. LAKE SHORE LIME COMPANY, Muskegon, Mich., and Benton Harbor, Mich.

DOGS FOX, COON, SKUNK, AND RABBIT HOUNDS

Broke to gun and field, and guaranteed. Fox, coon & rabbit hound pups, from the best of stock—\$5.00 each. Stamp for photos. H. C. Lytle, Fredericksburg, Ohio.

FERRETS

3000 FERRETS FOR SALE Price list free. C. J. DIMICK, Rochester, Ohio.

2000 Ferrets They husterate and rabbits. Price list and booklet mailed free. N. E. KNAPP, Rochester, Ohio.

Ferrets For Sale. Fine Stock. Catalog and price list free. Write at once. C. M. Sackett, Dept. M. Ashland, O.

Feeding the Farm Flock

DESPITE the fact that most anyone can call to mind instances where success has been made with poultry when none of the methods employed were known as scientific or elaborate, experienced breeders and commercial poultrymen know that for best results up-to-date methods must be followed and that these successes are the exception. They have been successes in spite of, rather than because of the method employed.

Good Judgment Necessary.

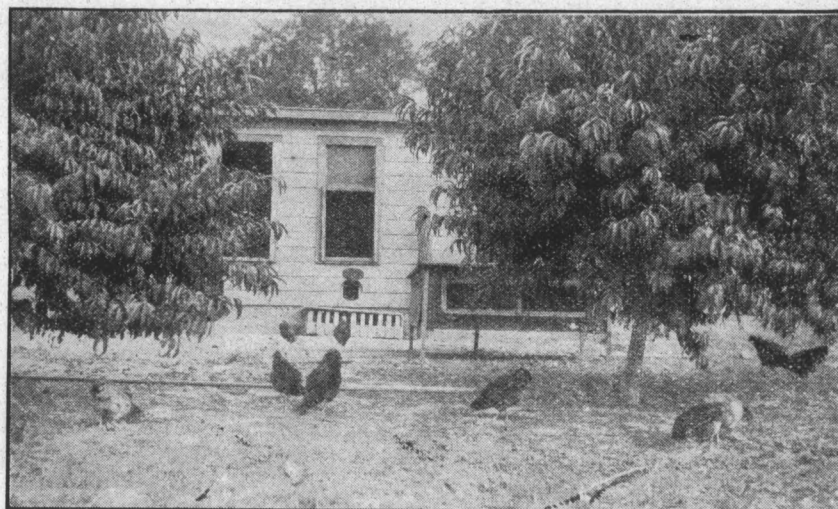
It is not the purpose of this article to deal with the complex, scientific principals underlying proper feeding, but rather to collect certain rules that have become common practice among the best commercial egg and poultry producers. The first of these is judgment. One man may know the last word in "balanced rations," scientific feeding and the like, and fall short of the result of the man who is ignorant of these things but who possesses a greater share of good judgment. Given a comparatively poor ration the latter will succeed where the former will fail. The personal touch, the constant attention to the condition and likes and dislikes of a flock of hens is one

feeding than because of its fat-forming propensities.

Why Corn is Fattening.

One of the chief reasons that corn is such a fat producer is because it is so readily digested. It is well liked by all kinds of fowl and its larger grain makes it easily found, and hens fed on whole corn are able to find a full feed in a comparatively short time. This promotes laziness and idleness which in itself is the condition required for the formation of fat. Cracked corn fed in a deep litter overcomes this tendency to a great degree and it should be the slogan of the feeder to make his hens work for their corn. Cracking corn does not change the chemical composition of corn but it does promote life and health in the flock if hid in litter.

Wheat bran is a valuable addition to the daily ration and any mash fed from hoppers should contain a large proportion of wheat bran. So long as its price does not go beyond a dollar and fifty cents per hundred pounds, and eggs stay at their usual market price, it is not an expensive feed. A mash composed of wheat bran, ground oats, middlings or ground corn, can be



Showing a Practical and Economical Method of Ventilating Chicken Houses with a Muslin Screen in the Upper Half of the Window.

of the poultryman's most valuable assets. It is possible to lay down a definite set of rules governing proper feedstuffs, but the feeding is a personal matter and cannot be put in black and white to cover each individual and condition. Conditions make the manner of feeding largely up to the person on whom rests the responsibility of the flock.

The Value of Corn.

Because of the necessity of heavy consumption of food that may be readily digested, whole grains form, or should form, the larger part of the ration for the heavy producing flock. The starting point of this ration on the average farm, is corn, because it is the grain that we are most apt to have, it is usually the cheapest and as a rule, is the most convenient. Many times corn is both the starting and the ending portion of the ration. Because we have it it is abused as a poultry food. It is considered a highly fattening food and flocks fed mainly of corn, especially the larger breeds, are more apt to put on fat than those fed a mixture of small grains and a mash of the bulkier rations. But so far as the nutritive value of corn itself is considered, it does not differ so greatly from wheat or barley. Corn furnishes heat and fat for the body and coloring matter for the egg yolk, with other ingredients in a lesser degree. Wheat also furnishes heat as well as albumen or the white of the egg and mineral matter that goes to make up bone. Bran makes albumen and minerals, is an excellent aid to digestion. Oats also generate heat, so we see that these foods that generate heat must, in some degree, also form fat. Corn is the greatest of these, but even corn is more abused through the manner of

fed to an advantage in every laying house. It is advisable to add meat scraps to this mash if clean sweet scraps can be secured. This meat scrap stimulates egg production and furnishes a substitute for similar matter picked up on the range in summer. Skim-milk, if fed in quantity, will keep down the bill for meat scrap.

A Variety Necessary for Laying Hens.

The practice for laying hens cannot be followed when the result aimed at is the fattening of poultry. This surplus poultry that is to be fattened needs every fat-forming element to be had. Whole corn fed in plain view, a mash that will add variety enough to keep the birds eating well, and plenty of milk and fresh water, fills the bill. With the laying hens, however, variety counts a great deal. Any of the above grains can be fed on the average farm because they are grown there, and it should be the aim of the farmer or poultryman to buy as little feed from outside sources as possible. By using judgment in the manner of feeding, and watching the condition and the likes and dislikes of the hen, she may be well and not too well fed by one who knows nothing and cares nothing for the so-called balanced ration.

W. C. SMITH.

EGG PRODUCTION IS STILL PROFITABLE.

The tendency of farm poultry raisers is to sell most of their poultry on account of the scarcity and high prices of grain. Country buyers say that in many cases the entire poultry flock is sold because of the idea that it does not pay to feed the hens high-priced grain.

This is an indication of the fact that

You Men Who Know Good Farm Land

GET the facts about the Louisiana Highlands. Get them NOW! Virgin soil that produces 50 bushels of oats and 60 bushels of corn. And only \$22 an acre! Learn why this is the biggest opportunity in farm land today and why the property is being offered at a price far below its true agricultural worth. Send for the big book mentioned below. Remember this is not the advertisement of a land selling agency but the announcement of a substantial corporation whose integrity you may easily investigate.

Only \$22 An Acre On Easy Terms

Climate mild the year around; rainfall certain. Land adapted to diversified farming. Conditions good for stock raising. Transportation facilities adequate; fine markets accessible. Several up-to-date towns with good schools, churches and all modern conveniences. Send for our big sixty-four page illustrated book—"Where Soil and Climate are Never Idle." It's free, absolutely without obligation. With it comes a map of Louisiana in full colors; plat of the land; and our latest Bulletin—all free to you. Send today and learn about the wonderful development now going on in this region. A postal brings it.



Directly affiliated with The Long-Bell Lumber Co.
429 R. A. Long Bldg. Kansas City, Mo.

POULTRY.

Barred Rocks Parks 200 egg strain. Cockerels for sale. Circular Free. Fred Astling, Constantine, Mich.

BREEDING COCKERELS { White, Brown, Buff, Black Leghorns, R. I. Reds, Barred Rocks. }
PULLETS—White, Buff, Black. Prices reasonable. Sunnybrook Poultry Farms, Hillsdale, Michigan.

Barred Rock Cockerels, Cocks and Hens. Four pullets lay 950 eggs in one year. W. C. Coffman, R. 3, Benton Harbor, Michigan.

GET YOUR ORDER IN EARLY FOR Cockerels from Cousins Northern King Strain Barred Rocks. Write David W. Cousins, North Port, Mich.

Buff Leghorns Exclusively. Now is the time to buy pure bred stock at a big reduction in price. Dr. William A. Smith, Petersburg, Michigan

JOHN'S Big Beautiful Barred Rocks are all hatched, developed quick, good layers, each \$3; pair \$5; sold on approval. Circulars, photos. John Norton, Clare, Mich.

FERRIS WHITE LEGHORNS
Best winter layers. 5000 pullets, hens and breeding males at low prices. Trapped to lay 200 eggs or more. Shipped C. O. D. and on approval. Chicks and Eggs. Catalog explains all. Send postal.
Geo. B. Ferris, 934 Union, Grand Rapids, Mich.

For Sale 250 pure bred S. C. W. Leghorn pullets, a and several fine cockerels from A No. 1 laying strain.
Geo. Misner, Fairgrove, Mich.

FOR SALE: 200 White Leghorn hens at \$1 each. 100 May hatched pullets at 75c each. Also disposing of our Barred Rocks (30 hens and 3 males). This is a good chance to secure some good foundation stock. Strain has been line bred for 25 years, heavy layers and prize winners. Cavanagh Poultry Farm, Lansing, Michigan.

FOR SALE Pure bred S. C. Buff Leghorns and white Plymouth Rock cockerels. Kietzien & Webster, Bath, Mich.

Fowlers' Buff Rocks: Prices reduced one son. Utility eggs \$1.75 for 15, \$1.50 for 30, \$2 for 50, \$3.50 for 100. R. B. FOWLER, Hartford, Mich.

Pine Crest, S. C. White Orpingtons. Bargain 4 yearling hens and cock, \$8, \$12 and \$15, just one half what they will cost next spring. MRS. WILLIS HOUGH, Pine Crest Farm, Royal Oak, Michigan.

Rose and Single comb Reds, young and old, for sale. Correspondence as to your Red needs invited. JENNIE BUELL, Ann Arbor, R. 8, Michigan.

RHODE ISLAND REDS and PLYMOUTH ROCKS. Males 5 to 12 lbs. according to age \$2 to \$5; P. R. hens weight 5 to 10 lbs., eggs 15 for \$1.00, 100, \$5; 120, \$6. Mammoth Bronze Tom Turkeys, 8 to 18 lbs. according to age \$5 to \$25, 10 eggs \$3. A. E. Cranton, Vassar, Mich.

RED COCKERELS, Both Combs. Dark red will improve the color of your flock. Write for price list. Interlakes Farm, Box 39, Lawrence, Michigan.

S. C. W. Leghorns
Write for prices on Cock birds, hens, cockerels and pullets. Everfresh Egg Farm, Box F, Ionia, Mich.

S. S. Hamburg Eggs son. Free delivery. R. O. white Leghorn hens \$1.00, Belgian Hare Bucks \$5.00 with Pedigree. RIVERVIEW FARM, Vassar, Mich.

SILVER GOLDEN AND WHITE WYANDOTTES. Eggs from all matings, 150 per 15, \$2.50 per 30 until July 1st. C. W. Browning, R. 2, Portland, Mich.

S. C. Buff Orpington Cockerels for breeding purposes. Prices reasonable. If interested write at once to Mrs. Calvin Fuller, Bancroft, Michigan.

White Wyandotte Cock & Cockerels. Eggs \$1.25, \$3. per 15, \$4 per 50, \$7 per 100. DAVID KAY, 202 Forest Ave., Ypsilanti, Michigan.

WHITE WYANDOTTES. Eggs \$1.50 per 15, \$2.50 per 30, \$7.00 per 100. From choice stock. A. FRANKLIN SMITH, Ann Arbor, Michigan.

White China Geese & M. Pekin Ducks
CLAUDIA BETTS, Hillsdale, Mich.



GOMBAULT'S CAUSTIC BALSAM

A safe, speedy and
positive cure for

Curb, Splint, Sweeney, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a HUMAN REMEDY for Rheumatism, Sprains, Sore Throat, etc., it is invaluable.

Every bottle of Caustic Balm sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

THE LAWRENCE-WILLIAMS COMPANY, Cleveland, Ohio.

DEATH TO HEAVES NEWTON'S

Heaves, Cough, Distemper
and Indigestion Cure.

Some cases cured by 1st or 2nd \$1 can.
Three cans are guaranteed to cure
heaves or money refunded.



The original and the up-to-date
Standard Veterinary Remedy for Heaves; free booklet
explains fully. 24 years sale and veterinary use.

**CURES HEAVES BY CORRECTING CAUSE—
INDIGESTION. IT'S A GRAND CONDI-
TIONER AND WORM EXPELLER**

Safe. Most economical. Excellent for Cattle and Hogs.
\$1.00 per can at dealers, at same price by parcel post.
THE NEWTON REMEDY CO., Toledo, Ohio

**\$1.50 Buys This Fine
Hunting Knife**

MARBLES "Woodcraft" is the biggest value
ever offered in a hunting knife.
Costs you only \$1.50, yet has the shape, weight,
quality and desirable features of \$2.50 and \$3.00
knives. Adapted for sticking, cleaning, skinning,
slicing, chopping bone, etc. Can also be used for
carving, butchering, pruning—anything. High-
grade steel—bevel blade thick at back, tapering to a
fine point. Handle of laminated leather. Absolutely
guaranteed. Price with leather sheath—\$1.50—at
your dealer's or direct by mail postpaid upon receipt
of price. Write for catalog Marble's 60 Outing Special-
ties. Marble Arms & Mfg. Co., 5510
Delta Ave., Gladstone, Mich., U.S.A.

DOLLARS Die with every Hog

Hog Cholera has put a big crimp in
many hog profits. You can insure the
health and immunity of your hogs by
using Fort Dodge Anti Hog Cholera
Serum. Manufactured under Federal
supervision—absolutely reliable. You
can get it fresh and quickly from the
Edwards Laboratories, Lansing, Mich.

Write today for information and
prices. Address Dept. 2. (5)

FREE

Wonderful Money Saving
Fence Book. Over 150 Styles. 13¢ Per Rod Up
Gate-Steel Posts-Barb Wire
DIRECT FROM FACTORY—FREIGHT PAID
All heavy DOUBLE GALVANIZED WIRES. 13¢
per rod up. Get free Book and Sample to test.
THE BROWN FENCE & WIRE CO.,
Dept. 49 Cleveland, Ohio

HORSES

Percherons, Holsteins, Angus, Shropshires, Durocs
DORR D. BUELL, Elmira, Michigan.

FOR SALE—Registered Percheron Stallions, Mares
and Fillies at reasonable prices. In-
pection invited. F. L. KING & SON, Charlotte, Mich.

Percherons Yearling and Weanling Stud Colts.
Duroc Sp ring and Aug. pigs. Either
sex. E. J. ALDRICH, TEKONSHA, MICH.

The Fairfield Stock Farm, Percheron and Belgian
and Fillies at reasonable prices. In-
pection invited. H. B. Peters, Carland, Mich.

WANTED

Grade Percheron Stallion, heavy, blacks, from 1 to 6
years old. Address Box M-330, Mich. Farmer, Detroit.

many farmers do not yet realize the
value of poultry as a source of income
and profit. They also fail to realize
that the value of poultry products has
increased in proportion to the increas-
es in grain products. The possible ex-
ception at present is the price of fowls
which is being kept down by the great
sale of farm poultry at present.

This scare on the part of the farmer
is going to work to great advantage to
regulate poultry men and others who
stay in the business. With the high
prices which will be maintained for
meat, prices for poultry must go to a
higher level and on the account of the
scarcity of laying stock eggs will be
scarcer than ever and prices are likely
to go to a higher level than ever reach-
ed before.

With the present scarcity and high
price of all protein foods instead of
selling their poultry stock farmers
should become more interested in
poultry raising and study it to get
maximum results from it. Nothing is
profitable if done in a haphazard way
but quality products always bring pre-
mium prices and therefore profitable
returns.

FALL CARE OF DUCKS.

Early in the fall is the best time to
start in duck raising. Four or five
ducks and a drake furnish a very good
start. When ducks are yarded one
drake to four ducks will insure good
hatches. On free range one drake
will take care of five ducks. The
drakes must not be related to the fe-
males, and a drake one year old is the
best if he is vigorous and well de-
veloped.

No more than 25 or 30 breeding
ducks should occupy one house or
yard. And if too many drakes are kept
the eggs will not run as high in fertil-
ity, and besides there is danger of
some of the females being killed by
the over activity of the drakes.

If you have a nice flock of first-class
ducks don't sell them off too close in
the fall; keep a large enough flock to
insure a full egg basket. Duck eggs
are always in good demand for pure-
bred and kept up to the standard.

Ducks should never be picked later
than the last of September, they need
their plumage late in the fall to pro-
tect them from cold and dampness.
The feathers are nicer when the birds
have a pond or stream to swim in.
When ducks in a dry place look dirty
it is a good plan to give them a gal-
vanized tub or tank of water for a
bath occasionally.

The average person may have good
success with ducks from the start.
They offer possibilities of profit worth
considering. With ducks we have no
roup or cholera to contend with, no
lice or mites, no trouble with frozen
combs or scaly legs. Less expensive
buildings will answer for ducks than
are needed for hens. The young ducks
are easily raised, rapid growers, and
there is always a good demand for the
feathers. True, they are a nuisance
when permitted to run with chickens.
Why not yard them separately? A
three-foot fence will confine ducks. If
you do not have grass ground enough
for ducks a good green food may be
had by sowing rape broadcast.

Indiana. FRANCES WOOD.

A DOLLAR AND A HALF A HEN.

There is profit in keeping a good
poultry flock. This was shown by a
flock of White Leghorn pullets at the
University of Missouri. From 50 to
60 birds were housed in an open-front
poultry house with a yard 100 feet
square which was sowed to wheat in
the fall. This furnished green food in
the late fall and early spring and was
not charged against their feed bill.

In a year's time the fowls consumed
2,693 pounds of grain and 962 pounds
of mash. The total cost of the feed
was \$66.27. In estimating this cost
the following prices per 100 pounds
were used: Wheat \$1.66; corn \$1.60;

bran \$1.20; corn meal \$1.75; shorts
\$1.40; beef scraps \$3.25. These prices
are higher than the feed would bring
if sold by the farmer, but at that the
flock returned a good profit. They pro-
duced a total of 8,057 eggs at a food
cost of 10½ cents a dozen. At the pre-
vailing prices the eggs sold for \$157.17,
thus giving a total profit of \$90.90. The
results per month were as follows:

Month.	Eggs.	Per Ct. Produc. per Mo.	Price per dozen.	Value.
Nov. ..	337	4.1	.30	\$ 8.42
Dec. ..	215	2.6	.35	6.30
Jan. ..	300	3.7	.40	10.00
Feb. ..	552	6.85	.30	13.80
Mar. ..	993	12.3	.25	20.69
Apr. ..	1124	13.9	.20	19.07
May ..	1005	12.44	.20	16.75
June ..	921	11.81	.20	15.35
July ..	1059	13.1	.20	17.65
Aug. ..	880	10.9	.20	14.65
Sept. ..	478	5.9	.25	9.95
Oct. ..	193	2.4	.30	4.57

Total 8057 100% Av. 23.4 \$157.17

At an average price of 23.4 cents a
dozen the hens returned a profit of a
dollar and a half apiece above the cost
of feed. Even at an average price of
20 cents a dozen the hens doubled the
value of the feed.

They were fed as a scratch food a
mixture of two parts cracked corn and
one part wheat. The mash consisted
of equal parts of bran, shorts, corn
meal, and beef scrap. Grit, oyster
shell and water were kept before the
birds all the time.

Mo. Ag. Col. H. L. KEMPSTER.

POULTRY PROBLEMS.

Would the eggs from June pul-
lets be strong enough to hatch in the
incubator next March if an older male
is used?

Antrim Co. A. H.

Yes. The pullets should have been
laying two months by that time. The
eggs and chicks will both be rather
small, but good care should bring the
chicks up to average weight. I should
suggest filling the incubator as soon as
it is possible to get eggs enough of
fair size. The chicks will bring a good
price as broilers.

What system is best for brood-
ing chicks? A. H.

The colony system is becoming more
popular every year. During the past
two years greater progress has been
made in brooding than in any other
branch of the poultry industry. The
new coal-heated brooders hover up to
500 chicks, are easily cleaned, self reg-
ulating and as simple to operate as a
base burner. Whether oil or coal heat
is used it is best to keep each flock in
a house by itself. These houses should
be portable so they can be moved from
place to place as often as fresh pas-
ture is needed. It often happens, even
to the most experienced breeders, that
an epidemic of some sort will clean
out all, or the greater part of an entire
brood. By keeping the broods sepa-
rated it is easy to prevent the disease
from spreading from one to another.

Van Buren Co. C. N. WHITTAKER.

INDIVIDUAL CHARACTERISTICS OF HENS.

The poultry husbandman of the
Pennsylvania Station found that hens
taken from the same general flock and
previously fed on the same or similar
rations developed pronounced prefer-
ences in feeding, preferences which
persisted throughout the entire period
of observation. One hen, for example,
promptly selected a ration of corn,
wheat and scrap, with a very large
proportion of corn, and that ration re-
mained characteristic of her through-
out the year. The proportions varied
and on lighter laying in the second
season wheat consumption decidedly
increased, but her corn preference per-
sisted to the end. Hens that showed
and indisposition to consume enough
oyster shell properly to inclose the
eggs were given ten grains of powder-
ed oyster shell daily in capsules. The
shells resumed their normal strength,
thickness and texture.

Big Ben

A
Westclox
Alarm



TWO A. M.—inky
dark—that's when
Big Ben starts the
Milkman's day.

Out of bed like a boy
on the Fourth—nudges
Big Ben to a hush—
takes up the tune as he
whistles to work.

Try Big Ben yourself a
little earlier. See how he'll
bring you the cream of the
day with minutes a-plenty
for every task. And you'll
take up his tune and smile
through the day.

He's seven inches tall,
spunky, neighborly—down-
right good.

At your jeweler's, \$2.50 in
the United States, \$3.00 in
Canada. Sent prepaid on
receipt of price if your jeweler
doesn't stock him.

Western Clock Co.

La Salle, Ill., U. S. A. Makers of Westclox

Other Westclox: Baby Ben, Pocket Ben, Bingo,
America, Sleep-Meter, Lookout and Ironclad.

Just Out FREE

SPLIT HICKORY

I want
to send
you my big free book of nifty new
1916 buggies. I want you to see
the stunning rigs and the bargains
I am offering this season at prices
that save you from \$20 to \$40. Think
of it! You can now get a light-running,
easy riding, long life, genuine,
SPLIT HICKORY
\$39.25 and no. Guaranteed
2 years. Remember I
give 30 days free road test to
prove the quality. Catalog shows
hundreds of other mappy styles
all at money saving prices.
Write for the big Free Book today.
H. C. Phelps, Pres.
THE OHIO CARRIAGE MFG. CO.
Station 69 Columbus, Ohio

Quaker City Feed Mills

Grind corn and cobs; feed,
table meal and alfalfa.
On the market 50 years.
Hand and power. 23 styles.
\$3.80 to \$40. **FREE TRIAL.**
Write for catalog and farm
machinery bargain book.
THE A. W. STRAUB CO.
Dept. 9-3727-3731 Filbert St., Philadelphia
Dept. 1-3701-3703 S. Ashland Ave., Chicago

4 Empire STEEL Wheels 75c

that's the cost per year on basis of ser-
vice. They last 20 to 25 years. Average
cost \$13. Save labor, time, horses, roads,
money. Put a set on your wagon at our
risk. Write for catalog and prices.
Empire Mfg. Co., Box 989 Quincy, Ill.

Always mention the Michigan Farmer
when writing to advertisers.

ROOFING

At Rock-Bottom Prices

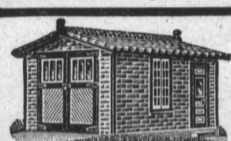
Get Our Freight Paid
OFFER

Don't consider investing your money in roofing, ceiling, siding, etc., until you have received our Roofing Book which quotes

Lowest Prices Ever Made On World's Best Roofing

We sell direct to you from the largest sheet metal plant in the world. We save you all middlemen's profits. We prepay freight and give you a binding guarantee against lightning losses. Send coupon for free book—and read our proposition in full.

Lightning-Proof, Fire-Proof and Rust-Proof
Edwards Tightrope Roofing can be bent, twisted, or struck with lightning, and galvanizing will not crack or flake. Bend it or hammer it, you can't loosen or scale galvanizing. This means an everlasting galvanized roofing that will last as long as building.



GARAGE \$69.50
Lowest price ever made on Ready-Made Fire-Proof Steel Garages. Set up any place. Postal brings Garage Book showing all sizes, styles, etc.

Hammer and nails only tools needed.

Samples FREE Send coupon for World's Greatest Roofing Book and Free Samples. Book will convince you that we can save you a lot of money on any kind of roof you need, also on ceiling, siding, wallboard, etc. Fill out coupon and mail today. Ask for Book No. 1067.

The Edwards Manufacturing Company,
1017-1067 Pike Street, Cincinnati, Ohio

BARGAIN BOOK COUPON

The Edwards Manufacturing Company,
1017-1067 Pike Street, Cincinnati, Ohio
Largest Makers of Sheet Metal Products in World
Please send FREE Samples, Freight Paid Prices and World's Greatest Roofing Book No. 1067.

Name.....

Address.....



Destroy Smuts

Cleanse all seed grains with Formaldehyde solution before planting as it positively destroys smuts, of wheat, oats, barley, rye, etc. It prevents scab and black-leg diseases of potatoes, also cucumber and onion rot and cabbage diseases, etc.

FORMALDEHYDE
The Farmer's Friend

Every farmer who is in business for big profits should use Formaldehyde, as it has the approval of the U. S. Dept. of Agriculture. Formaldehyde at your dealer, one pint 35 cents treats 40 bushels of seed. Our new Hand Book is free—write to-day.

PERTH AMBOY CHEMICAL WORKS
100 WILLIAM STREET NEW YORK

Free Try-On

SAVE \$30.00

In your own home of these light, water-proof, rust-proof wear-proof metal shoes that save your money, your feet, your health. No more big doctor bills, no more big shoe bills. Always warm and dry. One pair outwears many leather pairs.

AMERICAN METAL SHOES

With Steel or Aluminum Soles
Made in all sizes and heights. Guaranteed to fit. Easier to walk in than heavy work shoes or boots.

FREE SHOE BOOK
tells all about these ever-wearing, money saving, health giving shoes and Free Try-On Offer.
Address postal to
American Metal Shoe Co.
143-12th St., Racine, Wis.

PATENTS That Protect and Pay
Send sketch or Model for search
BOOKS AND ADVICE FREE
Watson E. Coleman, Patent Lawyer, Washington, D. C.

The Food Value of Milk

By FLOYD W. ROBISON

WE have been discussing briefly the money value of milk compared with other animal food products. In the considerations forced upon the consumer by the ever-increasing cost of food materials in general we have been much impressed with our findings that milk is by far cheaper at the present time than practically any other animal food product.

With the exception of certified milk which now retails in Detroit for 16 cents per quart, there is no immediate probability of the consumer's being compelled to pay anywhere near the value which we have placed upon milk as in keeping with what are probably conservative prices for other animal food products. Consequently from the standpoint of economy alone there is abundant reason for increasing materially the amounts of milk which are used in the dietary and cutting down accordingly other animal food products, such as eggs, beef steaks, oysters, and the like.

We now come to a consideration of the true relationship of milk to the human diet and in this connection we wish to discuss briefly the possibilities of changing the composition of milk in a herd of cows at the will of the dairyman. The first question which forces itself to our attention is, "What are the conditions which call forth the secretion of milk by mammals?"

Milk Secretion a Natural Maternal Impulse.

We all know, but few sufficiently realize, the very intimate relationship which exists between milk secretion and the arising maternal instincts in the animal. So commercial has the business of milk production become that dairymen and consumers as well have in many instances almost forgotten that it is the utilization of the maternal instincts of animals which accounts for the supplying of milk at all. Primarily, therefore, milk secretion is for the proper nourishment through the period of its early existence of the offspring of the cow, and we naturally therefore may be prepared to expect that the composition of milk is such as to accomplish this specific aim, that is, the nourishment of the growing young calf through such a period of its existence as it is incapable of properly subsisting on other forms of nourishment.

The peculiarity of animals, the nourishment of the young through a lacteal secretion of the parent, is one of the most interesting phenomena which is exhibited in nature. It is this condition which is responsible for the wonderful balance of constituent food materials which exists in milk. In no other product is such a wonderful balance maintained. So conspicuous is this that milk has been termed the one perfect food. We know now that if perfection consists in the fact that it contains some of all of the different materials which are needed for life and for growth, milk is the one perfect food, but inasmuch as it was intended by nature to be given to the offspring of mammals during the first short periods of their existence it may be assumed that while it is a perfect food for young animals, and human milk likewise a perfect food for infants, it does not necessarily indicate that it is a perfect food for adults, or cow's milk for grown animals.

Some Interesting Comparisons.

To show some of the differences which exist in milk in different types of animals we give herewith the general composition of several different types of milk. Let us take, for instance, human milk. We find the composition to be as follows:

	Per Cent.
Total proteids	1.7
Fat	3.8
Milk sugar	6.0
Ash	0.2
Total solids	11.7

The general composition of cow's milk is as follows:

	Per Cent.
Total proteids	3.5
Fat	3.7
Milk sugar	4.9
Ash	0.7
Total solids	12.8

The composition of goat's milk:

	Per Cent.
Total proteids	4.3
Fat	4.8
Milk sugar	4.5
Ash	0.8
Total solids	14.4

The very conspicuous difference in the analysis of human milk from that of other mammals is first seen in the very great difference in the amount of mineral matter, or ash. Human milk contains on the average 0.2 per cent of ash, or mineral matter. Cow's milk and goat's milk contain from 0.7 to 0.8 per cent ash, practically four times as much mineral matter as human milk. It appears from these analyses that the demands of the growing calf for mineral matter constituents is very much greater than is that of the growing child, and that this is the case must be readily apparent to anyone who considers the difference in the rapidity of growth of a child and a young calf. The amount of bony structure which it is necessary to build into the frame work of a young dairy animal is enormous compared with the amount that is necessary in the case of a child. And yet we are familiar with the fact that this mineral content is not sufficient in either the case of the child or in the growing young animal beyond a certain period of time, and many physiological chemists have assumed on this account that any period in the life of the young where the demands of its system indicate the need of more mineral matter than can be furnished in the ash of the milk upon which it is feeding is the time when supplemental articles of food should be introduced into the diet.

Variation in Composition Due to Breed Characteristics.

In studying the composition of milk of any one animal the chemist is conscious of many changes in composition as the period of lactation advances. These variations consist in changes in the percentage of total proteids, changes in the percentage of fat, and other changes which seem to be the response by nature of the parent animal's system to the demands of the growing young. For instance, it has been recognized for some time that the proportion of proteid material in milk is considerably greater at the time of birth and for the first short period thereafter than during any other period, and this difference in composition seems to bear absolutely no relationship to the food consumed.

Feed will not Change Breed Characteristics.

Experiment stations and experimenters the world over have been trying for years to ascertain what relationship did exist between milk composition and the composition of the food consumed. Results varying greatly have been obtained. In most of these experiments the cause of the secretion of milk has largely been lost sight of. While its production as far as dairy cows is concerned has been placed very largely upon a commercial basis, at the same time milk production is impossible in the entire absence of the maternal relationship, and we think enough importance has not been attached to a proper consideration of this relationship.

It is because we have had this feature continually before our mind that we have been slow to believe it possible to materially and essentially change the composition of milk through any particular type of feeding. When we realize, as shown in these compiled analyses what an es-

sential, racial difference there is in the composition of human milk, for instance, from that of cow's milk or goat's milk, and we might show this variation much more extensively did we emphasize the difference shown in the composition of the milk of other mammals such as dogs, cats, sheep, horses, etc., it must be realized that the chances of any material change of composition because of food are very slight indeed.

Give the Cow a Fair Chance and Let Nature do the Rest.

A dairy cow and a goat may be fed upon exactly the same material with an exactly identical nutritive ratio, and the difference in the composition as far as proteids, sugar, fat, etc., are concerned will be much more striking than is shown in different dairy cows. So that we are very much strengthened in our ideas that the question of composition of milk from dairy animals must be arranged for not through feeding but through breeding. We know that there are important differences in the composition of milk of different types of dairy animals. For instance, Jersey cows and Holsteins, Guernseys and Shorthorns, all have breed characteristics by which we recognize variations in composition of milk and prominent successful dairymen now know that it is not a profitable thing to attempt to change the composition of a cow's milk through any such expedient as change of feed. Whatever the physiological structure of a cow is set by nature to produce, that she will produce, provided she is given a chance, and regardless of the composition of the food which she consumes. There will be more or less regular changes in the composition of that milk but these changes will be due to the effort of nature to make provisions for the changing conditions of the young calf for which that milk is primarily secreted.

EXPERIMENTS WITH SWINE.

In a series of experiments to determine the value of distillers' dried grains as a feed, alone and in combination with other feeds, for hogs on pasture, the Kentucky Station selected four lots of from 10 to 15 pigs each and fed them 73 days. Lot 1 was allowed the run of a pasture of rape and oats, and fed all the distillers' dried grains it would eat without waste. Lot 2 was allowed the same kind of pasture and given from 2.5 to 3 per cent of its weight in corn meal per day. Lot 3 was given a similar pasture and allowed from 2.5 to 3 per cent of its weight per day of a mixture of corn meal and distillers' dried grains 5:1. For comparative purposes, the fourth lot was confined in a dry lot and given a full feed of corn meal and distillers' dried grains 5:1. These lots made average daily gains per head of 0.456, 0.931, 1.027, and 0.883 pounds, requiring 3.68, 3.44, 3, and 4.44 pounds of grain per pound of gain, and costing, not considering the cost of the pasture 4.97, 4.95, 4.27, 6.32 cents per pound of gain for the respective lots.

BUTTER-FAT INVESTIGATION.

A southern scientist has found that cottonseed oil may be detected in the butter made from cows fed cottonseed meal within 12 to 36 hours after first feeding. From the time of the first appearance the test for cottonseed oil became more pronounced, until the seventh day, when the influence of the oil appears to be at its maximum. After two, four, and six weeks continuous feeding of oil the effect is no more pronounced, in most cases even less, than at the end of the first week. When the oil is removed from the ration its effect apparently disappears within one or two weeks. The results would indicate that the oil is not transferred directly to the milk fat, but enters the milk fat only after it has undergone some change in the animal body.

Farmers' Clubs

Associational Motto:

"The skillful hand with cultured mind is the farmer's most valuable asset."

Associational Sentiment:

"The Farmer: He garners from the soil the primal wealth of nations."

FARMERS' CLUB EXPERIENCE.

One of the most interesting features of the annual meeting of the Michigan State Association of Farmers' Clubs is the conference of local Club workers in which the experiences of many local Clubs along various lines are brought to the attention of Club members of other sections of the state.

There are a great many features of local Club work which could profitably be brought to the attention of Club members in other sections just at this season of the year before the plans for the winter are completed. One of the special features of Club work which is becoming quite general is the Club fair. Another which is somewhat less popular but equally or perhaps more profitable where it has been tried out is the lecture course which may be made a pleasurable combination of entertainment and education for the Club members and often a source of income for the Club where general admissions are sold to outside people.

One of the most novel special features which we have heard of being tried in local Farmers' Clubs is the use of stereopticon lectures with views for illustrating same which are provided free of charge by several government departments. In this way the engineering features of the Panama Canal can be seen, the interesting and beautiful scenery of the National Parks may be shown, the best methods of road construction may be illustrated, etc., at practically no expense except for the use of a lantern for throwing the pictures on the screen. Generally there is sufficient talent in any Farmers' Club to present these prepared lectures in a satisfactory and creditable manner if sufficient time is given to study or memorizing them. An educational meeting of this kind can be combined with social gatherings to the great advantage of all concerned.

There are doubtless very many other forms of special entertainment or profitable work being enjoyed or contemplated by Farmers' Clubs in various sections of the state. In every case where any feature out of the ordinary is being introduced into the season's program of Club work, it should be reported for publication in this department to the end that other Clubs may profit by the inspiration and example.

CLUB DISCUSSIONS.

Will Hold Annual Fair.—Washington Center Farmers' Club met at Shoreland, the home of Mrs. William Brown, Thursday, September 21. After the opening exercises, miscellaneous business was taken up which consisted principally in making arrangements for the Club Fair, which will be held at Washington Center, at the home of Mr. and Mrs. B. S. Gilman, Thursday, October 12. To be sure of having speakers for the day the Club decided to extend an invitation to all candidates who are running for office at the fall election from president down. Roll call was responded to by giving a good recipe. It was learned that the men not only know how to keep good neighbors but are well versed in the culinary art. After a select reading, music on the phonograph, and question box, which revealed some of the automobile laws, the Club was served to sandwiches, coffee, cake and salad. The Club adjourned, each one feeling that they were amply repaid for meeting with Mrs. Brown and family.

A Pioneer Meeting.—Another successful meeting of the Howell Farmers' Club was held in September at the home of Mr. and Mrs. D. M. Beckwith. One pleasing feature of the meeting

Grange.

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

STATE GRANGE OFFICERS.

Master—John C. Ketcham, Hastings.
Overseer—C. H. Bramble, Tecumseh.
Lecturer—Dora H. Stockman, Lansing.
Secretary—Jennie Buell, Ann Arbor.
Treasurer—Frank Coward, Bronson.
Executive Committee—C. S. Bartlett, Pontiac; Geo. B. Horton, Fruit Ridge; J. W. Hutchins, Hanover; W. F. Taylor, Shelby; Wm. H. Welsh, Sault Ste. Marie; N. P. Hull, Dimondale; Burr Lincoln, Harbor Beach.

AMONG THE LIVE GRANGES.

Charlevoix County Pomona Grange, which was held at Marion Center, on Thursday, September 14, was represented by Ellsworth, Ironton, Boyne City and South Arm Granges. The afternoon session was opened by John Knudsen, acting as Pomona Master. The following program was rendered: Song, Grange melodies; solo, Mrs. R. Wooley; talk, B. Holcomb; solo, Mrs. Frank Hammond; recitation, Mrs. Grace McElroy; story—John Knudsen. After recess Grange opened in the fifth degree. Supper was served by the ladies and the evening session was opened by Ira Olney. The following program followed: Song by the Grange; talk, Mr. Holcomb; reading, Helen Pulcifer; solo, Mrs. Wooley; talk, May E. Stewart; solo, Ira Olney; talk, Mrs. McNeill. After the meeting was over a few members were initiated in the fifth degree.

West Crockery Grange had a very interesting program although very little preparation was made for it. A number of the members attended the fair at Grand Rapids and gave some very amusing accounts. Mr. and Mrs. Charles Mallahan were elected delegates. McCleave and Viola Easterly alternated to attend the annual county convention at Tallmadge, October 3. August Hosteadt furnished some very good selections on the violin. One incident marred the pleasures of the evening. The young people were all doing stunts after Grange and Miss Viola Easterly lost her balance and fell, striking on her head and shoulders. Her scalp was cut and she received other minor bruises. A dance will be held at the Grange hall, October 14.

COMING EVENTS.

On account of the Eaton county fair the meeting of Eaton Rapids Grange was postponed until the next regular meeting time, which occurs October 11, at 7:30 p. m. By order of worthy master.

was that every person on the program was present and prepared to respond when called upon. The pioneer scheme was also well carried out, as quite a few were clad wholly or in part with clothing of an earlier day, and many relics adorned the dining-room table. The exercises were opened by Club singing, "Auld Lang Syne." At the conclusion of this part of the program Mrs. J. S. Brown, in a very feeling manner, read a poem entitled, "Out to Old Aunt Mary's," written by James Whitcomb Riley. Miss Mable Risch followed with a well rendered recitation, "A Kiss at the Door." Mrs. Fred Bucknell sang a beautiful temperance solo, "Has Father Been Here," and Mrs. John Payne read a selection written under the caption, "We shall Wear Out." This was a comparison of the methods of wearing out. We were destined to wear out physically, but it remained for us to decide in which way one was to wear ourselves out in a life of service to others and reap the just rewards of such a service; while the other was to live a self-centered narrow life, out of harmony with our surroundings, in short sow selfishness and reap nothing. Mrs. Edward Houghtaling then read a humorous selection entitled, "The Spelling Bee." To all of the older members this number brought back many vivid and happy remembrances of the old-time spelling school. Miss Blanche Crandall followed with a very interesting and timely paper upon the subject, "The Newspaper as a Social Force." This paper emphasized the importance of the daily paper, and was also a plea for an improvement of the same. Mrs. Claude Burkhardt then gave a very pathetic recitation entitled, "The First Settler's Story."

60—SIXTY HEAD—60

Chester White and O. I. C. Swine

Will be offered at Public Sale at

Rolling View Stock Farm,
Cass City, Michigan, On

October 17, 1916

This offering includes our famous show herd, the Grand Champion Boar School Master 52707, who won more championships and defeated more champions than any other boar in 1915, and 20 of his get. This is the place to buy useful foundation stock as well as prize winning blood. Free Hotel accommodations to buyers from a distance.

ROLLING VIEW STOCK FARM

Harry T. Crandell, Prop.

AUCTIONEERS: Ed Bowers and Deford of Indiana, Andy Adams, Litchfield, Mich. Fred Moore, Field Man.

Raise Chester Whites
Like This
(the original big producers)



I HAVE started thousands of breeders on the road to success. I can help you. I want to place one hog from my great herd in every community where I am not already represented by these fine early developers—ready for market at six months old. Write for my plan—More Money from Hogs.
G. S. BENJAMIN, R. F. D. 10 Portland, Michigan

Registered O. I. C. Swine
Stock For Sale—All Ages
Correspondence Solicited, Visitors Always Welcome



Brightside Farm
Grand Ledge, Mich.

O. I. C's Spring boars ready for service. Gilts good ones. Satisfaction Guaranteed.
A. R. GRAHAM, Flint, Michigan.

O. I. C. Stock all Sold
JULIAN P. CLAXTON, Swartz Creek, Mich.

O. I. C. SWINE: If you are interested in O. I. C's, let me start you with a choice pair or trio, not akin, or a gilt, due to farrow about September first.
A. J. GORDEN, R. No. 2, Dorr, Mich.

O. I. C's Pairs and Trios no akin. 2 Reg. Holstein bulls 6 and 8 months old. Cloverleaf Stock Farm, Monroe, Mich., R. No. 1.

O. I. C. Choice Gilts bred for fall farrow and Spring Pigs. Prize Winning Stock. Write for low price.
A. V. HATT, Grass Lake, Michigan.

O. I. C. Swine and Reg. Holsteins, few boar pigs of May farrow at a reasonable price, quality considered.
ELMER E. SMITH, Redford, Michigan.

O. I. C's Yearling boars: bred sows and July pigs of "A No. 1" quality at reasonable prices. Write me.
H. F. BAKER, Cheboygan, Mich.

O. I. C. HOGS
Fine April Gilts and Males. Pairs no relation. At a bargain if taken at once. J. R. Way, Three Rivers, Mich.

O. I. C's 4 last fall boars big growthy ones, also last spring pigs either sex, not akin. Farm 1/2 mile West of depot.
Otto B. Schulze, Nashville, Michigan

O. I. C. & Chester White

Strictly Big Type. April boars large enough for service, also have May boars, that are good ones. Can furnish in pairs not akin. Have been breeding the big type for 15 years. The kind that fill the pork barrel.
Newman's Stock Farm, Mariette, Mich. R. 1.

FOR SALE: \$5 head of thoroughbred O. I. C. hogs. Will be sold at my annual hog sale Oct. 16. Write for catalog.
E. B. Milet, Fowlerville, Michigan.

Large Strain P. C.—Two nice fat boars left, a few Gilts to farrow in Aug., Sept. and Oct., get one of these sows with pigs by side.
H. O. SWARTZ, Schoolcraft, Michigan.

AT HALF PRICE

Genuine big type Poland China Hogs, Bred Sows, Spring Pigs. Boars ready for service. Special, the best big type fall yearling boar in Michigan. Also registered Percheron Stallions and Mares.
J. C. BUTLER, Portland, Mich., Bell Phone.

Big Type Poland Chinas Spring boars, at reasonable prices. Order soon to save express.
A. A. WOOD & SON, Saline, Michigan.

Poland China Spring Pigs
Our herd sire was Champion and Grand Champion at the State Fair last fall. Our sows are great big stretchy, splendid individuals, with best breeding. Pigs from such matings will please you. Get our prices.
HILLCREST FARM
Kalamazoo, Mich.

FOR SALE: P. C. Sows, "Big Type" bred for Sept. farrow. Extra good 7 months boar. March and April pigs. S. C. B. Minoras, R. W. Mills, Saline, Mich.

Large Type P. C. Gilts and sows, bred for Mar. and April farrow. Sired by Big Des Moines, Big Knox Jr., and Giant Defender. Bred to Big Knox Jr. Smooth W under 3 and Big Jumbo, four great boars in state. Come or write. W. E. Livingston, Parma, Mich.

Big Type P. C.—100 pigs of Mar. and Apr. farrow, either sex, sired by Big Type King Tesemeyer A. Wonder Jr. and Mow's Big Bone. We pay exp. charges and record free.
W. Brewbaker & Sons, Elsie, Mich.

For Sale Poland Chinas either sex, all ages. Something good at a low price.
P. D. Long, R. F. D. No. 8, Grand Rapids, Mich.

Large type P. C. Sows and gilts all retained for my Feb. Sale. A few choice Spring boars ready to ship.
W. J. HAGELSHAW, Augusta, Michigan.

BIG TYPE POLAND CHINA Spring boars that will please you, priced right.
G. W. HOLTON, Route 11, Kalamazoo Michigan.

Large Stiled Poland China Pigs, either sex, pairs not akin. Oxford sheep, both sex and Short-horn Bulls.
ROBERT NEVE, Pierson, Michigan.

For Big Type P. C. Spring Boars and Gilts bred for April farrow. Write or call on
Armstrong Bros., R. 3, Fowlerville, Mich.

Hampshire Swine. Bred Sows and gilts for August and September farrow. Spring pigs, both sex.
FLOYD MYERS, R. No. 9, Decatur, Ind.

GROWTHY THE DISEASE PROLIFIC "MULEFOOT" RESIST- PROFITABLE HOG ING
FOUNDATION STOCK FROM BEST BLOOD OF BREED
THE CAHILL FARMS
KALAMAZOO - - - MICHIGAN

HAMPSHIRE SWINE Spring registered. John W. Snyder, R. 4, St. Johns, Mich.

HAMPSHIRE Boars, sows, gilts and pigs. Choice stock.
A. E. BACON & SON, Sheridan, Michigan.

SHEEP.

SHROPSHIRE

I will be at the State Fair with 20 field rams. All are for sale and are a better bunch than has been seen in Detroit in recent years.
S. L. WING, Prop'r. KOPE-KON Farms, Kinderhook, Mich.

The Ingleside Farm will not make a show of Shropshires at the fairs this fall but has a good supply of registered rams and breeding ewes for sale. If you are in need of any Shropshires, let us know.
H. E. POWELL, Ionia, Mich.

SHROPSHIRE

A few choice Rams. Dan Bocher, R. 4, Ewart, Mich.

Shropshire yearlings and ram lambs. One two year old stock ram. All of best wool-mutton type.
G. F. A. ANDREWS, Danville, Michigan.

For Sale: Thirty choice registered young good ewe lambs, also yearling and lamb rams. Elmer E. Bowers, R. R. No. 2, Manchester, Michigan.

Shropshires Am offering a few large ram lambs at reasonable prices.
C. J. THOMPSON, Rockford, Michigan.

Oxford Down Sheep. Good yearling field Rams and ewes of all ages for sale.
M. F. GANSSLEY, Lennon, Michigan.

Oxford Sheep: 20 Rams, 20 Ewes.
EARL C. MCARTY, Bad Axe, Michigan.

OXFORD DOWN RAMS AND EWES

O. M. YORK, Millington, Michigan.

Registered Oxford Down Rams For Sale.
Olmsted E. Spaans, - Muir, Mich.

The Great Ohio flock of Merinos and Delaines, good size, oily fleeces, heavy shearers, priced to sell. Write wants.
S. H. SANDERS, Ashtabula, Ohio.

FOR SALE Registered American Delaine Sheep both sex.
F. H. CONLEY, Maple Rapids, Michigan.

FOR SALE Pure bred Hampshire Ram Lambs.
Wm. C. SMITH, Rochester, Mich.

For Sale Thoroughbred Rambouillet Rams \$15.00 a head. F. O. B. horns, also breeding ewes, Rams and ewe lambs. J. W. Graham, R. 1, Davisburg, Mich.

Leicesters—Yearling and ram lambs from Champion flock of Thumb of Mich. Also select Berkshire swine. Elmhurst Stock Farm, Almont, Mich.

BREEDERS' DIRECTORY.

Change of Copy or Cancellations must reach us
Ten Days before date of publication.

CATTLE.

ABERDEEN ANGUS

We have a choice lot of Bull Calves, that are 6 to 12 months old and another crop coming. I will be pleased to have you visit our farm, where we have a stock show every day; we will also have a show herd at the Michigan State Fair. U. L. CLARK, Hunters Creek, Mich. SIDNEY SMITH, Manager.

ABERDEEN-ANGUS

HERD ESTABLISHED IN 1900.
TROJAN-ERICAS and BLACKBIRDS only.
Also breeders of Percheron, Hackney and Saddle Horses.
WOODCOTE STOCK FARM, Ionia, Mich.

AYRSHIRES—One of the foremost dairy breeds. The most economical milk producers. Calves for sale. White Leghorn cockerels; Duroc Jersey swine. Michigan School for the Deaf, Flint, Michigan.

VILLAGE FARMS, Incorporated

Grass Lake, Michigan,

GUERNSEY CATTLE

BERKSHIRE HOGS

Reg. Guernsey Bulls, serviceable age, great grand sons of Gov. Chene, also grade Guernsey and Jersey heifers 6 wks old \$20 each. Avondale Stock Farm, Wayne, Mich.

Guernsey Bulls of service age and calves from choice. Adv. reg. breeding.
T. V. HICKS, Route 1, Battle Creek, Mich.

MILLO D. CAMPBELL CHAS. J. ANGEVINE

BEACH FARM
GUERNSEYS

Average yearly production 422.3 lbs. of fat, three fourths of them making their records as two year olds. By the use of a pure bred sire, a big improvement can soon be attained if the right selection is made. The breeding of the Beach Farm Herd is as good as can be found, and we guarantee them to be free from contagious diseases and to be satisfactory in every way or money refunded. Write and let us tell you about them.

CAMPBELL & ANGEVINE,

Coldwater, Michigan.

Closing Out Sale of Guernseys

Must be sold at once—Two splendid registered Guernsey Cows. Nettie G, 37640, 5 years old, due to calve Nov. 2. A. R. Cow 411 lbs. b. f. as a 2 year old. Sequel's Bijou of LaCroix 35970, 5 years old, due to calve October 10. Also herd bull 28378. Golden Noble's Pride of Windsor a grandson of Golden Noble II, also fine registered Jersey 5 years old and Heifer calf. Part cash, balance bankable notes. Farm 2 1/2 miles north, 1/2 mile west of Watervliet, Mich. Priced to sell, buyer first on spot will get bargain. Address for further particulars the owner, J. K. Blatchford, Auditorium Tower, Chicago, Ill.

GUERNSEYS—REGISTERED
BULL CALVES
Containing blood of world champions.
HICKS' GUERNSEY FARM, Saginaw, W. S. Mich.

GUERNSEYS—10 choice yearling and two year old Guernsey Heifers—bred, \$250 to \$350 each. J. M. Williams, North Adams, Michigan.

For Sale. Registered Guernsey bull calves. Even to ten months old. Good breeding. J. C. Ranney, De Witt, Mich. R. D. I.

Do You Want A Bull?

Ready For Service.

From a grand daughter of The King of the Pontiacs. Sired by a bull that is more than a half brother to the Champion Holstein Cow of the World, and whose dam is a 30 lb. 6 1/2 % fat daughter of Pontiac Aggie Korndyke who has more 30 lb. daughters than at any other living bull. If you do write for pedigree.

EDWIN S. LEWIS, Marshall, Mich.

HOLSTEIN BULLS FOR SALE

3 of them 1 year old in Nov. By 31 lb. sire. Dams above 21 lbs. as heifers. Price \$100. Younger bulls by son of Johanna McKinley Segis \$50. up.

BLISSVELDT FARMS, Jenison, Michigan
30 lb. bull for sale, 2 years old, by a son of King of the Pontiacs. Dam sold for \$1000 in Detroit sale. Ferd. J. Lange, Sebawaing, Mich.

"TOP NOTCH" Holsteins

By careful retention, for many years, of largest producing females, and use of superior sires, a breeding herd of wonderful quality has been established. We are selling young bulls of this "TOP NOTCH" quality, of serviceable age, at moderate prices. Information, pedigrees, etc., on application. McPHERSON FARMS CO., Howell, Michigan.

REGISTERED Holstein cows, heifers and heifer calves priced to sell, also bulls ready for service.
B. B. REAVEY, AKRON, MICHIGAN.

BULLS ALL SOLD

Holstein-Friesian Cattle A. R. O. herd, tuberculin tested annually.

PEACELAND STOCK FARM, Three Rivers, Mich.
Chas. Peters, Herdsman, C. L. Brody, Owner, Port Huron

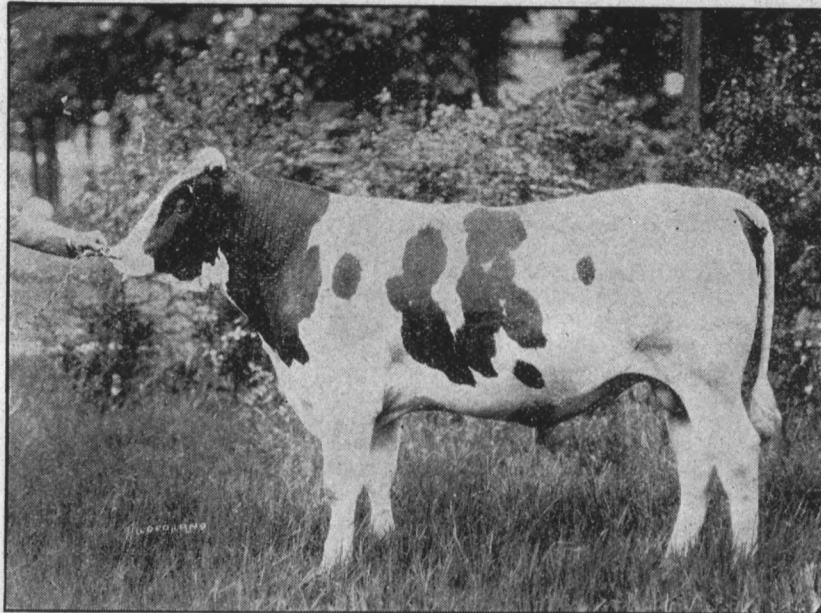
HOLSTIENS

Herd No. 1. Five cows, one two year old bull.
Herd No. 2. Five yearling heifers, one yearling bull.
Herd No. 3. Five Heifer calves and one bull.
Bulls ready for service and 6 to eight months old bulls. Prices will please you. If interested, write as soon as you read this. L. E. CONNELL, Fayette, Ohio.

The Howell Consignment Sales
Co. of Livingston County

Will hold its 3rd Annual Sale of 100 head of Registered Holsteins at the Sale Pavilion Howell, Mich., on Oct. 24th. Catalog Oct. 10th.

JAY B. TOOLEY, Secy.

Son of King of the Pontiacs and Hilldale
Segis one of the Best Daughters of King Segis

King of the Pontiac Segis, Born May 16, 1915 at the Head of Our Herd

A Few Specials for October and November, at Prices
to Fit Most Any Pocket-book

1. Maplecree DeKol Ogden No. 94162—Born April 13, 1912, sired by Friend Hengerveld DeKol Butterboy 29303; Dam Maplecree Pontiac Ogden DeKol, Daughter of Pontiac Aggie Korndyke.
2. Nye Pontiac Burke—Born Nov. 28, 1911, Sire Pontiac Burke; Dam Queen Oakland Lady (a 29 lb. cow).
3. Four Bull Calves—well bred and well marked.
4. Three Hampshire Gilts (bred).
5. Five Rambouillet Rams from the well known Thomas Wyckoff flock.
6. About seventy-five S. C. White Leghorn Cockerels.

Positively Guaranteed as Represented.

FLANDERS FARMS, Orchard Lake, Michigan.

A Quality Sale of
Registered Holstein Cattle

AT THE

West Michigan State Fair Grounds

In Grand Rapids, Michigan, on

Monday, October 16th., 1916

The Annual October Consignment Sale of the
West Michigan Holstein Breeders.

70 Head of High Class Registered Cattle from the Breeders' own herds, chosen to please the Purchaser who desires to buy healthy cattle of good breeding and quality. Everything over six months old carefully Tuberculin tested by competent graduate Veterinarians of acknowledged reliability. A glance at the Pedigrees of the 30 lb. reference Sires in our Sale Catalog will convince the Buyer that West Michigan Breeders have as well bred Sires as any Section in the United States. The list is too long to mention individually. Choice females will be offered which are sired by or bred to these High Class Bulls. A few choice young bulls will be in the Sale. If interested write for a Sale Catalog.

W. R. HARPER, Sale Manager.

Middleville, Michigan.

Public Sale

Having decided to leave the farm. I will sell at Public Sale on Oct. 12, 1916, at 1 p. m. My herd of Reg. Holstein cattle. King Segis and Hengerveld De Kol breeding. All females of breeding age bred to Flint Maple Crest Butter Boy No. 150961 Jr. and Grand Champion Male at Michigan State fair Detroit Sept. 3, 1916. Who's 5 nearest Dams average 30.50 Butter in 7 days every one testing over 4% fat.

JOSEPH W. TROMBLY
WARREN, MICH.

CHOICE HOLSTEIN BULLS—all from A. R. O. dams. Entire herd on Semi of test for yearly work. Jr. 2-yr. old just finished year's record of over 15,000 lbs. milk, over 100 lbs. butter record in mature class. Cherry Creek Stock Farm, M. E. Parmelle, Prop., Hilliards, Mich.

Reg. Holstein Bull Calf. 2 nearest dams average 90 lb. milk per day Pontiac Korndyke and Hengerveld DeKol breeding. Prices right. John A. Rinke, Warren, Mich.

Holstein Calves, 10 heifers, and 2 bulls 15-16ths pure. 5 weeks old, beautifully marked, \$20.00 each, crated for shipment anywhere. Edgewood Farm, Whitewater, Wis.

ONLY \$25 DELIVERED: Handsome Holstein 15-16 pure bred. Sire, 25 lb. butter bull. Dam extra good cow, 7-8 pure. ROUGEMONT FARMS, Detroit.

Registered Holsteins. Young bull ready for service. 30 lb. breeding. Satisfaction guaranteed. W. B. Jones and J. F. Lutz, Cohoctah, Mich.

MICHIGAN HOLSTEINS

4 to 12 Mo. World record sire. High testing dams—from \$99 up to \$299. Let us send you one on trial. You should not buy until you get our book.

Long Beach Farm,
AUGUSTA, (Kalamazoo Co.) MICH.

EXTRA GOOD

Holstein Bulls For Sale

I have some from A. R. O. dams with records of from 16 to 22 lbs. with the best milk producing blood in them that can be had. These are from 4 to 7 months old and I will make a cheap price to move them. Also have a few females for sale. Let me know what you want.

Bigelow's Holstein Farms,
BREEDSVILLE, - - MICHIGAN

REG. HOLSTEINS: Herd headed by Albina Bonte R. Butter Boy No. 93124. Dam's record at 6 yrs. butter 28.53 lbs. milk 619.4. Yearly record at 2 1/2 yrs. butter 802 lbs. milk 1832 lbs. W. B. READER, Howell, Mich.

FOR SALE—My herd of 12 selected Grade Holstein Cows. Young, soon to freshen. Reasonable price. J. E. GAMBLE, Hart, Michigan.

6 Year registered Holstein cow and her 2 months old heifer calf eligible to registry, both well marked. Price \$175. S. A. FOSTER, OKEMOS, MICH.

FORTY head grade Holstein cattle ranging from six months to five years. C. E. ROGERS, 34 Goldsmith Ave., Phone Cedar 1351, Detroit, Mich.

\$400 buys 3 registered H. F. heifers 2 yrs. old bred to a bull with 8 sisters from 30 to 35 lbs. of Butter in seven days. \$50 to \$75 buys choice of 8 H. F. bulls ready for service. A. R. O. backing. Address: NETHERWAY BROS., GARLAND, MICH.

Veterinary.

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

Nodular Disease.—Part of my sheep are unthrifty and a few of them have a swelling of throat occasionally, but this seems to come and go. This swelling would appear during the night and leave in the morning. J. H., Breckenridge, Mich.—Mix together equal parts bicarbonate soda, ginger, gentian and charcoal and give each sheep a teaspoonful at a dose twice a day. They should also be salted twice a week and their food supply should be of good quality, not forgetting to feed them some grain once a day. I am inclined to believe that you have not been feeding them a balanced ration.

Sows Fail to Come in Heat.—I have two extra good Poland China brood sows, one of them lost her pigs last April and the other raised nine fine pigs, but neither one of these sows has been in heat since. The sow that lost her pigs farrowed one cold night and doubtless she and her pigs got chilled. C. S., Homer, Mich.—Mix together one part ground nux vomica, two parts ground capsicum, two parts ground ginger and five parts ground gentian and give each sow a teaspoonful at a dose in feed three times a day. You should feed them stimulating food.

Sore Throat.—I have a heifer that seems to have a sore throat, besides her tongue is slightly swollen and part of the time I have thought her tongue was twice its normal size. She has been in this condition since June 20. Our local Vet. is somewhat puzzled over this case and his treatment fails to help her. G. W. A., Coldwater, Mich.—Dissolve 1 dr. chlorate of potash in a pint of water and gargle her mouth and throat three times a day. It is possible that some foreign body, such as a thorn, briar or sliver of wood or piece of wire has lodged in tongue, which if so, should be removed.

Incipient Heaves—Choking.—Every ten days or two weeks my mare appears to have sick spells which give her considerable trouble while breathing and I might say that I have given her several different kinds of commercial heave remedies without helping her much. I also might add that whatever this ailment is, it appears to be growing worse. W. F. A., Swartz Creek, Mich.—Are you sure that most of the trouble is not in the throat? Rub throat with equal parts tincture iodine, camphorated oil once a day. Give her 1 dr. fluid extract lobelia, 2 drs. Fowler's solution and 1/2 dr. potassium iodide at a dose three times a day. Feed no clover or musty, dusty, badly cured fodder of any kind, and be sure to exercise her every day.

Foot Sore—Articular Rheumatism.—I have read the Michigan Farmer for several years and find the veterinary department very helpful. I have a grey Percheron horse that went lame in left fore leg about a year ago, at which time he was so lame that we could not work him for about two months. Our local Vet. treated him with rather poor results; now he is affected in both legs and is very stiff and sore. When standing, raises first one foot then the other, resting toe on the ground or floor as if in great pain. There is no swelling, or shrinkage to be found, but when pinched in shoulder or legs will flinch a little. E. C. B., Tawas City, Mich.—Give 1 dr. of sodium salicylate, 1 dr. of colchicum seed and 1 dr. acetate of potash at a dose in soft feed three times a day. If you can locate the tender part paint it with tincture iodine every day or two. Your horse being 15 years old is quite apt to have rheumatism affecting the joints.

Thickened Tendons.—I have a horse that injured foot; hoof sloughed off and while resting this foot the opposite leg swelled badly, but swelling has mostly gone out of shoulder, but the back tendons and fetlock joints remained thickened. C. F. B., Jones, Mich.—Clip hair off and apply one part red iodide mercury and four parts lard twice a month and give 1 dr. of potassium iodide at a dose in feed twice a day.

Opacity of Cornea.—I have a seven-year-old mare which has a light blue covering over both eyes since May, causing her to have poor vision. J. R., Hamburg, Mich.—Blow one part calomel and two parts boric acid into eyes three times a week.

I am inclined to believe that most of his trouble is in the throat and by having him operated on for roaring, it is possible he can be cured. Why don't you wear an over-check and independent bit, obliging him to hold the nose out when traveling. This will give him quite a lot of relief.

VETERINARY.

Chronic Broken Wind—Roarer.—I have a horse nine years old which has had heaves for the past two years and his wind is so bad that I am unable to work him. When traveling he seems to choke, but as soon as he straightens out his nose in line with his neck, it gives him relief, but as soon as he drops his nose again he has trouble breathing. T. G., Central Lake, Mich.

Indigestion.—My calves are fed on milk and clover and they were in good shape up to a short time ago; since then they have had attacks of looseness of bowels followed by constipation, considerable weakness and stiffness. B. E., Missaukee, Mich.—If you are feeding your calves sour milk, add a teaspoonful of bicarbonate of soda to each eight or ten quarts, but first you had better give each calf 2 or 3 ozs. of castor oil to clear out the stomach and bowels.

Barren Cow.—I have a valuable Jersey cow four years old that had a calf when she was two years old. I bred her again and she had her second calf five months after she was mated, then came in heat regularly until she was bred. Was due to come fresh on August 9, therefore we dried her up some time before that, but she failed to have a calf. Since then she does not come in heat. What would you advise in a case of this kind? A. J., Filion, Mich.—All things considered you had perhaps better fatten her and sell her for beef. Doubtless she suffers from contagious abortion resulting in barrenness, and of course will be a shy breeder and never a big producer of milk.

Swollen Sheath.—I would like to know what to do for boars with swollen sheath. H. W., Metamora, Mich.—Give each hog 10 grs. of acetate of potash at a dose in feed or water twice a day.

Scurvy.—Have 15 pigs three months old that have scurvy affecting nearly the entire body, causing considerable itchiness. F. B., Hawks, Mich.—Apply one part sulphur, one-half part carbonate potash and five parts vaseline to pigs three times a week.

Nasal Catarrh.—I have a hen that is swelled around the eyes and comb and would like to know what can be done for her. She has been in this condition for about 60 days, but so far as I can tell appears healthy every other way. R. H. S., Whittemore, Mich.—Paint swelling with tincture iodine three times a week and she will perhaps get all right.

Ringbone.—I have a horse with ringbone situated high up on pastern and I have applied several blisters without making much impression. J. W., Kingsley, Mich.—Mix together one part red iodide mercury, one part powdered cantharides and eight parts lard and apply to bunch every two weeks. You complain of the blisters that you have applied, have shown but little blistering effect; this may be on account of the drugs not being fresh and active.

Warts on Teats.—Have a two-year-old heifer due to come fresh in six weeks which has a few warts of different sizes on each teat and I would like to know how to remove them without injuring the heifer. Have been applying turpentine, but this hurts the heifer. W. M., Eaton Rapids, Mich.—Those that have a neck should be cut off with a knife or scissors, and apply a saturated solution of salicylic acid in alcohol to flat ones every day or two.

Weakness.—I have a female pig that is three weeks old which urinates almost continually, but eats well, keeps fat and is quite active, but does not grow quite as rapidly as the rest of the litter. Is there anything that can be done for her? B. P., Osseo, Mich.—If you will feed her well, I believe she will get entirely well without treatment; however, a surgical operation performed by a skillful Vet. might help her, but I do not believe it is necessary.

Ptomaine Poisoning.—Have recently lost a few chickens which seemed to first show a stiffness or lameness in one leg or foot, their tail drops and after a time the combs turn pale and whatever it is the young red-headed ones seem to become diseased among the first and after a short sickness are unable to stand or walk and finally die. Every one of the sick birds have died. P. O. McC., Mulliken, Mich.—By improving sanitary conditions and making a complete change of food and water you will perhaps be able to save the balance of your flock, but I do not believe giving them drugs without paying attention to cleanliness, disinfection and food supply, you can safely hope to see any improvement in your fowls. The free use of lime, coal tar disinfectant is doubtless the least expensive remedies to use in cleaning up their roosting places. None of your chickens should be allowed during this hot weather to eat decomposed meat of any kind.

This Will Be Some Sale

J. E. Burroughs W. E. Fellows

Detroit Sale

STATE FAIR GROUNDS, DETROIT, MICH.

105 HEAD---October 23rd., 1916

Just Look Over This Breeding

37 daughters of Johan Hengerveld Lad who is a son of Hengerveld DeKol and out of the imported cow Uilkje (25.34). Also a large number bred to this bull.

24 daughters of Ypsiland Sir Pontiac DeKol. He is sired by a son of Sir Korndyke Manor DeKol and out of a 35.43 lb. daughter of Pontiac Apollo. She made over 30 lbs. butter in 7 days and 123 lbs. in 30 days—3 successive years.

20 daughters of Sir Lieuwkije Korndyke Kate DeKol who is by a son of Sir Korndyke Manor DeKol. His dam is a 30 lb. cow.

3 daughters of Maplecrest Korndyke Hengerveld. He is by Friend Hengerveld De Kol Butter Boy and out of a 30 lb. daughter of Pontiac Aaggie Korndyke.

Watch for future Advertising---Send for Catalog

LIVERPOOL SALE & PEDIGREE CO. Inc.,

Sale Managers

LIVERPOOL, NEW YORK.

The October Sale

100 Registered Holstein Cows and Heifers 100
Sale Pavilion, Howell, Mich. Thursday, Oct. 12, '16
A QUALITY SALE

Each consignment has been carefully inspected and only good individuals were accepted. No cows with damaged udders nor other blemishes will be sold. Every animal guaranteed to be straight and right in every way. The Frank R. Crandall herd, one of the oldest established and most widely known Holstein herds in Michigan, will be dispersed in this sale and affords a remarkable opportunity for the selection of foundation animals.

This Sale Will Include: Beauty Walker Pietertje Prince 2nd, 107658, a 3 yr. old son of Princess Hengerveld DeKol, the only 33-lb. daughter of Hengerveld DeKol, and a dozen of his daughters and as many cows in calf to him. Also daughters of Johanna Korndyke DeKol, 45577, Segis Beets Inka DeKol, 116128, K. S. P. Howell, 79300, King Pietertje Hartog, 53502, and Crown Pontiac Korndyke 48712 and cows and heifers in calf to King Segis Champion Mobel, 122906, Maplecrest Application Pontiac, Elzevere Sir Canary Barnum DeKol, and Dutchland Colantha Winana Lad.

4 high class bulls will be sold. Sale starts at 10:30 o'clock, Thursday, Oct. 12, 1916. Kelley and Mack, Auctioneers.

The Michigan Breeders' Consignment Sale Co.
H. W. NORTON Jr. Mgr., HOWELL, MICH.

FOR PRIVATE SALE

The Estate of C. W. Pelham offers a dozen registered Holstein-Friesian heifers at such low figures as will facilitate the winding up of the estate. These are sired by King Segis Cornucopia Beets, No. 101010 g. g. son of Pontiac Korndyke, likewise of Sadie Vale Concordia, the first 30 lb. cow. Several half-sisters of the above heifers are already in the A. R. O. Object—to settle the estate!

Est. of C. W. PELHAM, H. F. PELHAM, Atty.,
203-4 Carlor Bldg., Jackson, Michigan.

Duroc Jersey Herd Boars

Special Offering of High Class Fall Boar Pigs. Breeding and Individuality good enough for breeders who appreciate the best.

Also some good farmer's boars. This is the best lot of fall pigs we have ever had to offer. A cordial invitation is extended to visit the farm and inspect the stock. If you wish one of the best young Jersey bulls in Michigan we have him for sale. For further particulars, address,

Brookwater Farm, Swine Dept., Ann Arbor, Mich.

Bull Calves

From A. R. O. Dams, Sired by "Maplecrest Korndyke Hengerveld," whose Dam, "Maplecrest Pontiac Flora Hartog," is one of the four 1200 pound daughters of "Pontiac Aaggie Korndyke."

Write us about these Calves, and our

Berkshires

And we will quote prices that will move them.

Swigartdale Farm, Petersburg, Mich.

Registered Holstein yearling heifer. Dam, a 25.80 lb. 12 four-year-old granddaughter of Pontiac Butter Boy. Sire, a grandson of Hengerveld DeKol out of 25.97 lb. dam. Nice individual, best of breeding. \$150 delivered, safe arrival guaranteed. Write for pedigree. Hobart W. Fay, Mason, Michigan.

HEREFORDS

ALLEN BROS.

12 Bull Calves
10 Heifer Calves
PAW PAW, MICH.

Life Farmstead Jersey Cattle. Bull calves from R. J. of M. Cows, also heifer calves and several bred heifers for sale. Colon C. Lillie, Coopersville, Mich.

Jersey Bulls for Sale from high-producing dams, with testing Ass. records, also on semi-official test. O. E. Weikner, R. 6, Allegan, Mich.

THE WILDWOOD JERSEY FARM

offers for sale choice young Bulls by Majesty's Wonder and R. of M. cows, or cows on R. of M. tests. Will also offer a few cows for sale this fall. Write for pedigree and full particulars. Satisfaction guaranteed. ALVIN BALDEN, CAPAC, MICH.

Maple Lane B. of M. JERSEY HERD offers for sale, tuberculin tested cows, heifers, bulls, and bull calves backed by several generations of R. of M. breeding. IRVIN FOX, Allegan, Michigan.

Jerseys For Sale Bull calves ready for service and cows and heifers soon to freshen. Meadowland Farm, Waterman & Waterman, Ann Arbor, Mich.

REGISTERED JERSEY BULLS FOR SALE

1 yearling, and Bull calves from 8 to 10 months old. Also 3 cows. Write your wants. SMITH-PARKER, R. D. No. 4, Howell, Michigan.

Maple Hill Farm Registered Jersey Cattle for Sale Both sexes. The kind that pay at the pail. J. R. Worthington, R. No. 7, Lansing, Michigan.

Registered Jersey Bull

Three years old. Best of breeding. J. S. Armstrong, 18 Woodward Ave., Detroit, Mich.

BIDWELL SHORTHORNS



For "Beef and Milk": Registered bulls, Scotch-topped, roans, reds and white for sale. Farm at N.Y.C. Depot; also D. T. & L. R'y. Address G. R. Schroder Mgr. BIDWELL STOCK FARM Box B, Tecumseh, Mich.

Shorthorn Cattle of both Sex for Sale W. W. KNAPP, Howell, Michigan.

DAIRY BRED Shorthorns of best Bates strains, young bull 8 months old for sale, price \$150. J. B. HUMMELL, MA SON, MICHIGAN.

Shorthorn AND POLLED DURHAMS FOR SALE. Have red roan and white. Have over 100 head in herd. C. Carlson, Leroy, Mich.

Shorthorns—Dairy or beef bred. Breeding stock all ages for sale at farmers prices. C. W. Cron Secy. Cent. Mich. Shorthorn Breeders' Assn., McBride, Mich.

Milking Shorthorns, roan 3 year old, Bates bred herd bull \$250. Young bulls and heifers for sale. DAVIDSON & HALL, TE CUMSEH, MICHIGAN.

SHORTHORNS FOR SALE

8 Bulls, also females. W. B. McQuillan, Howell, Mich.

FOR Sale—Reg. Short Horn Bulls by Maxwellton F. Monarch 2nd son of Avondale, from 11 to 13 mos. old. John Schmidt, Reed City, R. No. 5, Michigan.

Shorthorns For Sale. Young bulls \$100. Bred cows, and heifers \$150 for quick sale. Write W. J. BELL, ROSE CITY, MICHIGAN.

HOGS.

Berkshires of best breeding, of various ages, either sex, all registered stock, no skin, special reduced price. Write your wants quick. Mitchell's Lakeside Farms, R. 2, Bloomington, Mich.

The Very Finest Berkshire Pigs Cheap C. S. BARTLETT, Prop., Pontiac, Michigan

Berkshire Boars and gilts. May farrowed, large growthy fellows. Also a litter just ready to wean. A. A. FATTULLO, R. 4, Deckerville, Mich.

BERKSHIRE SOW and yearling gilt bred to farrow. Bearly in September. Boars ready for service. Also open gilts. Chase Stock Farm, R. 1, Mariette, Mich.

ROYALTON Bred Berkshires. Extraordinary offer. R. Bred sows, boars ready for service and pigs both sexes, selling out, all registered stock with papers. D. F. VALENTINE, Supt., Temperance, Mich.

DUROC JERSEYS

A choice lot of spring pigs, both sex, pairs and trios, not skin. Prices reasonable. Send for pedigree. THE JENNING'S FARMS, R. F. D. 1, Bailey, Mich.

J. W. KEENEY, Erie, Mich. Males, good ones for Dec. service. Breeder of Duroc Swine. D. M. & T. local from Monroe or Toledo, Keeney Stop.

DUROC Jersey Special. Pigs 8 wks. old \$12 each. Trio for \$35, no kin. Reg. and Del. anywhere in state for next 10 days. J. Robert Hicks, St. Johns, Michigan.

Duroc Jersey Boars Two June 1915; 12 April 1916. Write for description. I guarantee satisfaction. J. H. Banghart, East Lansing, Mich.

Duroc Jerseys. Some yearling & spring boars good enough to head your herd. Will sell one to you for King 61145. Ask about him. W. C. Taylor, Milan, Mich.

Duroc Jerseys—Fall and spring pigs either sex, from choice strains. S. C. STAHLMAN, CHERRY LAWN FARM, Shepherd, Michigan.

For Sale, Duroc Jerseys, choice breeding spring pigs either sex. Prices right. John McNeill, Station A, R. 4, Bay City, Mich.

DUROC Jerseys. Apr. pigs either sex, boars ready for service and a few bred sows for Sept. and Oct. Some Holstein cows bred for fall. E. H. Morris, Monroe, Mich.

DUROC JERSEYS: A nice bunch of Spring Gilts, also for service. Wm. W. Kennedy, R. 3, Grass Lake, Mich.

Dobson's Durocs Combined, size, quality, breeding. Bred sows, spring boars, spring sows for sale. Orla L. Dobson, Quincy, Michigan.

DUROC Jerseys Gilts of the large heavy boned type bred to a Son of Orion Cherry King the greatest boar of his breed. Bred for early Sept. farrow. F. J. DROBT, R. L. Monroe, Michigan

Duroc Jersey Spring and Summer Boars and Gilts. Ohio Chief breeding \$10 to \$25. NEWTON BARNHART, St. Johns, Mich.

Duroc Jersey Boars of the large, smooth big boned type. E. D. Heydenberk, Wayland, Michigan.

For Sale Duroc Jersey Boars, big heavy boned fellows, Spring and Fall Pigs. M. A. BRAY, OKEMOS, (Ingham Co.) Mich.

CHESTER WHITES Sows bred for Sept. farrow, spring pigs in pairs, not skin. F. W. ALEXANDER, Vassar, Mich.

CHESTER WHITE March pigs either sex. Booking orders for Sept. 1 pigs, 2 year old sows farrowed 9 pigs Sept. 5. Herd boars 2 yr. old. Ship C. O. D. W. A. Sneyer, Mt. Pleasant, Mich. R. 4.

Big Type Boars: ready for service Bred Gilts—Fall Pigs. Registered in buyers name, shipped C. O. D. Prices very reasonable. J. Carl Jewett, Mason, Mich.

O. I. C. Swine—A nice lot of spring pigs. Write your wants. Meadow View Stock Farm, Holland, Michigan. R. R. No. 5.

O. I. C. Serviceable Boars shipped C. O. D. Registered in purchaser's name. H. W. MANN, Danville, Mich.

(Additional Stock Ads on page 337).

"THE GREAT PRICE WRECKERS"

NOW Is The Time To Build Or Improve!

Get These
FREE
Books Today

You Can Buy a Car-load of Lumber or Building Material from Us Without Paying a Cent in Advance.

**CHICAGO HOUSE
WRECKING CO.**

Our Binding Guarantee Absolutely Protects You. Money Will Be Promptly Refunded if You Are Dissatisfied.

24 Years of Honest Public Dealing

THIS enormous business, with a capital of \$10,000,000.00 and satisfied customers in practically every township in the United States, was founded in 1892 on a new idea—to buy and sell nothing but bargains! From that day to this—24 years of honest public dealing—we have never swerved a hair's breadth from our original plan and purpose. Each year has marked our steady growth in power to serve our growing host of regular customers. Each year our growing financial strength—our increasing cash buying power—has brought us added ability to control the sources of those tremendous bargains that have made our name famous from ocean to ocean.

TODAY we are recognized as the leading "spot cash" buyers of brand new desirable merchandise at forced sales. Big manufacturers and merchants, seeking a quick outlet for surplus stocks, naturally turn to us for the ready cash. Their loss means your gain! We have our pick and choice at Sheriff's and Receivers' Sales, Big Auction Events and Exposition Sales. And we sell as we buy—nothing but quality goods at unmatched bargain prices. Direct dealing with us means more than just a big money-saving—it means guaranteed satisfaction as to quality, prompt shipments and the fair, "square deal" treatment that has been the corner-stone of our business for the past quarter century.

LUMBER AND MILLWORK BARGAINS!



HARRIS HOME DC-118
Size 24x38 feet; seven rooms, bath and store room. An ideal cottage or country home. Built many times at a tremendous saving. Material sensibly cut-to-fit—no waste. Price includes all lumber, millwork, glazed sash and doors, shingles, sheet metal, nails, rough and finishing hardware—ready for plaster. Only one of more than 100 Modern American Harris Homes.

**MAIL COUPON FOR
Our New FREE
\$10,000
Book of Plans!**

Wire Nails
100 \$1.90
Standard Wire Nails in 100 lb. kegs. Sizes from 8d to 20d mixed.
Order No. \$1.90
DC-30 Price \$1.90

For 8d Wire Nails, Order No. DC-40. Per 100 \$2.65
For 10d Wire Nails, Order No. DC-50. Per 100 \$2.60

Best Mixed Paint
\$1.27
Per Gallon
Harris high grade ready mixed house paint. Best formula on the market. Fewer gallons wear longer than any other. For House Paint, Order No. DC-127 100, per gallon. . . . \$2.27
For Best Barn Paint, Order DC-110, per gal. 64c

Our special Fall "Clean-up" Lumber Bargain Price List, now ready, shows the biggest money-savings we have ever offered in good lumber for every building purpose. **Mail the Coupon now!** If you expect to build or improve a home, barn or farm structure of any kind, this Fall, it will pay you BIG to write at once for our wonderful FREE Building Material Book containing hundreds of tremendous bargains in Lumber and Millwork, only a few items of which we can show here. We have constantly available for quick delivery over 20,000,000 feet of brand new, high grade material in our yards here at Chicago. To reduce freight expense to the lowest possible charge we are equipped to make shipments direct to you from our main headquarters at Chicago, Washington and Jackson, Miss., depending on your location. **This freight saving means many dollars of your money saved.**

Hundreds of Other Big "Snaps" Like These

 98c buys this good, substantial pine door; 1 1/2 in. thick, painted or unpainted	 90c buys good fir window frames. All other sizes and styles priced proportionately low.	 38c buys 4-light glazed barn sash. Every desired size priced proportionately low.	 58c for this 2-light white pine glazed window. Any other size priced proportionately low.	 \$2.50 for this clear fir glazed heavy front door; 1 1/2 in. thick. Other doors at like savings.
--	---	---	---	--

ROOFING! Prices W-r-e-c-k-e-d!

AJAX
38¢
PER ROLL

Get Our Low Freight Paid Prices

A rough sketch of your building showing the size of the roof, length of rafters, etc., is all we need to figure the amount of roofing you require. Mention the kind of roofing you wish and we can then give you our low freight prepaid prices delivered to your station. We can show you bigger money savings now than ever before.

FREE! New Roofing Book No. DC 42

We mail you free of cost, the most complete book of Roofing, Siding and Ceiling ever published. Shows you how to lay roofing by simple directions and easily understood diagrams. It gives our complete quotations on conductor pipe, eave trough and all roofing sundries. Ask for our FREE Roofing Book DC-42

Galvanized
\$2.50
Per Square



HARRIS BARN DC-220
\$433 This Harris "Majestic" Barn is one of many up-to-date designs shown in the Harris Barn Book. Built time and again at a great saving. Contains every feature that experience has proved desirable in modern barn construction. Interior arrangement can easily be made a model of convenience—space saving and economy of labor in housing and feeding stock.

**MAIL COUPON FOR
Our FREE
Model Barn
Plan Book!**



Galvanized Fence
20c per Rod
Hog Fence. Barbed Wire bottom. Order No. DC-140. 7 wires high, stays 6 in. apart. No. 11 gauge carbon wire top. No. 14 gauge intermediate line and stay wires.

Tubular Posts With Adjustable Clamps
Pointed Drive Metallic Painted Tubular Fence Posts. Made of 2 in. tubing. Finest grade of charcoal iron, covered with a heavy coat of mineral black paint, which adds to the appearance and life of the post as well. Order No. DC-120. For 6 in. post with two clamps, each 18c
Other sizes 64, 60, 72, 77 and 84 in. long, with necessary clamps, just as low. Special prices in carload lots.



Watts Corn Sheller
Complete, as shown with cob stacker and elevator. Light and easy running. Shells any kind of corn. Cap. 75 to 100 bushels per hour. Order No. DC-195 170. Now only \$19.50

Last Call for the Big RUMELY Sale Bargains!!



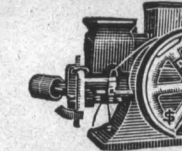
Rumely Feed Mills
Can't be beat for sturdiness, economy and simplicity. Special burrs a feature of grinding. Coarse, medium or fine. Order No. DC-180. For 8 in. \$12.50
10 and 12 in. sizes priced just as low.



Advance Ensilage Cutter
A powerful machine of enormous capacity. 10 to 20 tons per hour. Cuts any kind of silage as fast as you can feed it. Order \$110.00 No. DC-200. Price \$110.00
Other sizes proportionately low.



Rumely-Olds Engines
Greatest engine values ever offered. All sizes from 3hp to 65hp. Order No. DC-190. For 8hp at \$44.00 our special price of \$44.00
Can attached kerosene burners.



Adams Corn Husker
A "one man" machine. Husks for one cent per bushel. Cap. 20 bushels per hour. Elevates to highest mow. Order No. DC-220. \$84.00
Price now \$84.00



Watts Corn Sheller
Complete, as shown with cob stacker and elevator. Light and easy running. Shells any kind of corn. Cap. 75 to 100 bushels per hour. Order No. DC-195 170. Now only \$19.50

40 Acres of Bargains Like These—Mail Coupon Today!

Heating Plants \$55

Install your heating plant now while material is plentiful and prices very low. Our experts give you complete, simple instructions. Put your own plant in. Warm Air—\$55. Steam—\$134. Hot Water—\$154. Mail coupon for free Heating Book No. DC-144 now.

Enameled Tub \$16.50

Best White Enameled Cast Iron One-Piece Heavy Roll Rim Bath Tub 5 ft. long. Latest style nickel-plated trimmings—Fuller Double bath cocks for hot and cold water, nickel-plated connected waste, overflow and supply pipes. Order No. DC-165 230. Price \$16.50

Hog Troughs \$1.25 5 Feet Long

Strong durable troughs for hogs and cattle. Heavy galvanized and painted black. Steel cross bars and legs securely riveted. Round bottom, easily cleaned. Order No. DC-240. For troughs 5 ft. long, 12 in. wide, \$1.25
cap. 10 gals., each \$6.90
6 for \$6.90

Pipe-Fittings 4c PER FOOT

Good iron pipe in random lengths, complete with couplings, suitable for gas, oil, water and conveyance of all liquids. Sizes 1/2 in. to 12 in. Our price on 1 in., per ft. 4c
1 1/2 in., per ft. 5c
Order No. DC-280
Get our low prices on all your needs.

Galvanized Wire \$2.50 Per 100 Lbs.

Smooth Galvanized Wire for the farm. Suitable for fences, stay wires, etc. Irregular lengths of 30 to 100 feet. Order No. DC-250. For 9 gauge wire per bundle \$2.50 of 100 pounds \$2.50
All other sizes up to 14 gauge at proportionately low prices.

Furniture \$5.95

Buy this solid Golden Finish hardwood dining table; 42 inch top. Order DC-310. Only one of many big bargains in our Free Furniture book. Mail Coupon Today!

Harris Bros. Co., Dept. DC. 42 1/2, Chicago
Mark an X in the square below to show which books you want. They are FREE and sent postpaid.

- | | |
|---|--|
| <input type="checkbox"/> Lumber and Building Material Book | <input type="checkbox"/> Plumbing and Heating Book |
| <input type="checkbox"/> Roofing, Siding and Ceiling Book | <input type="checkbox"/> Machinery, Gas and Oil Engines |
| <input type="checkbox"/> Plan Book of Harris Homes, Barns, etc. | <input type="checkbox"/> Furniture and House Furnishings |
| <input type="checkbox"/> Paints and Painters' Supplies | |
| <input type="checkbox"/> Fencing and Wire Book | |
| <input type="checkbox"/> Nails, etc. | |

Name _____
Address _____

Address HARRIS BROTHERS CO., 35th & Iron Sts., Chicago