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Farm Buildings and Equipment

IT is being generally recognized that the best way to increase the profits from the farm is to "stop the leaks;" in other words, to bring about an increased efficiency of man and horse labor expended which will materially cheapen the cost of production.

There is no better place to begin in this program of increasing efficiency on the farm than the farm plant itself and the equipment with which it is operated. The question of soil fertility alone is perhaps more important to the average farmer, but will not appeal to him so strongly at this particular season of the year when the larger proportion of his time is spent in the home or at his work about the buildings.

Important as is this economic phase of the buildings and machinery with which the farm is equipped, what might be termed the aesthetic phase of the problem is, or should be, of still greater importance to the responsible head of every family. Aside from being a mere business, farming is a life into which the whole family enter as in no other business or avocation. The home itself is a direct reward of the family labor and its advantages and enjoyments should be made and reckoned a large share of the recompense for that labor. For this reason, then, the home or the farm house itself and its environments should be first considered in the study of the subject under discussion.

Yet here, as in the consideration of the more purely economic phases of the subject, utility should be given first consideration. Strange as it may appear, this has been the exception rather than the rule in the planning, building or remodeling of farm homes, because here the fancy of the builder has been given as free range as circumstances would permit, while in the development of the more purely economic equipment of the farm, utility has forced itself upon the attention and consciousness of the builder. The best example of this fact is the development of the modern dairy barn, since this is the most common example of this tendency to be found in almost any progressive community of Michigan. Here every provision has been made for the comfort and well-being of the animals which occupy the building, because experience has demonstrated that it pays in increased production to supply these comforts. Plenty of light is admitted, fresh air is provided by adequate ventilating systems, individual drinking fountains are in-

stalled for each animal, and construction is of a character which provides the optimum of sanitation with a minimum of labor and effort expended.

But in the building of the farm home a very different course has been taken upon the average farm, at least until within very recent years. Yet here the same care in providing the comforts and conveniences which will make for the well-being of every mem-

ber of the family and will lighten the cares of the housewife materially, are too often neglected for the sake of imposing appearance for the benefit of the passerby. In planning new farm buildings or the re-arrangement of the old, the purely economic phases should by no means be neglected, nor should the features which make for a more satisfactory and enjoyable home life be sacrificed; elegant appearance can, however, be dispensed with for the sake of comfort and utility.



A Typical Home, Built by a Pioneer to Satisfy Immediate Needs of Shelter.

proper consideration after careful thought on the part of the owner. Under such a plan a well balanced rather than a one-sided development will be secured, and a maximum of comfort may be enjoyed in the farm home with a minimum sacrifice of labor income from the farm itself.

A Comprehensive Plan Desirable.

The writer will make no attempt to suggest such a plan for the reader's use. If the reader is but impressed with the desirability of giving such consideration to the subject, the pur-

pose of this article will be accomplished and plans will be evolved which will be better adapted to the peculiar needs of the individual farmer than could be secured through any modification of general or set plans which might be suggested. The main idea should be to secure a maximum of utility and comfort at a minimum of cost and the adoption of a general plan for such development as will impart the air of comfort, thrift and homelikeness rather than mere ornamentation or showiness.

Such development should, of course, be kept within the means of the owner, but should be looked upon as an investment rather than an expense and as such should be given proper consideration in the financing of a farm. A nice degree of discrimination may often be required to wisely determine which of the needed expenditures along this line may profitably be postponed until the owner is out of debt and has accumulated a surplus which will equal the expenditure, since in making investments of this kind borrowed capital may often be used quite as profitably as in any other department of farm enterprise.

The Factor of Permanence.

Another object in having a well considered plan of general improvement or development of farm buildings is the ultimate economy of expenditures along this line. Quite often temporary buildings are constructed for present purposes with a view of building permanent ones later when the money can be spared for that purpose. If a well considered plan of development is at hand, this temporary problem can be more wisely solved. Very often it will be possible to build a section of what will later become a permanent building or use material for such construction which can later be worked over with economy into the making of a permanent improvement.

With the introduction of more enduring materials and types of construction, which is bound to increase rapidly from this time on owing to the growing scarcity of lumber, the value of a permanent plan will be enhanced, since it will be impracticable to alter the location of these more permanently constructed buildings to suit a plan which might later be adopted.

The pioneer's efforts in the erection of the early log buildings on our Michigan farms were directed wholly to the problem of satisfying his immediate needs, and in the more or less temporary character of more



"Cobble Lodge," Modern Home of Harvey Haynes, of Calhoun Co., Built Entirely by the Owner.

(Continued on p. 1.)

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DETROIT, JANUARY 8, 1916

YOUR FARM PAPER.

The season has arrived when if he has not already done so, the reader must select his reading matter for the coming year. With several months of winter ahead when there is ample time for reading, and when plans are being made for next year's farming campaign, it is more than ordinarily important that the farm journal or trade paper best adapted to the individual farmer's needs be included in this selection.

Some farmers engaged in special lines of farming may require other technical or trade papers devoted wholly to the line in which they are interested as a specialty, but every farmer will certainly find it profitable to be a regular reader of the farm paper published especially for and circulating only in the section of the country in which he is located. Such a paper, if intelligently edited, cannot but give the reader a maximum of value for its cost, since it will contain only matter pertaining to some phase of agriculture as practiced in that section, or educational or entertainment features selected with a view to their peculiar interest to the farm families of that section.

Likewise the advertisements appearing in such a trade paper will be of a character which will hold interest for those whose trade paper it is designed to be, and while this fact may not have occurred to every reader—if indeed it has to the average reader of a farm paper—the advertisements contained in such a paper are of no small importance to its reader in an educational way. They keep him in touch with the progress which is being made along the line of farm equipment and goods for use by farm people. They furnish him with a reliable business directory of manufacturers of and dealers in reliable brands of goods for which he will have personal use, and last but not least they are a source of revenue to the publisher which enables him to publish a good trade paper at a very nominal cost to its readers.

This issue is fairly representative of the character and quality which will be sustained during the ensuing year. We believe that all who take the trouble to look it over carefully will reach the conclusion that it will be worth to them considerably more than its nominal cost and if their subscription is about to expire will renew for one or more years for the Michigan Farmer alone or in combination with other desirable publications included in the liberal clubbing offers appearing on page 53. Having reached this conclusion, it will be the part of wisdom to act at once.

CURRENT COMMENT.

In another column of this issue appears the first of the special articles on the subject of soil fertility promised in our prospectus for the coming year. This article, which is written by one of the county agricultural agents of longest experience in Michigan, is worthy of the careful perusal of not only the farmers of his own locality but those of other sections since the facts outlined and the deductions drawn in this article are applicable to the local conditions obtaining over a large section of Michigan. This article will be followed by others on closely related subjects by other Michigan county agricultural agents and progressive farmers with the idea of bringing out the fundamental points in soil fertility and soil management so prominently as to attract the attention of every Michigan Farmer reader with the hope of bringing about a general betterment in methods of management in vogue upon the farms of the state and a consequent general increase in the present and future prosperity of Michigan farmers.

Other questions related to the growing and marketing of crops are of very considerable importance, but there is no one question of so great importance to every farmer as this basis question of soil management or soil fertility, since the first essential in profitable agriculture is a good yield of such crops as are grown which will insure a comparatively low production cost. Under judicious methods of soil management the yields of the staple crops on Michigan farms should be increased from year to year instead of decreasing as is the common experience not only on the farms of this state but of the country as a whole.

We may well take a lesson from the experience of progressive farmers of foreign countries which have sustained a rapidly increasing population upon soils which have been farmed for hundreds, and in some cases, thousands of years, and at the same time steadily increased crop yields during the past half century which has seen the greatest advance in the application of science to agriculture.

We bespeak for these articles a most careful reading, and invite the contribution of experiences on this most important subject from all who feel that they can contribute something definite to the sum of general knowledge on this important phase of Michigan agriculture.

In the issue of January 1st, appeared a notice of the mid-winter meeting of the Michigan Bean Jobbers' Association to be held in Detroit on January 27. This notice included an invitation from President Orr, of the association to the bean growers of Michigan to attend this meeting. As a special inducement for a general attendance of same by bean growers, Dr. Howard, of Washington, D. C., has been secured to talk on "Bean Diseases."

In the interest of a better mutual understanding between the bean jobbers and bean growers of the state, it is desirable that this invitation be accepted by a goodly number of bean growers who are so situated that they can attend this meeting. Particularly should the officers of the state organization of bean growers and all the various local or county organizations which have been formed in Michigan during the past year attend, to the end that a better knowledge of the work and aims of the Bean Jobbers' Association, and a better acquaintance among its members may be enjoyed. Such a knowledge and acquaintance may be helpful in the adjustment of bean marketing problems which will properly engage the attention of the bean growers of the state until their

satisfactory solution has been attained.

Publicity for Michigan transportation systems has in the past been almost wholly confined to reports of their shortcomings. Even these reports have been so fragmentary that the interested public has had little actual information upon which to base an intelligent opinion as to the proper attitude of the public toward these transportation companies, upon which the prosperity of the state as a whole, and the communities served by them in particular, is dependent.

There is little doubt but that the men and the interests which have exploited many of these transportation companies for their own gain have merited the disapproval which they have received from the public, yet such merited condemnation does not solve the problem of the future of such transportation companies in which the people served by them continue to have a vital interest.

In recognition of this public interest in the future of the Pere Marquette Railroad, and on the theory that the people of the state are entitled to know about the plans and policies under which the rehabilitation of this big railroad system is being attempted, Paul H. King, operating receiver of the road, appointed by Judge Tuttle of the United States District Court, has prepared a series of advertisements which will appear in this paper under the head "Pere Marquette Talks," beginning with the next issue.

In these talks Mr. King will give his views regarding the problems and needs of the railroad as he sees them after a careful study of the conditions. Mr. King has been in charge of the Pere Marquette system since June, 1914, and with the active support of every member of the organization has been working toward the desired end of making the road "go," meaning to render the public the good service to which it is entitled on a self-supporting basis.

The future of this transportation system and of the service which it will render to the people of the state will depend primarily on whether it can be maintained as a system or must be broken up into its component constituents. The receiver believes that if the railroad can be reorganized and made to prosper as a "going concern," it will be better able to furnish the people of the state that kind of service which will aid in the development and progress of their respective communities. He states that his object in making these talks is to bring the people and the railroad into closer touch and emphasize the importance of co-operation for mutual benefit along the line above noted.

We bespeak for these talks a careful reading by our subscribers and a remembrance of the fact that they are written by an officer of the Federal Court rather than a representative of private interests. The first of these talks will appear in our issue of January 15.

THE DETROIT AUTOMOBILE SHOW.

The Annual Detroit Automobile Show will be held at the Pier, out Jefferson avenue near the Belle Isle bridge site, from January 15 to 22 inclusive. All indications point toward a bigger and better show than any which has preceded it in the history of the Detroit Automobile Dealers' Association under whose auspices the show is staged.

With each passing year the attendance of farmers at this show where the new models for the year are shown for the first time, and where new things in the way of accessories are a prominent feature, has increased rapidly as has the country demand for automobiles of all classes. There is no better place to become acquainted with the trend of the trade and the progress in design and mechanical perfection which continues to be apparent in the product of automobile factories even after the same has been considered standardized.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—Two significant moves were reported early this week. The one is from Berlin where an order has been given the Teutonic armies before Saloniki, Greece, to attack the Allied forces entrenched about the city. About 200,000 soldiers will be engaged on both sides and military authorities assert that the battle will exceed in proportions any yet fought in the Balkans, and its result will be the most decisive of all the engagements in that quarter. The Italians are moving troops to the aid of the French and English and the Teuton's in addition are planning their long anticipated march upon Egypt, according to the best information. The second big move is the advancing Russian forces over a 300-mile front in eastern Galicia and southern Poland. They have already forced the enemy lines back to the west many miles and have been able to push forward despite flanking movements by the Austrians. The Czar's army operating in the district numbers about 1,500,000 men and is fully equipped. Some fighting is reported in the Riga district, with the results seemingly of little consequence. On the western front artillery duels have been numerous along the major part of the whole front, but no achievements of note by either side resulted. Notwithstanding the attention other theatres of war are attracting, military students are more and more convinced that the great test of strength of the opposing forces will ultimately be made upon the fields of Belgium and Flanders.

Yuan Shi-Kai, president of the republic of China, has accepted the proffer of an emperor's crown and on New Year's day he ascended the throne at Peking and was received as "His Imperial Majesty." The formal coronation ceremony has been delayed.

The sinking of the English steamer Persia, in the Mediterranean, with a probable loss of 250 persons, brings the total number of passengers and members of crews lost from passenger boats torpedoed by Teutonic submarines up to above 2,000 persons, of whom nearly 160 were Americans.

Scarlet fever is raging in Posen, Germany, and the government's stringent sanitary measures are proving inadequate to cope with the situation, according to dispatches.

National.

Recent compilation of the census figures of London, England, shows New York city to be the metropolis of the world by over 100,000 persons.

The latest note from Austria on the sinking of the Ancona practically brings the difficulties between that government and the United States to an end.

Former Mexican Dictator, General Huerta, is reported critically ill at El Paso, Texas, where he recently underwent a serious operation. Several months ago the general was taken in charge by United States authorities upon the grounds of violating the neutrality of this country through an alleged conspiracy to foment a new revolution in Mexico.

The business outlook in this country at the opening of the new year is as bright as at any time in our history. Following two years of bumper crops and high prices, unparalleled activity in steel and iron trades, a remarkable surplus of financial means, enormous and constantly increasing foreign trade, a confidence has been developed that has overcome unprecedented obstacles and launched the country upon an era of renewed prosperity.

Henry Ford, after accompanying the peace party on the Oscar II to Stockholm, Sweden, has arrived in America. His health is much improved and he reached the New York harbor in good spirits.

The national committee of the republican party have issued a statement asking the return to the party of all electors to help in the 1916 fight "without regard to past political affiliations."

The security congress, with a program covering all phases of military and naval preparedness, convenes in Chicago on January 20.

In the Ann Arbor rate case which has been argued before the federal court at Grand Rapids, the state holds that a two-cent passenger rate has been sufficient to carry the passengers, and that if there are any losses incident to the two-cent rate, it is because of the expense for Pullman service.

The southern states are to get an army camp similar to the one held at Plattsburg, N. Y., last summer. The new camp will be at Fort Oglethorpe, Georgia.

The naval department has completed plans for submarines, and hereafter contractors will be obliged to build according to these plans instead of constructing craft to do certain things.

Soil Management Problems

By JAMES F. ZIMMER
County Farm Agent, Wexford County.

THE soil is not a dead, cold mass of matter that can be studied profitably only in the laboratory or by studying the many books that have been written on the subject. No, our fertile soil is full of life and energy and demands the intelligent care of the farmer fully as much as does his live stock. No one expects large returns from live stock unless he is willing to give that live stock the best of care, yet many farmers feel that their soil should return them a profit when these soils are poorly plowed, carelessly cultivated, and when they are literally starving for lack of plant food and for lack of humus.

The so-called abandoned farms of the east, the worn out cotton lands of the south, and the decreasing yields of the wheat land of the middle west are object lessons from which we all may learn. The main reason why these farms are in their present condition appears to be that they have been cropped too continuously to timothy and other grasses, and that the hay has been sold from the farm.

Many farms in Wexford county will

used by our farmers and in two cases they had a high test deposit of lime (marl) on their own farm. Many crops have failed until lime was added and a line can be seen marking the very inch where the lime was not applied. We have farmers in this county who have failed to secure a good crop of clover for three successive years, but as soon as the soil was sweetened with lime, they had an immense crop of clover.

In the writer's opinion there are three main reasons why soils are sour:

- (a) Acid from pine needles.
- (b) Acid from decaying plants.
- (c) Breaking down of rock formations.

In the heavier parts of our county the farmers succeed with all legumes but in the sandy soil we find the litmus test showing acid soil. As to the amount of lime to use per acre, we have best results with about one and one-half tons of limestone or five loads of marl per acre.

Soil Moisture.

This is one of our big problems, if we can supply the much needed lime and keep plenty of humus in our light-

in dairying and other live stock work the maintenance of the fertility of our soils is of prime importance. To be sure the feeding, the breeding, housing and marketing of live stock and their products are all of great importance, but if all these phases of the live stock business are handled intelligently, the extent of our business will be limited by the crops we can produce. If our quarter section is carrying twenty cows why not double the production of each acre and make it carry forty? Would it not be better than to buy another section? The unprofitable dairy cow, the fewer of them in our possession the better for us.

Plant Food.

Prof. M. M. McCool, Soils Department, M. A. C., spent some time in this county in June, 1915, and collected soil samples in every part of this county in order to make a soil analysis. He found the potash content of our soils relatively high, but as a general rule our soils were lower than normal in nitrogen and phosphorous. Seventy-five per cent of the samples were sour or need lime in order to grow legumes.

The one thing that is being done in many parts at the present time is to sow vetch and rye in the corn ground. Much nitrogen can be added this way.

building but give a general air of neglect to the whole farm on which such building stands.

This question of maintenance should be given due consideration in the planning or remodeling of farm buildings. Many of the investments made in the building of new structures on the farm or the remodeling of those already there may be unwise and unprofitable, but the case will be exceptional indeed where the maintenance of a building already constructed in such a manner as will conduce to a maximum period of usefulness will not be a profitable investment.

Materials.

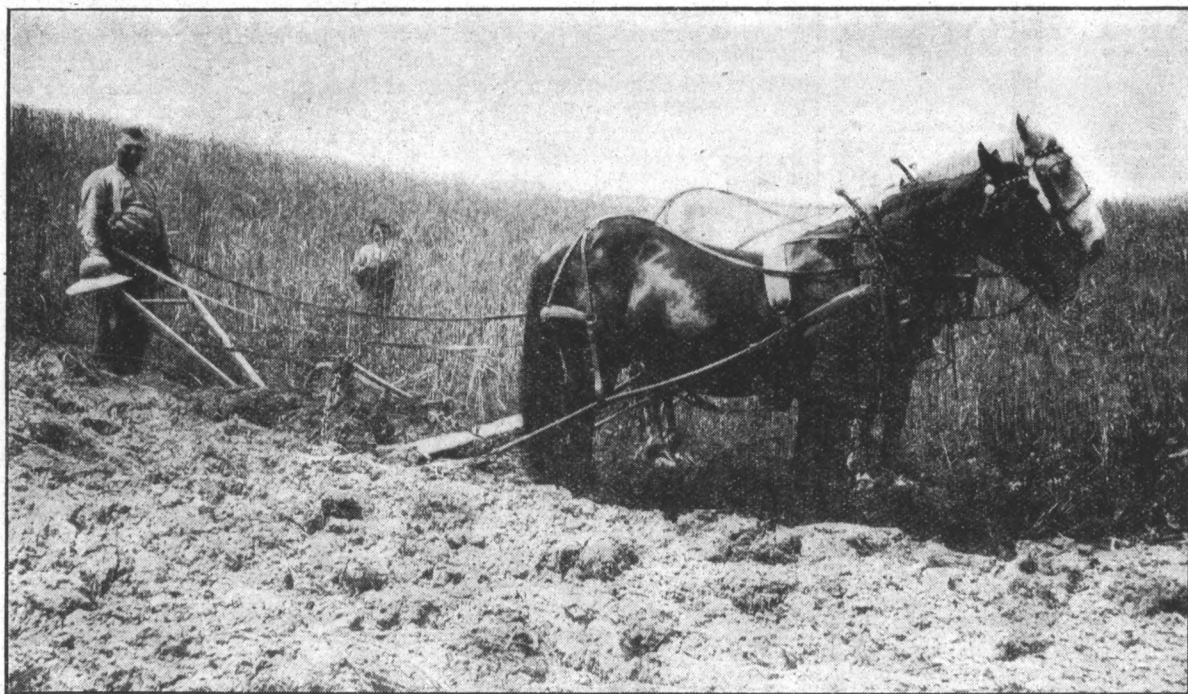
As above noted, the factor of permanence and the comparative cost of the more permanent building materials as compared with the perishable sort may properly be given increased consideration with the changed conditions which obtain from year to year. In many lines new materials are being brought out to bid for public attention each year. Very many of these find a permanent place in the construction of the period. All are worthy of the investigation of every Michigan farmer who contemplates the construction or remodeling of farm buildings. In any event the cost of materials is generally much less than the cost of labor in construction work of this kind, for which reason as well as because of the greater service and economy of maintenance where the better grades of materials are used, it will not pay to use poor materials even at a low first cost except in the most temporary types of construction.

Equipment.

The equipment of new or remodeled buildings is worthy of quite as much thought as is their construction. The installation of labor-saving devices and comforts in the home is a matter of the very greatest importance to the members of every farm family. A similar equipment of the out-buildings for the economical and efficient conduct of the farm business is only slightly less important. Here, again, every farmer, whether he may contemplate the construction or alteration of buildings or not, will find it profitable to keep himself informed as to the latest developments in this great modern field of equipment.

General equipment for the farm, including machinery used in the field as well as in the farm buildings, may well be given consideration in this connection. This is the age of machinery; an increasing amount of machinery is yearly becoming indispensable in the economic operation of the farm. It requires a nice degree of judgment on the part of the modern farmer to choose between desirable equipment which he feels that he cannot afford, and that which good business judgment will tell him that he can under no circumstances afford to do without. For the small farmer, there must ever remain a limit to the profitable investment in desirable equipment, unless some plan can be developed by which he can join with other small farmers in his community in the purchase and ownership of such equipment as may be generally employed for a sufficient period during the year to make its purchase profitable to all. Comparatively few farmers however, have reached that economic limit in the equipment of their farms.

This matter of farm buildings and equipment is not only an interesting subject for discussion but a profitable field for study and thought. If the very general ideas above advanced shall have the effect of provoking a more detailed discussion of some one or more phases of this broad subject in subsequent issues, the writer will be indeed gratified, for it is by such an exchange of ideas upon vital subjects of this kind that we gain the broadest knowledge of the basic problems of agriculture, upon the correct solution of which our prosperity and happiness as farmers in no small degree depends.



Plowing Under Vetch and Rye is One of the Ways of Building up Light Soils.

go the same way if our farmers do not plow under more humus and raise leguminous crops. Potatoes are our most important crop but the writer has observed where three crops of potatoes have been removed from the lighter soil it is practically worthless until two or three manuring crops have been plowed down. It is possible to reclaim some of these farms by the use of lime or marl to correct the soil acidity.

The secret of maintaining soil fertility in this county is, the soil must be kept in a sweet condition and humus must be added every year. What are we to do? We are not farming for the fun of it, neither are we managing our farms to demonstrate some theory of conservation. To be sure, we all want conservation of resources but what we desire most of all in our farm and in every occupation is utility and efficiency. We must not and can not maintain the fertility of the soils by letting them lie idle. They must be made to give maximum crops and in return they must receive the best care at our hands.

Why do Farm Crops Fail?

Acid soils are of frequent occurrence throughout this county, but we have over 200 acres of lime deposits in Wexford county alone, namely marl, which is being used, and splendid results have been obtained. Many car-loads of ground limestone have been

er soils in this northern country, we can raise immense crops if the soil is properly cared for.

Everybody has noticed how straw mulch holds moisture in the soil beneath, but it is not as commonly known that the stirring of the surface with a cultivator or harrow makes a soil mulch that has the same effect. It makes little difference how thin this soil mulch may be, as a mulch one and one-half inches in thickness conserves moisture almost as well as a mulch twice as thick. The drier the sand mulch the more efficient it is in conserving moisture in the soil beneath. It is an unbroken rule in this country that a man who keeps one good cow for every three acres in his farm is always succeeding. I have never seen it fail and have been on 1,040 farms within the past year. Good cattle and alfalfa will be the salvation of this county, but it is going to take some years to convince our farmers of this fact. As a whole our county has an unlimited amount of pasture land and would feed 100 times the number of cattle, we now have.

We are interesting our men in registered stock through live stock associations, of which we have six at the present time. By this means we have imported a considerable number of high-class cattle.

Dairying.

To those of us who are interested

Many of our men are building up their soils with sweet clover which produces immense yields on most of our soils.

In conclusion, will say: financially, agriculture is on the upgrade, and the advance is largely due to more thorough knowledge of the soil.

FARM BUILDINGS AND EQUIPMENT.

(Continued from first page.)

recently constructed buildings the same rule has generally obtained. Comparatively few of these buildings have been constructed with the view to permanence which will more and more characterize the type of rural architecture which will be adopted with the passing years. The farm buildings of the future will be constructed for posterity as well as for the use of the present generation, for which reason the most thoughtful consideration should be given, not alone to the plans adopted but as well to the location of the buildings in accordance with a well considered general plan.

Maintenance.

Great as are the losses resulting from poorly planned, improperly located or faultily constructed buildings, they are perhaps insignificant to the losses suffered through the neglect of proper maintenance. A leaky roof, a loose stone or board, an exposed surface unprotected by paint, may not only cause rapid deterioration of the

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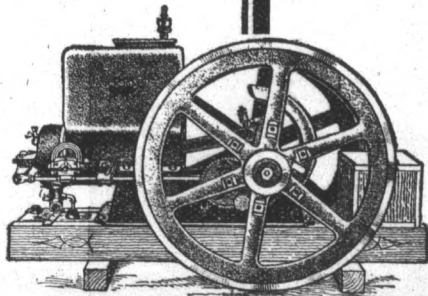
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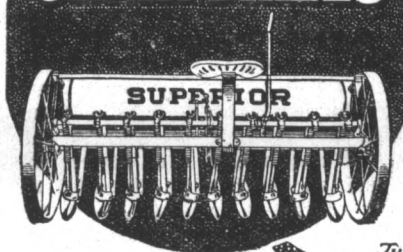
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Make a Partner of the Boy

THE real reason for keeping the boy on the farm, is that he is more likely to prosper amidst the scenes of his early training and experience than to go to the untamed city where he must learn the a, b, c's of life all over again.

Furthermore, the father has a right to expect new blood to replace his declining strength and to look forward to a comfortable old age when the son adds the enthusiasm of youth to their united experience. "With your good counsel and my strength and ambition, we ought to do some big things on the old place this year," wrote a farm boy recently to his father.

The only way to hold a boy on the farm is to see that he is interested in his work. As soon as a boy learns to work without being watched or nagged, he deserves praise and encouragement and pay accordingly.

As soon as he can carry responsibility, some partnership plan will make a permanent, satisfied fixture of the growing youth. The younger ones can be interested by owning a calf, pig or colt which they have earned by faithful service.

A plot of ground turned over to the older boy for his exclusive use as suits his own ideas will often stimulate him to do his best.

A tacit partnership is easy and simple, whereby the junior member of the firm receives an agreed percentage of the profits of the whole farm.

A more formal arrangement is to draw up regular articles of agreement in legal form. This may provide for actual joint ownership of all property, or only for a division of net profits, the title to land and equipment remaining in the name of the father until the son acquires an ownership right by purchase or otherwise.

Also a similar plan may provide for the payment of wages to both parties according to their several activities, and to divide profits only after a suitable rate of interest shall have been allowed the father for his capital investment.

I knew one man who formed a joint stock company with all the members of his family as officers, directors and stockholders, and found that it worked beautifully in developing enthusiasm and sustaining interest.

Another dairy-farmer friend of mine sold his bottled milk to his son for six cents a quart. The son retailed it for eight cents, the two cents representing his earning or share of the business.

The failing of most fathers is that they have bossed things for so long they don't know how to adjust themselves to letting go of authority. Johnny has needed spankings and training so many years that pa doesn't realize his little boy has grown into a man and needs a man's chance to make good on his own account. "The wise parent teaches his child to do without him."

The trouble with many boys is that they often resent father's advice and direction; or they know more at 18 than all the gray-beards do at eighty; or that they have been driven so hard they want to kick over the traces and run without rein; or they are long on red blood and still a trifle shy on gray matter.

The big thing is for Father & Son, Limited, to get together on a basis that will be fair and square for all hands.

A partnership with boy teaches him to stand on his own feet. It gives him a chance to learn by doing and not alone by being told. It develops the ability to carry loads of responsibility which fosters that brand of independence that leads to business success.

It is certain that no boy of spirit—in brief, no boy worth keeping on the farm—will be contented where he is required to work hard for little or no

pay, with small opportunity for social enjoyment, and with no outlook for financial advancement. By taking the young folks into some kind of partnership on an equitable basis all around, the adolescent of both sexes will prefer to stay on the farm and the rural boy and girl problem will solve itself. Illinois. H. A. BEREMAN.

EMPLOYING FARM LABOR.

The good farm hand is not compelled to seek long for employment. The seeking is for him in these days of scarcity of farm laborers, and he is always hired early. Although farm work here in northern Indiana does not generally begin before the first of April, it is not unusual for farmers to hire their hands as early as the first of January. It is the poor quality of farm labor that is on the market until February or March. It is therefore the case that while the farmer that hires his hands early in the year may choose what he pleases, he that delays hiring until March will likely find only the poorer laborers to select from, if, indeed he is lucky enough to hire any at all.

We are of the opinion that it would be more advantageous to many employers and to their employes as well, if the contract of hiring were made for the entire year, instead of for only six or seven months, as is the common rule. If the hands were engaged by the year it would be much easier to hold a good one from year to year. Especially is this true in the case of the dairy farmer. The good dairyman wants a good milker, and one who is kind to his cows, and if he has once found and tested a good hand, and finds that he fills the bill in all respects, he very much dislikes to exchange him for a coarse, brutal hand, who cares little whether he mistreats the cows or not, so long as he gets his wages.

The question of boarding the farm hand is an important one, and is much discussed. In some cases houses are provided for the occupancy of married laborers, and we think this a commendable plan. When the hands are boarded by the farmer, it adds greatly to the labor of his wife, when in many cases that labor would be fully hard enough without this addition.

It has been our experience that the married farm hand gives better service than the unmarried one. The unmarried one is unfixed, unsettled, more or less a wanderer, and having but little interest in the well-being of the community in which he may live. If he is married and has a family, he has an anchor, and is spurred forward to better work and greater thrift. If he is allowed to have a house to live in, and a garden and some chickens, he is certain to feel an interest in the farm, and will work more steadily and thoughtfully, while his wife and children will often find employment in his employer's house to the profit of all concerned.

In most contracts of hiring farm hands, the wage is specified at so much per month, the amount being payable monthly. Not a few farmers have found this method of hiring quite a disadvantage, to their sorrow. In most communities the wages are fixed by custom, regardless of the fact that some hands are worth more than others. A hand may well know that he deserves more wages than some others in the neighborhood who get as much as he does. He may conclude to "strike" for more wages, and if refused, he may leave, and this, too, at a time when he is most needed. As the laborer usually has no property that can be reached by legal process, his employer is helpless. We believe in paying farm hands what they really earn. It is surely wrong that custom should fix the price. Indiana. D. L.

Adjusting Farm Machinery

Aside from the proper protection of paint, and good sheds for farm machinery, there is no other one thing that adds so much to the durability and lessens the waste of this costly equipment as does the correct adjustment of all working parts. Parts allowed to work loosely wear faster, give less satisfaction and more trouble to the operator than when kept as the maker intended they should be kept.

Contrary to the popular belief, makers want their machinery to last. They are building on the future. Manufacturers are standardizing farm machinery and they naturally want to sell more machines. But the long-headed manufacturer knows that if each implement gives years of service the cost of production will be materially lessened on the farm and thus pave the way for more room made for improved types and for other purposes. Consequently many implements have become standardized and have interchangeable parts. If these parts are given the care that should be given all machines the cost of operating farm machinery will be lessened.

About 90 per cent of the working parts of a steam traction engine are capable of adjustment. The same ratio holds good on the binder, mower, gas engine, and in fact, most of the machines in use on the average farm. All machines that have crank shafts should be adjusted from time to time as should all cross-head connections, shaker arms, wrist connections, as on the disk wheel of an engine, wooden

hangers are usually made in one piece and the bottom of the boxing slotted and wear taken up by either the natural spring of the timber or by thumb or lag screws. Cog gearing is also capable of adjustment on most machines by simply turning a few nuts or bolts. Cog wheels, or "sprockets" over which a chain is operated are, of course, subject to wear and the only remedy for these is hard oil or axle grease and plenty of it. It is a simple matter to adjust farm machinery so all parts will work smoothly, without noise, lost motion and unnecessary wear if one will only study the problem seriously and from the standpoint of economy it undoubtedly pays.

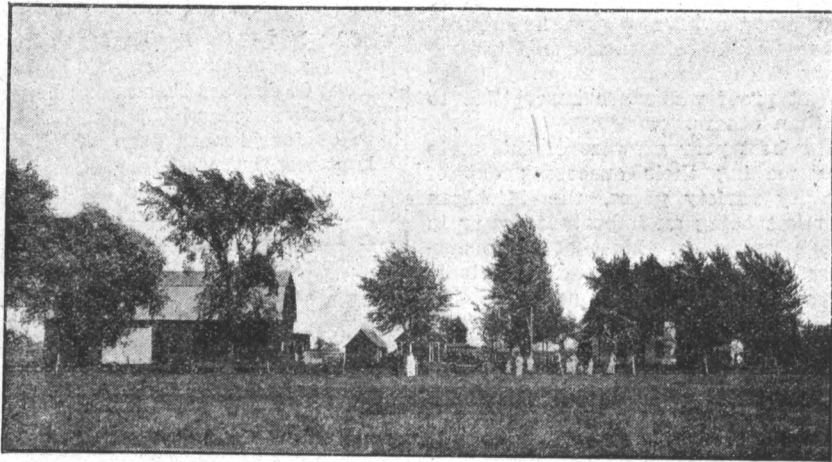
Indiana.

W. C. SMITH.

GOOD ROADS IN MICHIGAN.

The section of country in western Newaygo and eastern Oceana counties is fast being improved by good roads. Newfield township in Oceana and Sheridan township in Newaygo have already bonded for this purpose and now comes Denver in Newaygo county with a bond issue of \$20,000, which will give the township a fine system of highways.

Since July 1 the state highway department has approved the construction of 571 miles of state reward road in Michigan. If the new automobile tax law stands the test of the courts the state will have approximately \$750,000 for the construction of roads.



Utility Should be Considered in the Arrangement of the Farm Buildings.

hangers that carry moving weight, and all main boxings and casings. A large proportion of engine makers of the traction type have adopted drive wheels whose boxings are adjustable.

This adjusting is done for the most part by the use of what are variously known as "liners," "shimming," "backing," and the like. These are simply strips of pasteboard or other material placed between the edges of the boxing, or journal caps to keep them in condition for this adjustment. When wear has been sufficient to use all of these strips it becomes necessary to re-babbit the boxing. This is not a difficult matter with ordinary boxings and journals. One-half of the boxing is babbited at a time by fitting it properly to the shaft or to another shaft that is of the same size and perfectly smooth. Care should be taken to have the half of the journal and the shafting perfectly level and parallel with each other. Stiff clay moulded at the end of the bearing will keep the metal from running out and sufficient space should be allowed so the two halves of the journal will not come together when placed in position. This allows the liners to be put back and adjustment made when necessary, as before. It is unwise to get journals too tight, as the friction does more damage to both the power and to the machinery than the former wear.

Babbiting, however, is unnecessary with most machines. The makers have arranged bearings that can be tightened with an ordinary wrench, by the use of washers and other devices.

The 15 upper peninsula counties have a big road program on for 1916. Chippewa county has plans for 300 miles of new road, and Houghton county will spend at least \$75,000 in highway work. Ontonagon has made a survey for a trunk highway crossing the county, and a trunk road from Sault Ste. Marie through to Ironwood is planned for the coming year.

Colfax township, Benzie county, held a special election and the proposition to issue bonds for \$5,000 for good roads was defeated by 11 votes.

Orleans township in Ionia county has completed seven and a half miles of state reward road during 1915 and leads the county for the year.

Wayne county has plans for 44 miles of additional concrete road in 1916.

Calhoun county has built 25 miles of good road during 1915. The road between Battle Creek and Marshall is completed and a patrol system to keep the road in good condition will be established this spring.

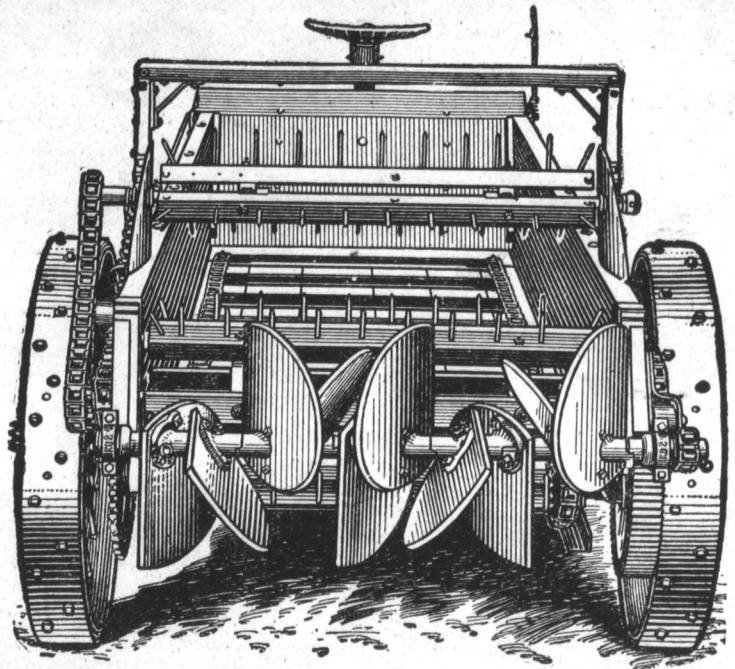
Berrien county will add 50 miles to its system of stone roads in 1916, with cost estimated at \$311,993. Contracts have been awarded and some work has already been done.

Kent Co.

ALMOND GRIFFEN.

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Mr. C. E. Whitten, proprietor of C. E. Whitten's Nurseries, Bridgman, Mich., under date of December 28th, writes: "The Michigan Farmer gave me inquiries at lowest cost per inquiry of any medium that we used last year."



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If you're not getting \$8.00 to \$10.00 manure profit for every animal on your farm you are losing money. Fork spreading is wasteful. Some spots are not touched at all, others are covered too thickly and the soil is burned. You not only actually lose manure but you lose manurial value through improper handling.

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You need a machine that spreads wide and at uniform thickness. It must be built low down so as to load easily and of such light draft that two horses can readily pull it on ordinary soil.

The spreader you choose must be strongly built to resist hard usage, the manure must be delivered without loss or clogging, and the mechanism must be so arranged that it can be controlled from the driver's seat.

You get all these features and many others in the improved and patented

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the spreader that's backed by 16 years' experience. It's 43 inches high at the highest point, and can be loaded with an easy throw of the fork. The chain conveyor brings every bit of manure to the double cylinder, where it is finely pulverized. No chance of clogging. There is a 17-inch clearance under conveyor, and the wheels track for light draft.

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Pear Growing in Michigan

THE article on "Growing Pears for Profit," was a pretty good argument in favor of the Keiffer pear. This variety can stand all of the arguments in its favor but some of the article does not fully apply to Michigan conditions. They may have to grow the Keiffer in other places or grow none but Michigan is a quality fruit state and therefore has many who have made successes of the quality varieties of pears.

Because the Keiffer pear, with the Ben Davis apple, bear the brunt of most of the pomological jokes, it is not the purpose of this article to make fun of them. They serve very practical purposes for they are known for their durability, which makes them good keepers and good travelers. They can also be cheaply produced and therefore can be sold at less than other kinds. These two factors make them blessings in disguise for many would have to forego the pleasure of eating fruit if it were not for them.

Michigan Conditions Favorable for Growing Quality Varieties.

In the light of present conditions regarding blight it becomes the duty of Michigan fruit men who have the proper conditions to grow such quality varieties as the Bartlett, Seckel, Clapp's Favorite, Bosc, Howell and others. Blight has not been as serious in Michigan as in other states and the quality varieties have not been much more susceptible to it than the Keiffer. In fact, three year ago the Keiffer orchards of the state were apparently singled out by blight for special attack, for at that time the tables seemed to be turned and the variety with the reputation of being blight proof was more susceptible to it than others.

The best pear growers of this state are making their successes out of quality variety pears, the Michigan Bartlett being an important factor in these successes. Most of these successful orchards are small. This is because the ideal pear soil is a clay which is hard to work. To cultivate forty acres of such soil takes as much work as a hundred of those of a sandy loam nature. But orchards in such soils are surer crop bearers than are those on loamy soils. These soils are not so susceptible to weather changes but have ready for the tree the proper amount of moisture and plant food for a steady normal growth. Light soils such as Mr. Van Aken recommends, are spasmodic in their action, and pears growing on them may make abundant growth one year and suffer for the lack of growth the next. Such uneven growth makes the tree more susceptible to blight and other diseases. It is true that pears do well on soils which do not make their plant food quickly available, but the clayey soils have this feature and have the added one of being more uniform in their action.

The Essentials of Success in Pear Culture.

With soil of this nature and a location with good air drainage so as to make less prevalent the fungus diseases, one can be assured of success with the quality varieties if he is thorough in spraying and moderate in pruning and cultivating. The Keiffer pear also does very well under such conditions. The best Keiffers the writer has ever seen was grown on good stiff clay and were so good that they were sold to dealers in fancy fruit or made into the highest class canned product for dining-car and club use.

The pear will never become as common a fruit as the apple, because it does not keep or ship as well, or adapt itself to as wide a range of conditions as the apple. Therefore those who have good pear locations should not fail to set out pears. If one wants to go into quantity production and get quick results set the Keiffer or some of its kin, but if quality production and

slower and surer permanent results are sought, the quality varieties should be set. The Keiffer kind may be overdone because they will be planted more extensively, being more easily adapted to varying soil conditions. Then in years of big crops such fruit will be discriminated against in favor of better quality fruit and will therefore go begging for a market. But with the quality varieties, on the other hand, one can be assured of a good steady income after they come into bearing.

Last week's article suggests the dwarf pear for setting. About fifteen years ago there was a dwarf pear craze. The dwarf was hailed as the way to riches and success. Quite a few growers in the fruit section of the state invested, but not one has made a success. What is the best dwarf orchard in the state was gladly sold a few years ago by its owner. Only a few times did this orchard return a profit. Nowhere in Michigan has the writer learned of any dwarf pears that have proven of any commercial value. Good standard stock is the only thing to bank on when setting a pear orchard.

CELLAR-FORCED PIEPLANT.

Fresh pieplant pie may be supplied in place of that made of dried and canned fruits on almost any farm. The fact is well enough known to expert gardeners who obtain fancy prices by what are known as forcing methods, but similar results may be secured by anyone in either the city or the country if he has (1) a few clumps of pieplant; (2) a cellar which can be kept at about 60 degrees F., and can be partially darkened; and (3) a cinder bed three or four inches deep which can be kept wet, but well-drained.

Dig up the crowns, or bunches, of pieplant any time after the tops have been killed by cold weather and before the ground is frozen so hard that digging is impossible. Leave plenty of earth around the plant, and if it has not already been frozen for a while pile it up on the north side to freeze, where the sun can not reach it and tempt out any of the leaves. The plant, like men, must have a rest period, but the pieplant does not need to rest all winter, and if protected a little while from the rain and sun, it can be taken into the cellar and set to work again by planting the roots three or four inches deep in a bed of cinders which have no ashes mixed in them. The cinders should be kept as moist as possible, but the drainage should be good enough to prevent any water from standing around the roots. There is so much plant food stored for next year's growth, that no soil or manure is necessary, but moisture and warmth will soon bring out the long, pale, crisp, thick stems with smaller leaves and less fibre than usually are produced in the garden, and the result is that these stems have a finer texture and flavor and better cooking qualities. One cutting will not exhaust the plant food, but other stems will be produced as long as any food is left in the roots if the temperature is kept up and watering is continued.

If the basement is too well lighted, the windows should be partially covered to weaken the light and compel the stems to lengthen in search of the sun. It will only be about two weeks from the time of planting in the cinders until the first pies may be made. Pulling may be done as in the garden and continued for several weeks.

This winter crop of pieplant will offset any loss through injury to the bed from which the roots are taken, but this injury may be repaired by dividing each of the remaining clumps into two parts with a spade in the spring, and resetting half of each clump or crown in the hole left by the removal of the plant used the previous winter.

STRAWBERRY AND RASPBERRY CULTURE.

I notice comments on strawberry culture and would like to tell a little of my experience with them.

Spring planting is by far the best. I usually set my plants in rows six feet apart and 24 to 36 inches apart in the row and I alternate early potatoes with the berries.

My last year's patch was 42 square rods in size. This brought me the first season \$20.00 worth of potatoes sold, and plenty of berries for a family of four. The rows of vines were luxuriant, being two feet wide, and the plants were in fine vigor.

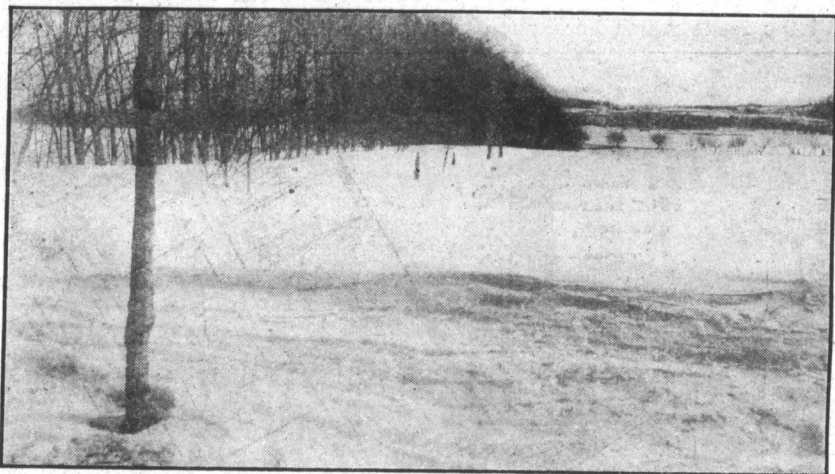
After the potatoes were removed I kept the bed well cultivated until August 14, when I sowed oats between rows. After January 10 I mulched the rows only. Oats went down and made a good thick matting between rows.

The second season we picked and sold 1,617 boxes of very fine berries. After harvest the bed was cleaned up and oats sown which grew to the height of four feet.

My raspberries I cultivate as much as you ought to corn. I mulch, and as

these experiments was carried out on the college farm and some others were carried out on the farms of orchardists over the state who co-operated with the station. Owing to some reason, the disease developed erratically on the unsprayed trees on the station farm, so that the results of the experiment there were inconclusive. On other farms, however, results were obtained which indicated clearly that fall spraying is just as effective as spring spraying, for in many cases the unsprayed trees were badly affected while the fall sprayed and spring sprayed trees were equally free from infection.

It is the belief of the station investigators that spraying at any time of suitable weather between the time the trees are fully ready for winter and that when the buds first, will be effective. Spraying at any time during this period is also effective for the San Jose scale. With a praiseworthy conservatism, however, they are not advising orchardists to change immediately to the new plan, but are strongly urging that the method be tried on part of the orchard, and checked against the old custom. The writer of



Snow Serves as a Good Mulching for Strawberry Patches.

soon as the ground can be worked in the spring I put mulching close around the plants and cultivate until fruit begins to form. As soon as the fruit is secured I remove the old canes, cut back and thin out the new ones.

Then cultivation is continued to about August 20, when oats are sown, and mulching put on later. D. O. B.

A NEW IDEA IN THE CONTROL OF PEACH LEAF CURL.

The method almost universally in use as a means of preventing peach leaf curl is that of spraying the trees while in the dormant condition. A number of sprays so applied will give almost perfect control, but the one commonly used is boiled lime-sulphur, as it is also effective in controlling the San Jose scale. The usual custom is to apply just before the leaves start in the spring. It does not always happen, however, that the spraying can be done just as planned in the spring because the soil is often so soft because of the water in it, that it is altogether out of the question to go into an orchard with a heavy spraying outfit. It often comes about, therefore, that peach leaf curl is allowed to get a season's footing in a well managed orchard because weather conditions prevented action at the time for which action was planned. Spraying after growth is well started is not efficacious for preventing the disease; it must be done before the buds start.

In view of the uncertainty of the weather conditions in the spring, the Cornell Experiment Station recently undertook some experiments to determine the value of fall spraying in controlling the disease, since there is much more chance of obtaining suitable weather for thorough work in the fall than in the spring. The plan of the experiments involved spraying some plats in the fall, some in the spring, some in both fall and spring, and leaving some unsprayed. One of

this note is convinced that the new plan promises to be a great improvement in orchard practice, and it is to urge western orchardists to give it a trial that this account has been written. Right now is none too late to begin the trial.

E. E. MERN.

AMERICAN PLUM BORER.

Observations made by an entomologist of the Department of Agriculture of the American plum borer, show that this insect prefers trees that are in a somewhat weakened condition, such as those partially girdled by the disease commonly known as collar blight or mechanically injured by the frost. Without injury of some sort to its host plant the borer rarely succeeds in establishing itself, and entirely healthy trees are in little danger from its attack. Where a tree has suffered injury the work of this borer, may in many cases, considerably shorten its life. Beginning at some scar, wound, or crevice, where a bark scale offers partial protection, the larva works its way back into the living tissue, in broad, shallow, irregular galleries just beneath the bark. It has been found feeding upon plum, peach, cherry, Chinese plum, Kieffer pear, mountain ash, persimmon, apple, and Russian mulberry.

The insect is known to occur in 21 different states as far separated as the District of Columbia, Arizona and Washington. As a result of the observations made by the entomologist, the conclusion is drawn that this borer will probably never become a pest of more than ordinary importance, except in occasional isolated cases. When the ordinary precaution of cutting away the dead bark and painting the wounded areas is followed, this may be regarded as sufficient for the control of the borer. Where the borer has established itself already, the cutting out method is the only one that can be followed.

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Should your dealer not sell Lambertville Rubber Footwear, send us his name and we'll quickly make it possible for you to obtain these goods at regular prices.

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is also made in red rubber. Ask
for "Red Skins."

Lambertville Rubber Company
Lambertville, New Jersey



"SNAG PROOF"
SHORT BOOT

More Profit

THROUGH better, more intelligent, more economical use of good tools will come the profit that is so hard to find each year on many crops. Plant right so you will get full benefit. Work faster with better tools so you can cultivate and spray often. Study whether there isn't some tool that will do your work better.

IRON AGE

Potato machinery, spraying machinery, garden tools, etc., are built to give you just what you need to do things right. Almost any combination you can think of in each line. Eighty years of factory and farm experience behind their manufacture.

Ask your dealer to show them, but write us for separate booklets fully describing lines in which you are interested. Let us make good our claims.

Bateman Mfg Co. Box 246 Grenloch, N. J.



Garden Seed Drills
Wheel Hoes
Potato Planters
Weeders & Seeders
Riding Cultivators
Walking Cultivators
Potato Sprayers
Bucket, Barrel and
Power Sprayers
Potato Diggers
Cornstubb Cutters
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Cotton Planters
Corn, Bean and Pea
Planters
Asparagus Ridgers
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Green's Trees

Buy Direct and Save Half

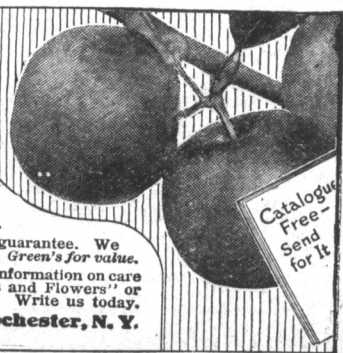
Deal with us, the growers—not with agents. You save half and get better trees. Whatever you want for the Fruit Garden or Orchard—we have it.

Selected List of Apple and Peach Trees

Pear, Plum, Quince, Cherry, Currants, Ornamental Trees, Roses, Plants, Best New Fruits. All of them finest stock—true to name.

Our 36 years' experience in honest dealing is your guarantee. We deal direct by catalogue only. There's no Nursery like Green's for value. Our finely illustrated catalogue gives practical, useful information on care of fruit trees. It's free. "Thirty Years with Fruits and Flowers" or C. A. Green's Book of Canning Fruits sent free also. Write us today.

GREEN'S NURSERY CO., 29 Wall St., Rochester, N. Y.



TREES

FROM KALAMAZOO
DIRECT TO YOU

At Wholesale Prices. Spring requirements should be considered now. Send today for Free Handsome Catalogue and Valuable Coupon entitling you to 12 Everbearing Raspberry Plants, 1 Delicious Apple Tree, 1 Famous Stearns Peach Tree without cost. Don't Delay. CELERY CITY NURSERIES, Box 122, KALAMAZOO, MICHIGAN.

Official Bulletin No. 1

GENERAL HEADQUARTERS

"PREPAREDNESS CAMPAIGN"**Every American Farmer Should Enlist at Once**

PAUL REVERE, over a century ago, dashed along the highway between Lexington and Boston, arousing the countryside with his warning of "Prepare" for the invaders are coming.

Within the last few months this very same cry, "Prepare," has again re-echoed from one end of our own United States to the other, awakening we Americans as never before to our careless neglect in not preparing for our country's future welfare.

Right Now, we cry the same warning to the American Farmer, "Prepare." Purchase a silo now. Protect your live stock. "Prepare" for mid summers droughts and mid winters barrenness. The Everlasting Silo is the "Army" and "Navy" for farm protection. It has the strength of a dreadnaught and represents the same all-around efficiency as do "Uncle Sam's" soldiers.

We shall be glad to send full particulars including a handsomely illustrated booklet, telling of the many features of the Everlasting Silo by word and picture. Enlist our aid at once. It cost you nothing.

**B. V. T. Silo**

Dead air is the best insulation against frost. The B.V.T.'s three dead air spaces keep Jack Frost away from silage. Note the tile. Large middle spaces hold lots of dead air. Narrow outside spaces are plugged at both ends of tile by mortar joint. Sealed absolutely air-tight and forming strong tongue-and-groove joint. Nothing like it in any other tile. It's patented. Why the B.V.T. Silo is the strongest, most permanent and most efficient silo fully explained and illustrated in our Silo Book. D. Send for it.

Brazil Hollow Brick & Tile Co.
Brazil, Ind.



Dr. LeGear's Remedies
One for every curable ailment

Dr. LeGear's Antiseptic Healing Powder

A powerful healing antiseptic in sifter-top can. Dust the wound. The powder forms a soothing, healing coat that protects from infection and flies. In use 20 years. Costs only 25c and 50c a can. Get only the genuine Dr. LeGear's Antiseptic Healing Powder

Trial Can Free

If your dealer can't supply you, write us his name and address, and we'll send you free, a liberal trial can. Write for it now.

Dr. L. D. LeGear Medicine Co.,
712 Howard Street, St. Louis, Mo.

Cheap Feed Dried Salvage Grain from Mill fire—feeding value uninjured. Price low—Ask for sample.
BARTLETT CO., Mill H., Jackson, Michigan

The Brood Sows In Winter

WE boast of a corn crop worth approximately two and a half billion dollars, a wheat crop which is worth about one billion dollars, and yet there is a crop of hogs in the whole country that represents a money value to the farmers of the country exceeding the value of the wheat crop, approaching the value of the corn, and yet there is but little said about it. The weekly receipts of hogs at the Chicago market alone was about 300,000 head, during December. At other points the inflow was correspondingly large. If the average price to the farmers is ten dollars per head we can see that the billion dollars value is soon reached. What can it be at the end of the year? No one thus far has told us.

All of the pigs raised in the country have mothers. The mothers are the ones that shape, in a great degree, the disposition and general character as to thriftiness, health and vigor of this great army of pigs which are raised to consume many of the products on the farms and convert the same into a marketable product which, when sold in the markets, brings the money

them in good condition and the conditions necessary to make them comfortable, especially at night.

The Nests.

The sleeping places for the sows should be dry, comfortably warm and free from draughts of cold air. A mistake is often made by allowing too much space above the nests, which, in cold weather, lets too much cold air come down on them and chill them. To fail to make them comfortable is to waste feed and energy. If the sows are comfortable they are contented and quiet in disposition, a characteristic much to be desired, which can be carried along to the pigs which they will farrow in the spring. I have known of families of hogs so well attended to, as to feed and care for several generations, that the pigs did not show any disposition of uneasiness, and did not express any discomfort by squealing, even if the feed was not always given at the feeding hour. The squealing voice is acquired by practice in expressing discomfort.

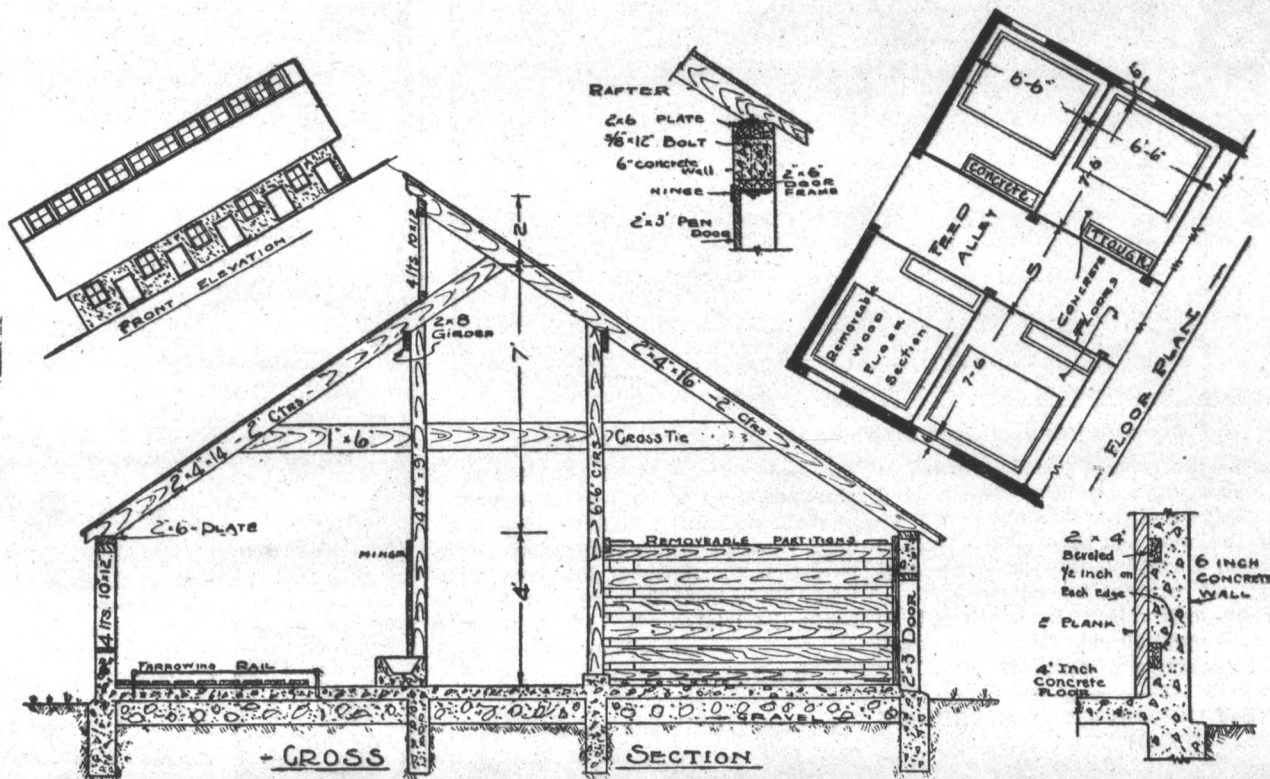
The Feed.

If the pregnant sow is supplied with the feeds which her system re-

quires the requirements of the sows, and at the same time there will be no danger of constipation which brings on a fevered condition at farrowing time, and often causes the sows to become enfeebled and eat their pigs. The sows should be regularly but not heavily fed. It is a mistake to fatten them before they farrow. If weighted with flesh they can not handle themselves easily, and are pretty sure to lay on their pigs and kill them.

Exercise.

In order to insure a healthy condition and enable the sows to keep control of themselves, they should have exercise every day. If the feeding troughs are laid some distance from their sleeping places, they will be obliged to walk to and from them as often as they are fed. If they retain the habit of exercising they will roam about the yards during pleasant weather, and receive a good deal of benefit from being out in the open air and sunshine. They should never be allowed to form the habit of spending the most of their time in the nests. Such a habit usually precedes giving birth to squawking and dead pigs. By carefully guarding and controlling the sows during the period of gestation, serious troubles may be avoided and



Details of a Type of Permanent Hog House which has Many Excellent Features.

with which the farmers pay their debts, buy necessities, make improvements and surround their families with the comforts and luxuries of life. Important as these sows are, the mothers of these money makers on the farms, they are more often neglected, ill-treated and misused, than any other animals on the farm.

It is not an unusual sight to see the brood sows wandering about the farm, seeking any morsel of food they can find, wallowing in the mud, squealing to make known the fact that they are hungry, shivering because they are cold, only retiring to a cold place beside the fences and buildings as the evening shadows gather around and darkness comes on, to pass the night in a manner best described as in discomfort.

I sometimes wonder if the owners know that by neglecting the brood sows in winter, that they are laying the foundation for an uneasy, unthrifty lot of pigs which are to be their pork makers the following season. The sows transmit the internal structure, the strength of the vital organs, the machinery of the body, to the pigs, and if they themselves are neglected until their own vital energies are diminished they can not transmit to their pigs more than they themselves possess. It is poor economy to withhold from the brood sows the feeds which are necessary to keep

quires to maintain it at this critical period, she will be given a great variety of feeds. In addition to the grain feeds, they will be allowed to chew on several forage feeds like cornstalks, alfalfa, clover hay and even straw. The grains lack some of the mineral elements which the sows require. If given a chance, they will take what they need. A small amount of vegetables like potatoes, garden beets or mangolds given occasionally will be relished and benefit them in several ways.

Except in extremely cold weather the sows should have sloppy feed twice a day. It is cruel to make them go to the watering trough to get what drink they need in cold weather. If the sloppy feed is given when lukewarm they will relish it and it will do them much more good than it will if given when cold.

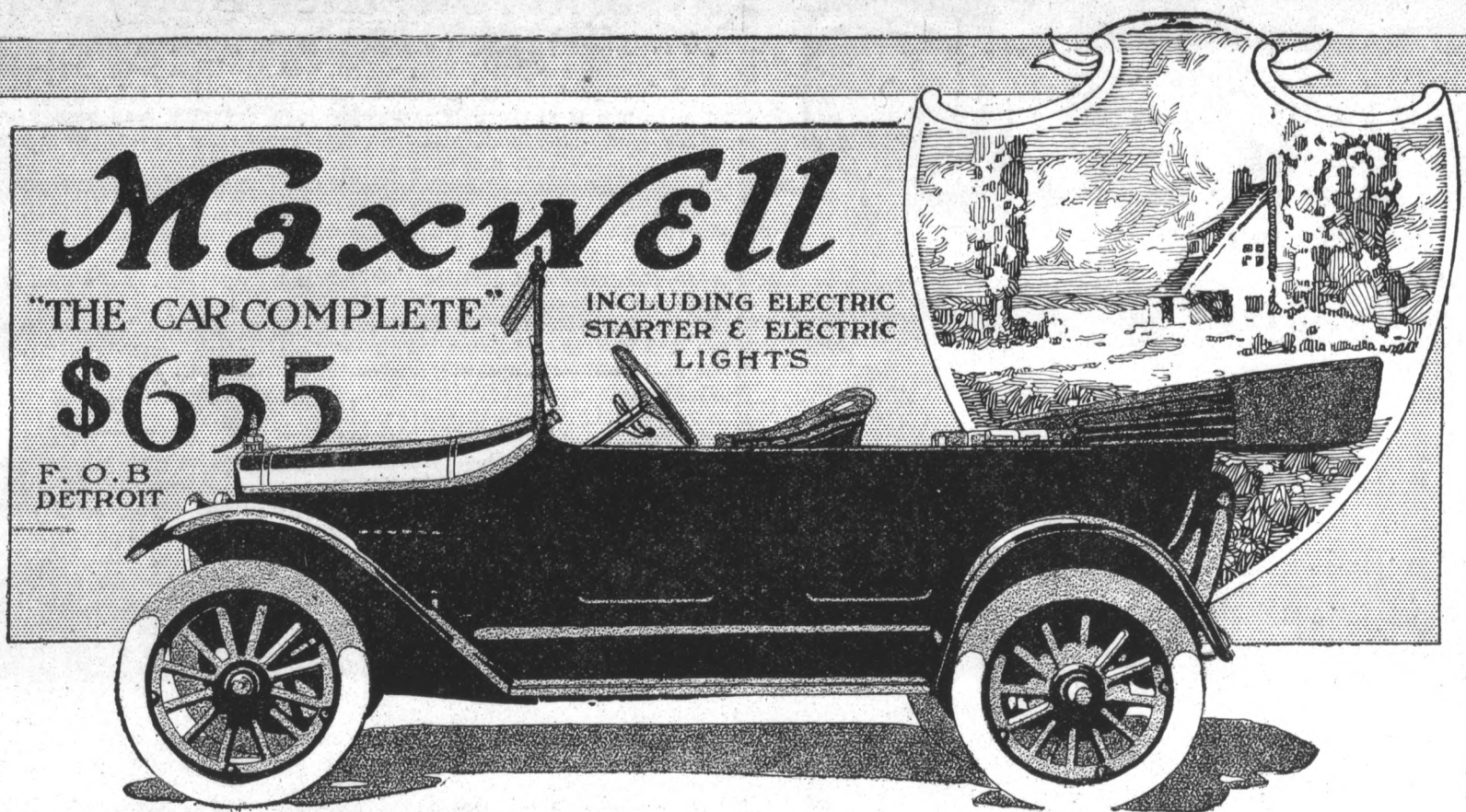
A variety of feeds give better results than any one single feed. If corn alone is given the pigs will be diminished in size and lack in vital energy; there is not protein enough in corn to build the framework of the pigs, and encourage the growth of large vital organs, the machinery of the body which does the work of digesting the food and assimilating the nutrients which it contains. A grain ration made up of ground oats, corn or barley, to which is added one-half the bulk of wheat middlings and bran, will meet

success in saving a large percentage of strong, healthy pigs, may be insured. of strong healthy pigs may be insured.
Wayne Co. N. A. CLAPP.

LIVE STOCK NEWS.

A. J. Soliday, of Illinois, is an expert in preparing lambs for the market, and on two occasions he managed to top the Chicago market with prime lambs for the Christmas holiday trade, receiving \$9.60 per 100 lbs. in both instances, that price never having been paid in December in any past year. Mr. Soliday, besides being an expert in the line of fattening lambs for the market, is widely known as a highly successful breeder of Poland-Chinas. His two flocks of lambs referred to averaged close to 86 lbs. They were purchased as feeders early last October in Wisconsin, at which time they averaged in weight 60 lbs., and he paid \$8 per 100 lbs. for the lot, which were highly bred lambs of Washington breeding. The lambs had the run of a good corn field, as well as access to a rape pasture and as many pumpkins as they would eat.

It is becoming the general sentiment of the trade that hogs have been selling of late in the Chicago market about as low in price as they are likely to go, as nearly everyone believes that there would be a panic among stockmen were the packers to force further considerable reductions in the market values. Already enormous numbers of underweights and mere pigs have been rushed to market, and further drops in prices would almost certainly bring in such a vast number of pigs that the future supply of matured hogs would be abnormally small.



The Value of "Complete"

YOU never raise a barn without including the cost of a roof—to make it complete.

You never buy a wagon without including the cost of the tongue—to make it complete.

You should never buy an automobile unless everything needed to make it complete is included in the price advertised.

Maxwell—The Proof

\$655 is the limit of your Maxwell investment. All the dollars that you might spend for "accessories" so often necessary would not make the Maxwell more comfort-creating—more finished—more complete.

Compare the Maxwell with what you had expected to find in an absolutely high-grade automobile of *proven performance* for \$655.

Read the list of features that go to make the Maxwell complete—all are yours without extra cost when you buy a Maxwell.

And the *after-cost*—the Maxwell again stands for the *utmost* in motoring economy. By actual records, based on sworn affidavits and the unsolicited reports of thousands of

owners, the Maxwell has established undisputed supremacy for low gasoline consumption—low oil consumption—excess tire mileage—low repair bills.

Think what this means. For \$655 you can own a powerful, fast, handsome, dependable, full five-passenger automobile.

You can know its benefits *without* incurring the high expense that is part of most automobiles of equal size and completeness.

Write for some interesting facts and photographs and name of nearest Maxwell Dealer

MAXWELL MOTOR COMPANY, INC.

Dept. CF

DETROIT, U. S. A.

This gives you the right idea of Maxwell completeness at \$655

ELECTRIC Starter and Electric Lights.
MOTOR—Four-cylinder, L-head type, cast en bloc. Bore $3\frac{1}{4}$ in.; stroke $4\frac{1}{2}$ in.; detachable head; oil reservoir of aluminum; valves completely enclosed.
MAGNETO—Simms high tension.
CLUTCH—Cone, faced with multibestos lining, runs in oil, takes hold smoothly and without grabbing.
TRANSMISSION—Selective sliding gear. Three speeds forward and one reverse.
CONTROL—Center, left side drive; foot ac-

celerator. 16 in. steering wheel; improved instrument dash board with all instruments set flush.

WHEEL BASE—103 inches; tread 56 in.; 60 in. optional for the South.

WHEELS—Artillery, of best grade hickory; 12 spokes in both front and rear; equipped with Stanweld demountable rims.

TIRES— $30 \times 3\frac{1}{2}$ in., front and rear. Famous make of anti-skid tires in rear.

SPRINGS—Front, semi-elliptic, 32 in. long. Rear $\frac{3}{4}$ -elliptic, lower half 40 in. long, scroll 16 in. long from center of spring shackle to spring seat; fixed at front, shackled at rear and mounted on rocking seat.

AXLES—Front, drop-forged, I-beam section, complete with spring seats. Rear, floating type. No load carried on driving shafts.

BRAKES—Internal and external, actuated on $12\frac{1}{2}$ in. drums on rear wheels.

EQUIPMENT—Two electric head lights with dimmer, electric tail light, generator, storage battery, electric horn, speedometer, "one man" mohair top with envelope, and quick adjustable storm curtains, double ventilating rain-vision windshield, improved instrument board with all instruments set flush, demountable rims, spare tire carrier with extra demountable rim, jack, special wrenches and tools.

EVERY ROAD IS A *Maxwell* ROAD

JAMES Equipment In a Good Barn Means Cow Comfort —Bigger Profits

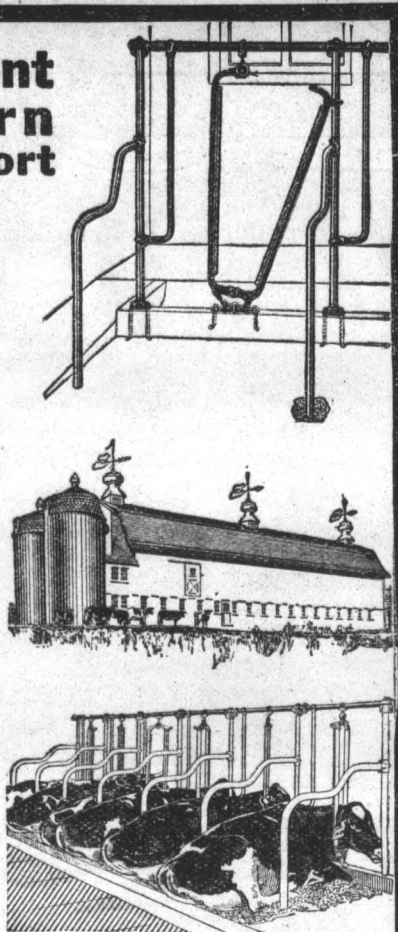
HERE'S a typical JAMES stall, a JAMES designed barn, and JAMES Sanitary Barn Equipment in actual use—a combination that will save labor and make more money for any dairyman. This \$4.75 stall has the same steel piping and square horizontal pipe, dust-proof fittings, Triple Curve Stall Partitions; same heavy galvanized stanchion anchors; same system of anchors for quick, easy erection; same JAMES stanchion, cow-proof lock door-knob type, lock open clip, everlasting hinge, double chain hanger with flat links, wood lining; same baked-on enamel finish; same system of shipping assembled; same style and durability found in JAMES complete feature-equipped stalls. It is the JAMES \$10 stall without some of the special features.

JAMES Barn Plan Service

will help you wonderfully in building or remodeling. It starts you right. JAMES equipment, designed and built by the originators of sanitary barn equipment ideas, includes Stalls, Stanchions, Pens, Carriers, Ventilators, Watering Buckets, etc. Stall prices range from \$4 to \$10, depending on number of special features wanted. Quality, finish and system of inspection the same in all JAMES equipment.

Tell us how many cows you own and when you expect to build or remodel and receive copy of JAMESWAY Book—FREE.

James Manufacturing Co.
DV31 Cane Street, Ft. Atkinson, Wis.



HOW MUCH DOES YOUR MILK COST?

33 cents worth of UNICORN plus 26 cents worth of roughage made 100 lbs. Milk in Official Holstein Tests made by Bayliss Griffin, Sylvania, Ohio. 1 pound of UNICORN made 4 1/2 lbs. of milk. Hundreds of UNICORN feeders are doing as well. YOU CAN TOO.

UNICORN DAIRY RATION

is equally as profitable for tests or every day dairying. TRY IT.

FOR FACTS AND FIGURES WRITE,

CHAPIN & CO., Dept. M, Hammond, Ind.

Faramel Dairy Feed

23 to 27% protein, 45 to 50% carbon, 4 to 6% fat.
"The High Protein Feed"

The Feed that comes to you with an absolute guarantee. The Feed that is a perfect balanced ration. The Feed that not only will make more milk but make healthier cows. The Feed that will not burn up your cows but will lengthen their milking days. The Feed that might be termed the "Safety First Feed". The Feed that contains no weed seeds or mill screenings. The Feed that is being fed by successful dairymen throughout the State. The Feed that will reduce the cost of milk production in your herd. If your dealer doesn't handle it, order a trial ton from us. Manufactured only by

LICHTENBERG & SON, Detroit, Mich.

The ROSS SILO

Keeps ensilage fresh and sweet. Many exclusive features. Doors on hinges; triple, bevel refrigerator type door and frame; oval door frame to fit exact circumference of silo; extra heavy hoops and lugs bent to fit silo; continuous door frame.

Thoroughly Manufactured. Our 66 yrs. of manufacturing experience is valuable to you. Write for instructive Silo Book. We also make Enamelled Metal Silos. Agents wanted.

THE E. W. ROSS CO.
Box 14, Springfield, O.

**Only \$2 Down
One Year to Pay!**

\$24 Buys the New Butterfly Jr. No. 2. Light running, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in four larger sizes up to 1-2 shown here.

30 Days' Free Trial Earns its own cost and more by what it saves in cream. Postal brings Free catalog, folder and "direct-from-factory" offer. Buy from the manufacturer and save money.

ALBAUGH-DOVER CO. (INC.)
2163 Marshall Blvd., CHICAGO

BOWSER SWEEP MILLS

Different from all others. 4 or 2 horses. Grind Corn with chucks and all small grains. (Also make 10 sizes of belt mills) FREE. Folder on "Feeds and Manures" B.N.P. Bowser Co., South Bend, Ind.

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.

**\$15.95 UPWARD
ON TRIAL**
Fully Guaranteed

American CREAM SEPARATOR

A SOLID PROPOSITION to send new, well made, easy running, perfect skimming separator for \$15.95. Skims warm or cold milk making heavy or light cream. Bowl is a sanitary marvel, easily cleaned.

ABSOLUTELY ON APPROVAL Gears thoroughly protected. Different from this picture, which illustrates our large capacity machines. Western orders filled from western points. Whether dairy is large or small write for handsome free catalog. Address: **AMERICAN SEPARATOR CO., Box 3061, Bainbridge, N. Y.**

6000 Silos in 1916. Factory to Farm Co-operation.

In Profit-Sharing Contract on Early in Year Purchase.

TILE OR STAVE

Silos Priced at Your Home Town. Glazed Tile and Lumber shipped direct from kiln and factory on low cost basis early in year. Let us tell you about our new 1916 profit sharing sales plan so you can buy right and erect silos when farm labor is plenty and cheap. Our "Earn Cost First Then Pay" plan interests both Salesman and Buyer. Ask for 1916 proposition and Silo booklet.

Kalamazoo Tank & Silo Co.
Dept. 621 KALAMAZOO, MICH.

System on the Dairy Farm

IT is important to have system in the management of a dairy farm. It not only reduces operating charges, but it is the only means by which land, labor and cattle can be made to yield maximum returns. In applying system to the management of a dairy farm one should make a careful study of the farm and work out a crop growing system that will provide a regular supply of suitable feed for the cows during the year. As a farmer one should consider the acres, rather than the cow, the unit of production. Profitless crops are a greater source of loss than profitless cows.

In evolving systems of crop growing that will provide the most palatable and nutritious food for the cattle experience shows that a systematic alternation of crops is inevitable. Dairy farming encourages crop rotation. The well-managed farm affords an excellent example of profitable crop growing. By yielding corn, small grain, legumes and grasses to serve the appetites of the cows the soil itself is fed a variegated ration. Legumes, clover, alfalfa and cowpeas, figure prominently in the best crop rotations and dairy rations. Having the peculiar power of drawing nitrogen from the inexhaustible supply in the atmosphere, they not only supply that element to the soil, but at the same time afford an abundance of palatable and nutritious hay and pasturage. Following a systematic rotation of crops in growing food for the cows is the first step toward successful dairy farming.

The Economic Use of Farm Labor.

The handling of farm labor in a manner that will keep all hands busy as many days as possible requires a pre-arranged system. Many of the unpleasant features connected with work on the dairy farm are due directly to lack of system in planning the year's work. By conducting the crop growing system and breeding operations so that there is an even distribution of labor during the year one can employ the same men and be insured against losses from inexperienced hands and poor milkers. In order to systematize the labor problem the fields, barn and stables must be so planned as to avoid lost motion and facilitate the work of caring for the cattle. A little time and study devoted to simplifying the chores and methods of handling the products will enable one to save a vast amount of unnecessary labor.

By training the cows properly, having a place for each cow and seeing that each cow is in her place, keeping breeding records, and knowing where every tool may be found, the chores may be done quickly and there will be less friction between the men than is the case on the farm where slipshod methods are practiced in the barns. The same rule applies to having a regular time for feeding and watering the cows, milking, cleaning the stables and washing the cans and pails. In order to secure efficient service from the hired men each man must have his certain work to do and not be allowed to crowd it on to the other hands. By having one man do all of the feeding and keeping the milk records one will get better results than by dividing the work between two or three men. Each man should have certain cows to milk and any changes should be avoided as much as possible. By planning the farm and dairy work so that every man may be kept busy one can cut down the number of hours without lessening the amount of work performed by his men during the year. Long hours, with a lantern at the end of the day, do not increase the efficiency of the labor force.

System in Breeding.

System should also be introduced in breeding the cows and keeping service records so that the calving periods may be regulated to meet the needs for milk production at the different times of the year. The pregnant cows

should always have the best of care, and the man who knows when his cows are due to freshen has an advantage over the man who neglects to keep service records. It requires careful management to keep the cows bred up and save the calves.

System in mixing various feedstuffs with reference to the roughage means healthier cows and cheaper production. By mixing a few tons of the different feeding materials at one time and having it stored within easy access to the stable, considerable time will be saved and one is likely to get better results than is the case when a few bushels of each kind are hastily mixed every day just before feeding. By feeding the concentrates along with the bulky and succulent feeds one is likely to get better results than by feeding them alone. The dairy cow is a creature of habit and all changes in feeding time and methods of caring for and feeding her should be avoided as much as possible. As the milk glands are under direct control of the nervous system any conditions which affect the nervous system will react upon the milk-producing glands. Any undue disturbance or undue waiting for feed will divert some of the blood supply from the milk glands to some other part of the body and diminish the milk flow. The well-known phenomenon of "not giving down" the milk is the result of some lack of nervous tone in the gland caused by some sort of change in treatment or excitement. The udder is not merely a container in which the milk is ready stored at milking time, but an organ in which the greater part of the milk is elaborated while milking is in progress by virtue of the agitation produced. Unless the cow is in perfect repose (free from excitement) this secretion will not take place normally. The lesson to be derived from this is that the cow should be fed and milked regularly, treated with kindness and be otherwise kept free from excitement, especially during the time of milking.

Keeping up the Herd.

By introducing system in feeding the calves and young stock one may be insured of a sufficient number of young females to take the place of the cows discarded from time to time. By starting a few calves at about the same time and systematizing the work so that they may be fed and kept in the same pens or pasture a lot of work will be avoided and a better growth and more uniform development will be obtained. Many successful dairy farmers make a practice of starting a bunch of heifer calves each fall and by feeding them liberally during the winter and giving them good care they are large enough to go into the calf pasture late the next spring and make good growth on grass and a small amount of grain feed. In this way one can feed the skim-milk to pigs during the summer and thus derive two profits instead of one—and at the same time grow better calves and pigs than is the case when they are both started in the spring and fed scant rations of skim-milk as soon as the milk flow falls off in mid-summer.

A man may have a thorough knowledge of the dairy business. He may be a master of dairy cows and feedstuffs, but if he lacks the ability to develop system and set nature's forces at work in a way that will return a profit, he will never make a financial success of a dairy farm.

New York. W. MILTON KELLY.

COST OF SHREDDING CORN.

I am anxious to settle a controversy relative to the expense of shredding corn, and would be glad if you would answer to the best of your ability or information obtainable. The condition would be 40 acres lying approximately three quarters of a mile from the barn—averaging a

possible 50 bushels to the acre, shredded under favorable conditions—good teaming, additional help, meals, etc., territory—southern Michigan. Would be glad to have you give what in your opinion, would be a fair expense.

Ohio.

J. S.

I do not care to go on record with anything like a careful estimate of the cost of shredding this corn. It depends upon so many things that might differ materially from conditions in my vicinity that an estimate would be little better than a guess. Some of the conditions that might differ as follows:

1. Who bosses the job? That would make a great difference.
2. The capacity of the husker. Is it large or small? If large capacity the men will have to hustle to keep it going.
3. The kind of crew that runs the husker. Do they try to rush it through or are they satisfied with board and expenses?
4. Is the corn bound in bundles or in large shocks? This makes a lot of difference.

To guess at it I would say it would cost at least 10 cents per bushel.

THE BUTTER DOESN'T GATHER.

I have been having so much trouble getting butter churned that I am coming to you with my troubles. We have only one cow, seven years old. She freshened in August and we had no trouble churning, until the cold weather came. I set the milk in pans and leave it about 48 hours before skimming. Use a thermometer before churning. After churning an hour or two it will partly break, then I can churn all day and it will never gather. If I let it stand I can skim off the top and stir it by itself and can separate it from the milk that way. The cow gets salt every day. Plenty of clover hay, cornstalks, peas and oats cut green, roots. I have tried putting the cream with my sister's cream before churning and it will come with her's without any trouble. Another thing, the milk gets so bitter after it stands about a day. This is just in cold weather. The milk never gets so very cold as I keep it in my kitchen. And we never have frost in it.

Luce Co.

Mrs. J. S.

I think the trouble is largely one of temperature. It is too cold. Skim your milk when ready, put the cream in a crock or pail when you skim next time and mix the cream in the crock. When you get enough cream to churn set the crock or pail of cream in a tub of warm water and stir it occasionally. Warm it to 70 degrees and let it stand at that temperature for 24 hours. Then put the pail of cream into cold water, stir well and let it cool to 60 degrees and then churn. I think your butter will gather all right.

I believe it would pay to feed a cow that freshened in August a grain ration. A good feed of ground corn and oats will help the quality of butter and will produce more butter.

FOOD VALUE OF CULL BEANS.

Are ground cull beans as good as cottonseed meal, by equal weight, to feed to cows? Also, are ground cull beans as good for cow as boiled cull beans?

SUBSCRIBER.

Good cull beans are not as valuable for cows as cottonseed meal. Cottonseed meal contains 40 per cent or better of protein, while cull beans contain only about 20 per cent. The beans contain a little more carbohydrates but not so much fat.

Besides, cows do not like bean meal as well as they do cottonseed meal. Again, bean meal makes a very brittle, tallowy butter, and can be fed only in small quantities with success. The same, however, can be said of cottonseed meal. I would not want to feed over two pounds per cow per day of either feed.

Cooking the beans makes them more digestible and also more palatable, but this costs money. Taking the cost into consideration, I doubt if it would pay to cook them. Taking everything into consideration, I should say that a ton of cottonseed meal is equal to more than two tons of bean meal. Meal from cull beans is not worth as much as from good sound beans. However, at the price it can usually be

purchased, it is well worth feeding in small amounts.

NO MILK FOR CALF.

I have a heifer calf four weeks old. Am somewhat short of milk. I would like to know how to feed and care for her. Have you a recipe for head-cheese?

Bay Co.

G. C.

After a calf is four weeks old it can get along very well on little or no milk. Make a gruel out of a variety of feeds, say corn meal, oil meal, middlings, bran, ground oats; mix them all together, and cook a kettle of it, having it about the consistency of gruel. At first feed a pint of this in three quarts of warm water, increase to a quart of the gruel. In addition, give the calf clover hay and ensilage if you have it; in fact, any roughage you happen to have. Also begin to feed it corn meal and ground oats as soon as it will eat. You can, of course, buy a prepared calf meal that will give good results.

Head cheese is made from the flesh on the hog's head. Clean the head, dig out the ears and eyes and cut off the end of the snout. Split open the skull and remove the brains. Then boil until the flesh is thoroughly cooked and will clean readily from the bones. The hide or rind can be removed, either before or after boiling. Now chop the meat fine and make it into balls or brick form. The meat can be flavored with sage or other herbs and salted to suit the taste.

SOFT UNHUSKED CORN AND ALFALFA.

Will you please tell us what is the best feed to buy for milch cows. We have to buy feed for them. Father and I differ on the kind to buy. We have alfalfa hay, corn that has not been husked, all soft corn, and shredded cornstalks for roughage. Is bean meal good for milch cows? If so, how much should be fed?

Bay Co.

H. H.

Good alfalfa hay and this soft corn make a good roughage, alfalfa being rich in protein and the corn in carbohydrates, the one balancing the other. But these foods are too bulky to feed for the entire ration.

Bean meal is a fairly good cow feed. Cows do not like it very well but it is nearly always a cheap source of protein, and we should feed some of it for economy's sake.

For a grain ration I would suggest that you grind corn, oats and beans together in the proportion of two parts of corn, two parts of oats and one part beans. Feed one pound of this grain for every four pounds of milk produced. Cows ought to do well on this ration, and it is quite a cheap one.

Pay Nothing In Advance

First Small Payment In Three Months

This is the most sensational bargain offer ever made on a Cream Separator of absolutely guaranteed high quality. The House of Hartman with its 50 years business record and \$10,000,000 resources is behind this remarkable Separator, which is offered direct-to-you on the famous Hartman Special Farm Credit Plan—the most liberal credit terms ever devised.

PAY NOTHING IN ADVANCE. Not a penny down, no deposit, no "red tape" of any kind, no security, no interest. Just let Hartman ship you a Majestic Cream Separator for free trial, so that you can prove for yourself what it will do. Test it with warm and cold milk. See how easily it runs—how simple and satisfactory—how it skims right down to the last drop—how much quicker it does the work.

Just use the "Majestic" as your own for 30 days and, if you are not perfectly satisfied that it is the best Separator bargain ever heard of, return it at our expense. If you decide to keep it, make your first small payment in 3 months, and balance in 3, 6 and 9 months thereafter, giving you

A YEAR TO PAY Without Interest

This is the famous Hartman Farm Credit Plan on which you can buy not only Cream Separators, but also Engines, Incubators, Pumps, Roofing, Furniture, Carpets, Rugs, etc., etc. Hartman trusts Farm Folks because he believes in them. Your credit is good. If you prefer, you may pay all cash, but the Separator will be no cheaper in price. It costs you nothing extra if you take a whole year to pay. If you are thinking of buying a Cream Separator, don't do it until you let Hartman ship you for free trial the wonderful

Majestic Cream Separator

375, 500, 750 and 1,000 Pounds Capacity

A masterpiece of mechanical skill—a Separator so ingenious in design, so perfect in construction, so simple and easy to operate—that it will measure up in all 'round efficiency with Cream Separators that sell for practically twice the Hartman low direct-to-you bargain price. The "Majestic" has all the very latest improvements, including a remarkable inside oiling device that keeps the gearing perfectly lubricated and prevents any trace of oil coming in contact with the cream. The Majestic Separable Disc Bowl is the simplest, most accessible and easiest to clean of any Separator Bowl made.

Wonderful Offer

Send for This Free Book

We want you to learn all about the wonderful Majestic and compare our low price with prices of cheaply constructed, inferior makes. The Majestic on our year-to-pay easy credit terms costs less than others ask all cash for. Get the proof. It's in this book. Write your name and address in coupon and mail today. Ask for Cream Separator Catalog No. S-256

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Mail This **FREE** coupon NOW!

Name.....

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HARTMAN COMPANY,

4043-45 LaSalle St., Chicago

Send me free copy of your Cream Separator Catalog No. S-256 explaining liberal no-money-in-advance, year-to-pay without-interest credit terms. This does not obligate me in any way.

Pull Stumps 10 Days-FREE

You can clear from 10 to 50 acres in ten days with the Faultless Stump Puller, and then decide whether you want to keep it or not—before you pay us any money.

The Faultless Stump Puller develops greater power, with less strain on the team and the machine, and is easier and safer to handle than any other stump puller made. Backed by the strongest guarantee.

Right Now We Are Making A Special Low Price Offer

It means a slash in stump puller prices that will surprise you. Write for full information at once and save money.

Our Free Book gives much valuable and reliable information on clearing stump land, with numerous illustrations. Write for it today.

Faultless Stump Puller Co.,
Dept. M Cresco, Iowa

NEW 1916 LOWER



Every Galloway Separator a Thoroughbred Champion

Its beautiful design, its clean cut lines, the material with which it is built, its bearings, the precision with which its gears are cut stamp it a thoroughbred. Its clean skimming, its wearing and lasting qualities, its ease of operation, its under-rated (and not over-rated) capacity stamp it a champion—just as much a champion as either one of my champion cows shown below.

Down Go Prices—Up Goes Quality

I have cut cream separator prices again. Why? Because I am buying material for less money than ever, turning out separators on high class, automatic machinery faster than ever from my great factories, and because every separator I put out sells from one to a dozen more

Spreads Like Wildfire 4 SIZES TO SELECT FROM AT 4 NEW LOW PRICES

The Galloway Cream Separator fever spreads like wildfire. Every cow owner is getting it. He knows that he will get more separator for less money—more genuine, honest, high-grade material and workmanship built into this high-quality, beautifully finished machine than can be found anywhere else in the country. The best skimming service for less money. Where other separators are good the New Sanitary is as good or better.

Where others are wrong the New Sanitary is right, absolutely right. Try it. If you like it buy it; if you don't send it back. If the New Galloway Sanitary is as good as I say it is, you can't afford to buy any other kind. If it is not as good as I say it is, then I could not afford to offer it to you for a 90-day trial. I couldn't afford to guarantee it for ten years against defective workmanship and material. I couldn't afford to back it with a \$25,000 guarantee bond. You save money when you buy it. You make money when you use it.

True, some separators are sold for less money, but they are not Galloway separators. When better separators are built Galloway will build them. If you knew all there is to know about building cream separators and had one built to your order, it would not be a better machine than the new 1916 Galloway Sanitary bath-in-oil cream separator. It would not run any easier nor skim any closer; could not be built of better material nor would it be more perfectly sanitary. And if you built as good a machine as the new Galloway Sanitary, you could not sell it at a lower price.

Remember, we took four years to perfect this separator, to build into it every good cream separator feature and at the same time retain simplicity and design a machine of beautiful proportions. This separator has not been built down to a price, but has been built up to a high standard in our own factories right here in Waterloo.

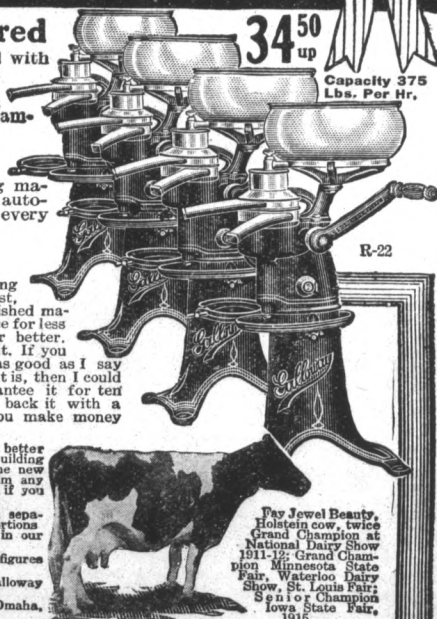
Don't get fooled on separators only assembled by so-called manufacturers and priced at figures you positively know a satisfactory cream separator cannot be built for.

Ask today for my new complete list of New Low 1916 Wholesale Prices on the New Galloway Sanitary and for my 160-page four-color catalog.

Galloway Sanitary Cream Separators are shipped from Waterloo, Chicago, Minneapolis, Omaha, Council Bluffs, Kansas City or Spokane.

WM. GALLOWAY COMPANY,

183 Galloway Station, Waterloo, Iowa



Pay Jewel Beauty, Holstein cow, twice Grand Champion at National Dairy Show 1911-12; Grand Champion Minnesota State Fair, Waterloo Dairy Show, St. Louis Fair; Senior Champion Iowa State Fair, 1915.

SAVE!



BONNIE BRAE A wonderful value and a remarkable plan. Seven fine rooms—large kitchen—spacious dining room—comfortable living room—three good bedrooms with closets (one cedar-lined), bath, porch and handy rear entrance. Size 24 x 40 ft. Costs \$519 complete or half down, remainder in two years. Write for book and see this offer.



STRONBILT Think of this built-in, story, 28 x 36 ft. Home with six bedrooms, eight closets (one cedar-lined), built-in pantry with cupboard, linen closet with drawers, model kitchen, splendidly large dining room and handsome living room—all complete—\$1336!! Or half down, balance in two years. Let the Sterling Book save you half.



MONARCH The King of Homes. Most practical plan on list. Nine fine rooms—closets (one cedar-lined), built-in pantry with cupboards and shelves. The handiest plan imaginable. Yet this \$3000 beauty—24 x 36 ft.—sells for only \$1176, saving you half. Send for the Book. Read the particulars. See how easily you can build with half down. Save that half and pay the balance in two years.



CLOISTER This tiny 22 x 32 ft. beauty contains five very sizable rooms and two closets. A charming home with a model arrangement—built permanently with selected materials at the world's lowest price—\$530 complete! Or half down, balance in two years. Investigate this offer before you build.

Save 33% on Your Materials!
Save 66% on Carpenter Wages!
Save 18% Waste of Lumber!
Save Weeks of Time!
Save a World of Bother!

Suppose, in buying your new Home, you could save **THIRTY-THREE** cents on each dollar's worth of Materials! Suppose, at the same time, you could save **SIXTY-SIX** per cent of the usual carpenter expense. Suppose, also, that the usual **EIGHTEEN** percentage of waste, due to hand-sawing were saved you.

Then suppose you could save a month or perhaps *two months'* TIME in building; and a whole lot of tiresome dickering with lumber dealers, hardware dealers, architects, plumbers and carpenters. And suppose, finally, after making these **MANY** and **BIG** savings, you found yourself in possession of a handsome, strong, substantial Home.

Wouldn't anybody just jump at the chance to get such a wonderful **BARGAIN**? Well—that's exactly what the Sterling System has delivered to thousands of farmers and city folk. And it is exactly what the Sterling System will deliver to **YOU**!! Make us *prove* it! Just give us your name and address. Then see how quickly we put the unquestionable facts before you.

Yes, Sir, we will promptly prove that the figures here given are correct—*absolutely*. We will show you the *actual letters* of Sterling customers who have already made these savings. We will also show you *why* these big savings are possible. Just send your name and address.

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Do we demand full cash in advance like other house building companies? No! Our customers are given *two whole years to pay for their homes*. We not only save each customer big money, but we make it easy for the customer to pay our low price.

No need to pay rent! No need to live in a house too small or out of date! Our "Two-Years-To-Pay" Plan enables you to *build now* and pay at your convenience.

Get This Amazing Book!

Send us your name on a postal and you'll get the most remarkable Home Builders' Book ever published. There is no other book like it—none other so complete. It places before you

the pick of 8,000 Designs. Shows complete Homes, interior scenes—plans—everything! One hundred and twenty-eight big pages—many of them printed in multi colors. To anyone who expects to build, this Book is worth \$200 to \$1500, for that's what it will save you.

See the wonderful Sterling Plans! See the astounding Sterling Prices! See the true meaning of Sterling Service! See the interesting letters from delighted Sterling Customers! See the great convenience of our "Two-Years-To-Pay" Plan.

Remember, whether you want a cottage, a bungalow or a big dwelling—whether you have \$300 or \$3000 to invest—whether you live in Maine, Florida, Oregon or New Mexico, the great Sterling System can serve you and save you \$200 to \$1500.

Act now—on the **IMPULSE**! Get the new Sterling Book—the sensation of the Building World. It is Free. A postal brings it.

International Mill & Timber Co.
 Dept. E-10, 27 Sterling Place BAY CITY, MICH.

We Have 5,000 Letters Like These

In the past season we have received approximately 5,000 letters similar to those reproduced below. We do not give the post office address of the letters here shown, but will be pleased to supply this address if you will write us. Then you can write to any or all of these people.

Mrs. L. C. Wilson of Pa.—"My carpenter says that a house like you sold me would cost me \$700 more if put up by a contractor."

Mr. Samuel Way of Ohio, says:—"Total cost is \$1,080. Had I bought everything here, it would have cost me nearly \$2,000."

Mr. Wm. Brandis—"I saved about \$200 by building in this way."

Mr. Frank Ewing—"There was a saving of at least \$500 in building my house over the ordinary way."

Mr. Geo. Schaible—"Our home was erected and completed for occupancy in just 15 days. Every piece fit perfectly and there was plenty of material. Our carpenter bill was only 1-3 of what it would have been on an ordinary house."

Mr. Thos. F. Martin—"The carpenters who put up my house say that no such lumber could be bought here at any price."

Mr. Nace Burke—"We cannot buy such materials anywhere in this city. My house cost \$1,100, and I think I saved \$800 to \$1,000."

Mr. W. E. Reisinger—"The carpenters and painters say they never before saw such fine lumber. I am very well pleased."

Mr. O. C. Driesbach—"We have saved between \$300 and \$400. The labor saving is a big item."

Mr. J. W. Stephens—"You have saved me a good, big sum. Every time I can go out of my way to help you I am going to do it. You are the squarest people I ever dealt with."

Mr. Douglas Golden—"I have never seen better material and I have saved between \$400 and \$500."

Remember, the complete post office address of each of these writers can be had for the asking.

Sterling System of Home Building

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

DURING the war of the Revolution no colony was more intensely loyal than Massachusetts, yet not all of her citizens were adherents to the cause of liberty, but there were many who did everything in their power to aid the British. This led to many thrilling little episodes, very few of which have been recorded in history. Among these was Peter Strong's defense of the patriot powder.

In a cabin that stood on the outskirts of a little settlement no great distance from Boston lived John Strong, together with his wife and their son, who at this time was a sturdy thirteen-year-old lad. Theirs was a life of contentment as their wants were few and simple, hence easily supplied by the bounteous crops the rich soil of their fields produced and the game that was easily procured from the nearby forest.

There came a day, however, when

Peter Strong—Patriot

By SHERLEY CONNELL.

the peaceful little settlement was thrown into great excitement. A messenger had arrived with the stirring news that the fight for liberty had begun and, even then, a great army of patriots had gathered around Boston to besiege the British troops that were stationed there. The messenger had scarcely passed onward to deliver the call to arms to the settlers farther inland before practically the entire population had assembled in the square before the little church where the kindly faced old minister, his heart fired with the spirit of patriotism, was urging every man to strike for the liberty of his home and country.

Probably it was the blood of his forefathers, who had been numbered

among the sturdy Pilgrims, that coursed through his veins which so quickly aroused the fire of liberty in the heart of John Strong. The quiet, unassuming farmer was the first to go to his cabin, take down the long, flint-lock rifle from its place upon the deer-horns, strap on his powder horn and bullet pouch and hurry back to the church with the announcement that he "was ready." Such prompt action inspired courage in the hearts of his fellow men and it was not to be wondered at that he was chosen leader of the little band of patriots that were soon upon their way toward Boston.

Not all of the able-bodied men had joined the company, however, for Tom Mears and a few others stood to one

side when the settlers had gathered before the church. With sneering actions these men had referred to those who proposed going forth to fight for their country as "rebels" and "traitors," and intimated that they would pay dearly for their folly.

Despite any hopes and predictions to the contrary by the Tories, the struggle went on and the colonists were meeting with success. One very serious difficulty beset them, however, and that was securing a plenteous supply of ammunition. The manufacture of powder in those days, was a very difficult matter as compared with our modern ways, and a goodly portion of the supply was furnished by the men who were too old to be at the front, and by the women who manufactured it at out-of-the-way places in the back settlements and then stealthily transported it to the front. That work was not as easily accomplished as might

WORLD EVENTS IN PICTURES



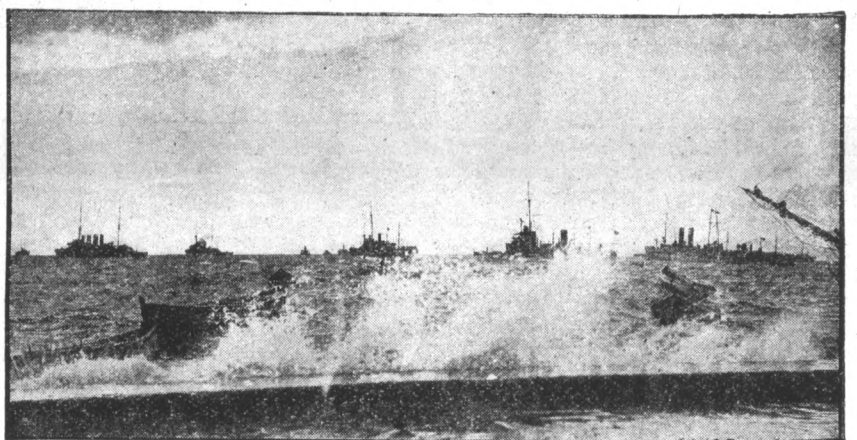
Hot Springs, Va., where President and Mrs. Wilson Spent their Honeymoon.



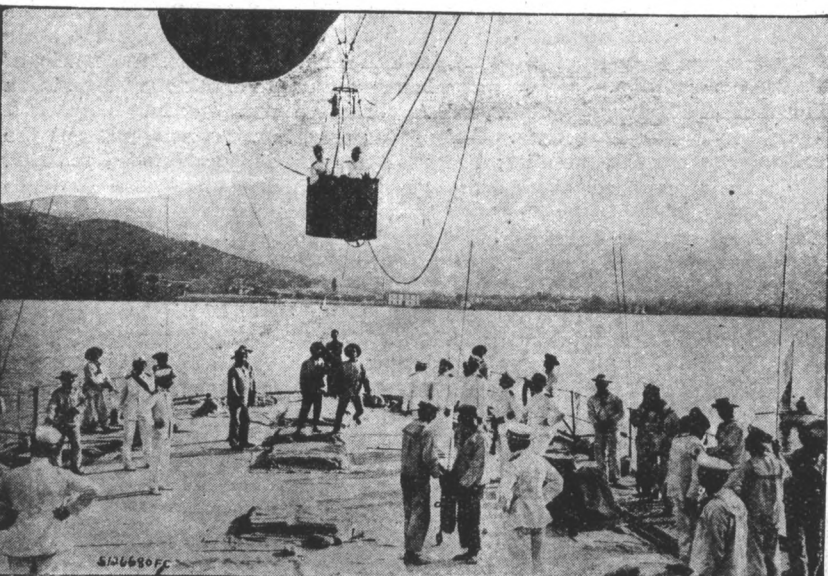
Germans Place Water Bottles on Turkish Desert Route to Aid Armies.



Serbian Refugees Fleeing before Teutonic Armies at Rumanian Border.



Allied Fleet Being Tossed about by a Heavy Gale in Saloniki Harbor.



Sending up Captive Observation Balloon from Italian Warship in Dardanelles.



Lord Kitchener at Dardanelles Considering Withdrawal of Allied Troops.

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be supposed for the Tories banded together and destroyed the powder whenever they found it at all possible.

The location of the Strong home was such as to make it a convenient place for hiding the powder when it was being transported to the front and, quite often, the little cellar beneath the cabin was almost filled with powder chests awaiting a convenient time when they could be moved on to their destination. This work had been carried on for some time right under the eyes of the Tories without their becoming aware of what was taking place. Their success probably led the patriots to grow careless and the Tories finally became suspicious of what was being done. It was then easy for them to learn the full truth of the matter.

One evening, near dusk, a messenger called at the Strong cabin with the news that Mrs. Strong's aged mother was very ill and requesting her to come to the bedside at once. Quite an amount of powder was stored in their cellar and Mrs. Strong hesitated about leaving but Peter assured her that he could guard the place very well and, as there never had been any trouble, she decided to go.

When Mrs. Strong had taken her departure, however, the place was unusually lonesome to Peter, and the uncanny stillness of the night seemed to awaken all sorts of suspicions in his mind and vague trains of unreasonable dangers passed before him. It was now past his usual bed-time but the boy was reluctant to leave his cozy corner by the big fire-place. To tell the truth, he was just a little bit afraid.

Peter had finally aroused enough courage and was just about to start for his bed in the loft when he was startled by a noise—the unmistakable click of the latch on their gate. Wondering who could be coming at that hour of the night, he softly stepped to the window and peered out. After a moment, he could distinguish the dim outlines of three figures standing close together as though debating some question. One of the figures now moved toward the door and Peter could tell by his form that it was Tom Mears the leader of the Tories. In a second it came to his mind that they had come to destroy the powder.

The shadowy form came up onto the porch and Peter could soon hear some instrument being introduced between the edge of the heavy oaken door and the jamb. Thieves were unknown in that community in those days and, as no great pains had been taken to make the door burglar-proof the boy realized that the intruders might easily effect an entrance. Quick action must be taken if he was to save the powder because if the men once succeeded in getting into the cabin any resistance he might offer would avail nothing.

So, quickly stepping to the other end of the room he took his rifle down from its place upon the wall and carried it to the door. He then called out in a steady tone of voice as he could command: "Who's there and what do you want? Why don't you knock if you want to come in?"

For a moment there was silence and then a gruff voice answered: "Say, there, boy, why don't you open the door and not keep us waiting out here all night? We want that powder so that we can get it to the soldiers before day."

"My mother is not at home and she has told me never to admit strangers when she is away," answered Peter. "You are not from the army, anyway. I know your voice. You are Tom Mears and if you want anything, just wait until tomorrow."

"Don't make any difference who I am fer we've come to git that powder and we'll have it 'er tear this cabin to pieces," hotly returned Mears, who was now growing angry at having his scheme balked by a mere lad. "Will

you open that door or will we have to smash it in?"

"I'll not open the door and if anyone touches it he does so at his own risk," Peter replied.

"Huh," snarled Mears, who was now thoroughly enraged. "Stand back if you don't want to get hurt for we're comin' right through," and he hurled his huge frame against the door with such force that every fibre of the heavy oaken planks seemed to tremble.

Peter realized that he must act at once if he was to keep the men out so, before Mears could step away from the door, he raised the rifle to his shoulder and pulled the trigger. The report of the gun was followed by a groan and the jar of a heavy body falling to the porch floor. The bullet had found its mark.

The excitement seemed to have very little effect upon Peter and he proceeded to reload his rifle, with nerves as steady as though it had been but a rabbit that he had fired upon. He quickly found, however, that he would have no further need of the rifle that night because the enemy admitted defeat.

"Young feller, you've got the best of us now, but we'll come back and git you and the powder, both," fairly snarled a voice outside of the door. "No tarnal rebel upstart can beat Tom Mears. I'll see that the King's soldiers come and clean out this rebel nest and then you'll be sorry for what you've done tonight."

His companions had now gotten Mears to his feet and, one on either side, were supporting him out of the gate. He was still heaping all sorts of maledictions upon the "rebel nest."

Peter resolved that there should be no sleep for him that night but that he would remain upon guard lest the Tories return to make another attempt to secure the powder. The conditions under which the colonists lived at that time developed nerves of steel and it was not surprising that a thirteen-year-old lad was ready to attempt single-handed, something that few men of today would try.

The Tories had been away but a short time until Peter could hear some

one coming toward the cabin. Determining to do the very best that he possibly could to defend the powder, he grasped his rifle more firmly and waited with the expectation of an immediate attack being made upon the door. Further trouble was to be spared him, however, for he soon heard his mother's voice calling to him.

When Mrs. Strong had arrived at the home of her mother she had found that lady enjoying her usual good health, so it was soon surmised that the Tories were plotting to destroy the powder. A party was quickly raised and accompanied Mrs. Strong back to her home, their hearts filled with the dread of what they feared had happened there during the past few hours.

Mrs. Strong and the persons accompanying her were no more highly pleased at finding Peter and the powder safe, than was the boy at being relieved from his task. You may be sure that the narrative of his adventure with Mears and his followers won the admiration of all and great praise was bestowed upon him.

No further attempts were made to molest the powder and, ere many days passed by, it was being used with telling effect against the British soldiers. The other colonists now made things so warm for Mears, who had not been seriously hurt, and his cohorts, that they soon left that vicinity never to return.

Several years of the struggle for freedom had now passed by and Peter was nearing manhood when his father broken in body and spirit by the terrible privations that he had passed through, tottered back to his little cabin. It was natural that the son should have a desire to take up his gun and attempt to fill the place that his father had been forced to give up. Peter's courage and determination were now valuable assets and helped him to win further glories for the honored name that he bore.

Today, in a little graveyard not far from where the Strong cabin once stood, there is a grave surmounted by a granite boulder upon whose rugged side is carved the truthful inscription —PETER STRONG—PATRIOT.

(Our New Serial Story)

Light of Western Stars

By ZANE GREY

"Hullo, Stewart, you're the feller I'm lookin' fer," said Pat.

"Stewart eyed him an' said, mighty cool an' sarcastic:

"'Hawe, you look a good deal fer me when I'm hittin' up the dust the other way.'

"Pat went red at thet, but held in.

"'Say, Stewart, you-all think a lot of thet roan hoss of yourn, with the aristocratic name?'

"'I reckon I do,' replied Gene.

"'Wal, where is he?'

"'Thet's none of your business, Hawe.'

"'O-ho! It ain't, hey? Wal, I guess I can make it my business. Stewart, there was some queer goin's-on last night thet you know somethin' about. Danny Mains gone—Stillwell's money gone—your roan hoss gone—thet little hussy Bonita gone—an' this greaser derned near gone, too! Now, seein' thet you was up late an' prowlin' 'round the station, where this greaser was found, it ain't unreasonable to think you might know how he got plugged, is it?'

"Stewart laughed kind of cold, an' he rolled a cigarette, all the time eyin' Pat. Then he said if he'd plugged the greaser it'd never hev been sich a bunglin' job.

"'I can arrest you on suspicion, Stewart, but before I go thet far I want some evidence. I want to round up Danny Mains an' thet little greaser

girl. I want to find out what's become of your hoss. It's got a queer look—thet hoss bein' gone!'

"'You sure are a swell detective, Hawe, an' I wish you luck,' said Stewart, slowly.

"Thet 'peared to nettle Pat beyond bounds, an' he stamped around an' swore. Then he hed an idea. It jest stuck out all over him, an' he shook his finger in Stewart's face.

"'You was drunk last night'

"Stewart never batted an eye.

"'You met some woman at the station, didn't you?'

"'I met a lady,' replied Stewart, quiet an' menacin' like.

"'You met Al Hammond's sister, an' you took her up to Kingsley's. An' cinch this, my cowboy cavalier, I'm goin' up there an' ask this grand dame some questions, an' if she's as close-mouthed as you are—I'll arrest her!'

"Gene Stewart turned white. I expected to see him jump like lightnin', as he does when he's riled sudden; but he was calm, an' thinkin' hard. Presently he said:

"'Pat, thet's a fool idee, an' if you do the trick it'll hurt you all the rest of your life. There's absolutely no reason to frighten Miss Hammond, an' tryin' to arrest her would be such an outrage as won't be stood fer in El Cajon. If you're sore on me, send me to jail. I'll go. If you want to hurt Al Hammond, go an' do it some man kind of way. Don't take your spite

out on us by insultin' a lady who has come hyar fer a visit. We're bad enough without bein' as low-down as greasers.'

"It was a long talk fer Gene, an' I was as surprised as the rest of the fellers. Think of Gene Stewart talkin' soft an' sweet to thet red-eyed coyote of a sheriff! An' Pat, he looked so devilishly gleeful thet if somethin' about Gene hedn't held me tight I'd hev got in the game myself.

"'I'm a goin', an' I'm a goin' right now!' he shouted.

"After thet anyone could hev heerd a clock tick a mile off. Stewart seemed kind of chokin', an' finally he burst out:

"'But, man, think who it is! It's Majesty Hammond! If you seen her face you couldn't do it, even if you was locoed or drunk.'

"'Couldn't I?' said Hawe. 'Wal, I'll show you darned quick! What do I care who she is? Them swell eastern women—I've heerd of them. They're not so much. This Hammond woman—'

"Suddenly Hawe shut up an' went for his gun."

Stillwell paused in his narrative to get breath, and wiped his moist brow. His face began to lose its cragginess. It changed, it softened, it rippled and wrinkled, and all that strange mobility focused and shone in a wonderful smile.

"An' then, Miss Majesty, then there was somethin' happened. Stewart took Pat's gun away from him, an' throwed it on the floor. An' what followed was beautiful. It was the beautifullest sight I ever seen. Only it was over so soon! A little while after, when the doctor came, he hed another patient besides the wounded greaser, an' he said thet his new one would require about four months to be up an' around cheerful like again. An' Gene Stewart hit the trail for the border!"

CHAPTER VII.

Next morning, when Madeline was aroused by her brother, it was not yet daybreak. The air chilled her, and in the gray gloom she had to feel around for matches and lamp. Her usual languid manner vanished at a touch of the cold water. Presently, when Alfred knocked on her door and said he was leaving a pitcher of hot water outside, she replied, with chattering teeth:

"Th-thank y-you, b-but 'd-don't need any now."

She found it necessary, however, to warm her numb fingers before she could fasten hooks and buttons. And when she was dressed she marked in the dim mirror that there were tinges of red in her cheeks.

"Well, if I haven't some color!" she exclaimed.

Breakfast waited for her in the dining-room. The sisters ate with her. Madeline quickly caught the feeling of brisk action that seemed to be in the air. From the back of the house sounded the tramp of boots and the voices of men, and from outside came a dull thump of hoofs, the rattle of harness, and the creak of wheels. Then Alfred came stamping in.

"Majesty, here's where you get the real thing," he announced merrily. "We're rushing you off, I'm sorry to say, but we must hustle back to the ranch. The fall round-up begins tomorrow. You will ride in the buckboard with Florence and Stillwell. I'll ride on ahead with the boys, and fix up a little for you at the ranch. Your baggage will follow, but won't get there till tomorrow some time. It's a long ride out—nearly fifty miles by wagon road. Flo, don't forget a couple of robes. Wrap her up well, and hustle getting ready."

A little later, when Madeline went out with Florence, the gray gloom was lightening. Horses were champing bits and pounding gravel.

(Continued on page 40).

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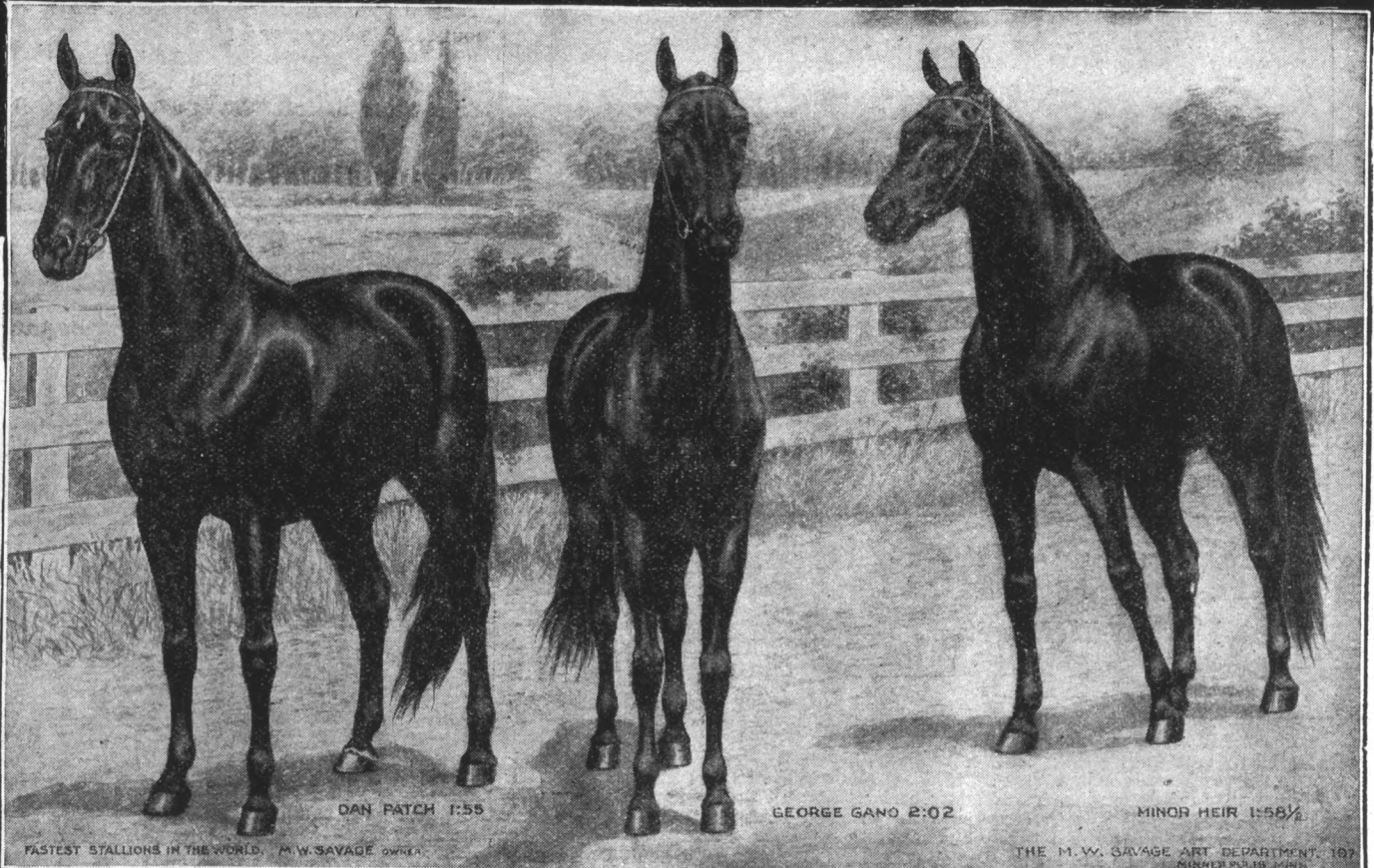
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Some Horse may go as fast or faster but when will ANY HORSE do what Dan Patch has done, and Every Day for over Fourteen Years, Dan Patch, has had International Stock Food Tonic—as also have My Other Stallions and 250 Brood Mares and Colts. DAN has paced One Mile in 1:55, One Mile in 1:55 1/4, Two Miles in 1:56, Three Miles in 1:56 1/4, Fourteen Miles averaging 1:56 1/2, Thirty Miles averaging 1:57 1/2, Forty-Five Miles averaging 1:58, Seventy-Five Miles averaging 1:59 1/2, 120 Miles averaging 2:02 1/2, 132 Miles averaging 2:04 3/4, Lowered World Records 14 Times, Mile Record, 1906 1:55, Half-mile track record 2:01. Mile Wagon record 1:57 1/4, Two Mile Record 4:17, Mile to high-wheel sulky 2:04 3/4, Half-Mile record :56. Half-Mile to wagon :58 1/2, Half Mile on 1/2 mile track :58 1/2. Dan Patch Never lost a race. No Horse has Ever officially equalled Dan's 1:55 Record and he was Never hitched double to help pull him along with a running horse and NEVER went behind a wind shield. Dan Patch has Traveled over 100,000 Miles during his Speed Exhibitions. Over Two Million Farmers and Stockmen have Written Me for Pictures of Dan Patch 1:55, and this is Indisputable Proof that he is the Most Popular Horse in All The World's History. Minor Heir and Geo. Gano, are the Champion Team of the World, with a Wagon Record of 2:02, and Geo. Gano is the Champion Pacing Saddle Horse of the World, with a Record of 2:10 3/4. Dan Patch 1:55, has also proven to be one of the Greatest of Sires and has Over ONE HUNDRED OF HIS COLTS IN THE OFFICIAL LIST, 22 in 2:10 List and is THE ONLY STALLION in World's History, to have Over 100 Colts in the Official List, and being the Sire of only 158 Colts, over two years old. ALL THREE STALLIONS, are owned by M. W. Savage, Minneapolis, Minn.

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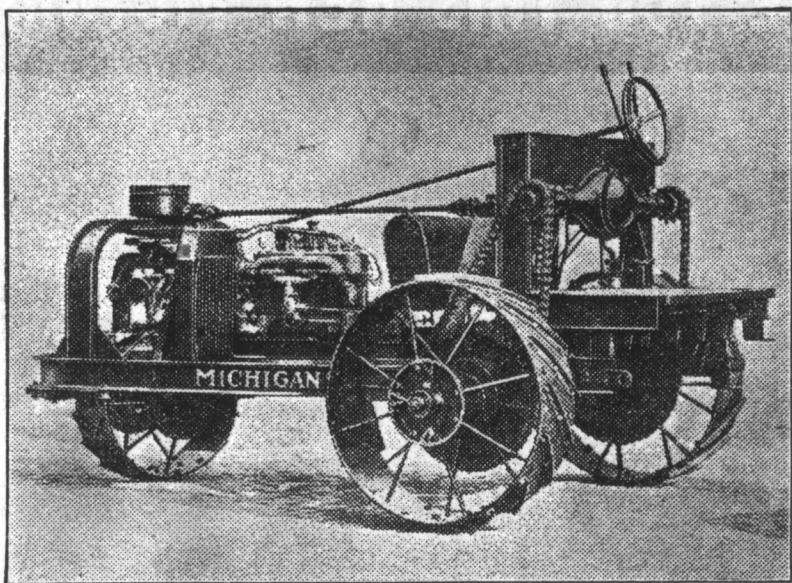
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LIGHT OF WESTERN STARS.

(Continued from page 38).

"Mawnin', Miss Majesty," said Stillwell gruffly, from the front seat of a high vehicle.

Alfred bundled her up in the back seat, and Florence after her, and wrapped them with robes. Then he mounted his horse and started off.

"Gid-eb!" growled Stillwell, and with a crack of his whip the team jumped into a trot.

Florence whispered into Madeline's ear:

"Bill's grouchy early in the mawnin'. He'll thaw out soon as it gets warm."

It was still so gray that Madeline could not distinguish objects at any considerable distance, and she left El Cajon without knowing what the town looked like. She did know that she was glad to get out of it.

"Here come the cowboys," said Florence presently.

A line of horsemen appeared, coming from the right, and fell in behind Alfred. Gradually they drew ahead, to soon disappear. While Madeline watched them the gray gloom lightened into dawn. All about her was bare and dark; the horizon seemed close; not a hill or a tree broke the monotony.

A puff of cold wind struck her face, and she shivered. Noting this, Florence pulled up the second robe and tucked it closely round her up to her chin.

"If we have a little wind you'll sure feel it," said the western girl.

Madeline replied that she already felt it. The wind appeared to penetrate the robes. It was cold, pure-nipping. The air was so thin that she had to breathe as fast as if she were under ordinary exertion. It hurt her nose and made her lungs ache.

"Aren't you co-cold?" asked Madeline.

"I?" Florence laughed. "I'm used to it. I never get cold."

The western girl sat with ungloved hands on the outside of the robe. Madeline thought she had never seen such a clear-eyed, healthy, splendid girl.

"Do you like to see the sun rise?" asked Florence.

"Yes, I think I do," replied Madeline thoughtfully. "Frankly, I have not seen it for years."

"We have beautiful sunrises, and sunsets from the ranch are glorious."

Long lines of pink fire ran level with the eastern horizon, which appeared to recede as day brightened. A bank of thin, fleecy clouds was turning rose. To the south and west the sky was dark, but every moment it changed, the blue turning bluer. The eastern sky was opalescent.

Then in one place a golden light gathered and slowly concentrated till it was like fire. The rosy bank of cloud turned to silver and pearl, and behind it shot up a great circle of gold. Above the dark horizon gleamed an intensely bright disc. It was the sun. It rose swiftly, blazing out the darkness between the ridges, and giving color and distance to the sweep of the land.

"Fine mawnin', girls," said Stillwell, and stretched his huge arms as if he

had just awakened. "Miss Majesty, you'll sure like it. There! Look to the southwest, jest over thet farthest ridge!"

Madeline swept her gaze along the gray, sloping horizon line to where dark-blue spires rose far beyond the ridge.

"Peloncillo Mountains," said Stillwell. "Thet's home, when we get there. We won't see no more of them till afternoon, when they rise up sudden like."

Peloncillo! Madeline murmured the melodious name. Where had she heard it? Then she remembered. The cowboy, Stewart, had told the little Mexican girl, Bonita, to "hit the Peloncillo trail." Probably the girl had ridden the big, dark horse over this very road at night, alone. Madeline had a little shiver that was not occasioned by the cold wind.

"There's a jack!" cried Florence.

Madeline saw her first jack-rabbit. It was as large as a dog, and its ears were enormous. It appeared to be impudently tame, and the horses kicked dust over it as they trotted by.

Old Bill and Florence vied with each other in calling Madeline's attention to many things along the way. Coyotes stealing away in the brush; buzzards flapping over the carcass of a cow that had been mired in a wash; queer little lizards running swiftly across the road; cattle grazing in the hollows; adobe huts of Mexican herders; wild, shaggy horses with heads high, watching from gray ridges—at all these things, Madeline looked, indifferently at first, because indifference had become habitual with her, and then with an interest which grew as she rode on.

She became conscious of the faint, but unmistakable, awakening of long-dead feelings—enthusiasm and delight. When she realized this she breathed deep of the cold, sharp air, and experienced an inward joy. She divined, though she did not know why, that henceforth there was to be something new in her life, something she had never felt before, something good for her soul, in the homely, commonplace the natural, and the wild.

Meanwhile, as Madeline gazed about her and listened to her companions, the sun rose higher and grew warm. It rose higher still, and grew hot. The horses held tirelessly to their steady trot, and mile after mile of rolling land slipped by.

From the top of the ridge Madeline looked down into a hollow, where a few of the cowboys had stopped and were sitting round a fire, evidently busy at the noonday meal. Their horses were feeding on the long, gray grass.

"Wal, smell of thet burnin' grease-wood makes my mouth water," said Stillwell. "I'm sure hungry! We'll noon hyar an' let the hosses rest. It's a long pull to the ranch."

He halted near the camp-fire, and, clambering down, began to unharness the team. Florence leaped out and turned to help Madeline.

"Walk around a little," she said. "You must be cramped from sitting still so long. I'll get lunch ready."

(Continued next week.)

Land O' Nod Stories.

By HOWARD T. KNAPP

BILLY BE BY BO BUM and Tinker Teedle Tee followed their guides down the dark hallway of the ants' underground city until at last they arrived at a big room opening off the main passage. A guard stood at the door, and at first he refused to let them pass, barring the way with his body, his jaws wide open displaying his powerful teeth. He looked so fierce and savage that Billy was just a wee bit frightened and shrank back against Tinker for protection.

"This is Tinker Teedle Tee and Billy Be By Bo Bum, who have come to pay a visit to the Queen," said the leader of their guides.

"Oh, all right, walk right in," replied the guard, stepping to one side. "You will find her in here, busy as usual."

As they entered the big room, Billy saw dozens and dozens of ants drawn up in a circle and in the center was the Queen. She was several times larger than the courtiers surrounding her and her dress was a lighter shade

of brown, but otherwise there was nothing to distinguish her from the thousands of busy insects swarming throughout the city. As Billy and Tinker advanced into the room, the circle of ants surrounding the Queen opened to let them pass, but closed behind them like a living wall.

"How do you do, Billy Be By Bo Bum?" said the Queen. "I am very glad to see you and to have the chance to welcome you to Antland."

"I am pretty well, I thank you, and I hope you are the same," replied Billy, bowing politely, for he had not forgotten his manners.

"Oh, I'm all right, I guess," sighed the Queen. "But I am tired, very tired indeed. You see the children take up so much of my time, they require so much attention, the little dears."

"But I thought Queens had nothing to do but wear a crown and have a good time," faltered Billy in astonishment. "I always supposed they had lots and lots of servants to do their work for them like rich folks."

"You guessed wrong, Billy Boy. I am the very busiest little woman in all this busy city, although I have thousands of willing helpers to assist me. Before my family got so large I did part of my own housework and cared for the children, but now it keeps me busy from morning until night just laying eggs."

"Have you many children?"

"Oh, about ten thousand I guess, although of course I never counted them. If I stopped for that I would never get time for anything else."

"Ten thousand!" gasped Billy.

"Yes, but then you see I am the only mother in the whole city," replied the Queen. "Every ant you see here, whether worker, soldier, princess or male is one of my boys or girls. And when you think of the number of eggs I have to lay in the course of a year you will realize that being a Queen is mighty hard work."

"You must remember, Billy Boy, that I founded this city myself. I was married and left home when I was only a young girl, but as my husband died on our wedding day, I was left alone in the world to shift for myself. So I journeyed here and started to build a city of my own. It was terribly hard work at first with no one to help me, but I stuck to it and soon had a cozy little nest hollowed out under ground. There I laid my eggs, scores and scores of them, and when they hatched out, it kept me busy from morning until night caring for the babies in addition to gathering food for myself. However, when my first children grew up, it was somewhat easier, for they helped me enlarge the house and fill the storerooms with grain. Since then the city has grown year by year until now it is the largest ant colony in this part of the country, so I am told."

"Do you ever go visiting to the other ant cities?" asked Billy.

"Mercy no," replied the Queen. "My children are so afraid that something will happen to me that they will not let me out of sight of my own front door. In fact, you might say they keep me a prisoner, for whenever I go outside the gate to get a little fresh air and exercise in the sunshine, my bodyguard always goes with me. If they think I am going too far, they surround me and drive or even pull me back into the city again. But tell me, why are you looking at me so funny? Is there anything the matter with my dress?"

"Wh, I—I thought, at least Tinker said that Queens always had wings," stammered Billy.

"And you're wondering what became of mine?" laughed the Queen. "Well, Billy Boy, when I was a young Princess I had as beautiful a pair of wings as you ever saw, but when I became a Queen I pulled them off."

And next week I'll tell you more about the Ant Queen.

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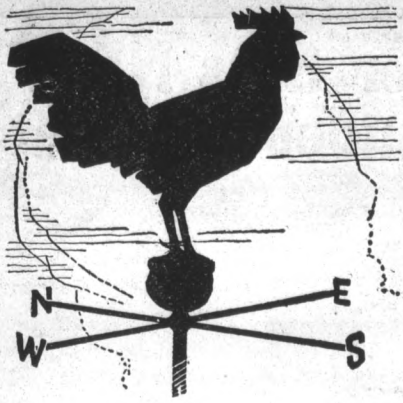
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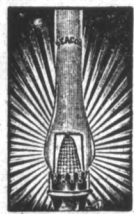
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Woman and Her Needs

At Home and Elsewhere

"Work With Your Might"

BACK in the "deestrick" school when I was a child, we had a song which was our regular Monday morning standby. It started off with a swing, "To the work, to the work," and continued through several stanzas along that line, earnestly admonishing us to "do with our might what our hands found to do." We liked the song immensely, there was lots of dash and snap to it, and we didn't mind a bit about being urged "To the work." But where the shoe pinched, was the charge to do "what our hand found to do."

The trouble was, we all found right at hand the very thing we could do, and we didn't want to do that at all. We wanted to do something thrilling and exciting, something we couldn't do because we weren't old enough or because we weren't qualified by nature to do.

I remember there was one little girl who could draw and write most beautifully. I couldn't draw a line straight if I had a ruler, and my penmanship was the despair of every teacher. But

goods or getting subscriptions for magazines. At best, counting out car fare and the wear and tear on shoes and clothing, not to mention the trailing around in all sorts of weather, they have but a miserable existence. But if you suggest that they get work in somebody's kitchen they are insulted. Hundreds of other women would be glad to pay them for their services to help out with the care of babies or with mending and plain sewing. But such menial tasks are beneath them.

The old Greek statesman who was elected public scavenger by his enemies was wiser. When his friends urged him to refuse to accept the position he replied, "It is not the job that makes the man, but the man that makes the job." And he did the work.

To my way of thinking, the only honest person is the one who does the thing he can get to do, whether it is to his liking or not. It is far more to a college woman's credit to go into a kitchen if she can not get a position as teacher or in a professional line, than to sit idly down and let her life

SANDWICHES IN THE SCHOOL LUNCH.

Well-prepared sandwiches should form an important part of every school lunch. They are easily made and should be very wholesome and palatable. Variety is the spice of life here as elsewhere, and there should be at least two kinds of sandwiches in each lunch. The number and kind may be varied from day to day.

Cut the bread for sandwiches into thin slices of uniform thickness with a sharp knife, and spread the butter evenly over both slices of bread in order to keep it moist and prevent any fruit filling that may be used from making the sandwiches soggy or indigestible. Sandwiches made several hours before they are to be eaten should be wrapped in a moist cloth and kept in a cool place, or wrapped in wax paper, to prevent them from drying or absorbing odors.

Lettuce.—Make a bread and butter sandwich and place a leaf of crisp lettuce, washed and thoroughly dried, between the two slices. Put a teaspoonful of mayonnaise dressing on the lettuce leaf.

Nuts.—Make a lettuce sandwich, spread one side with nuts, chopped fine, and mixed with good dressing.

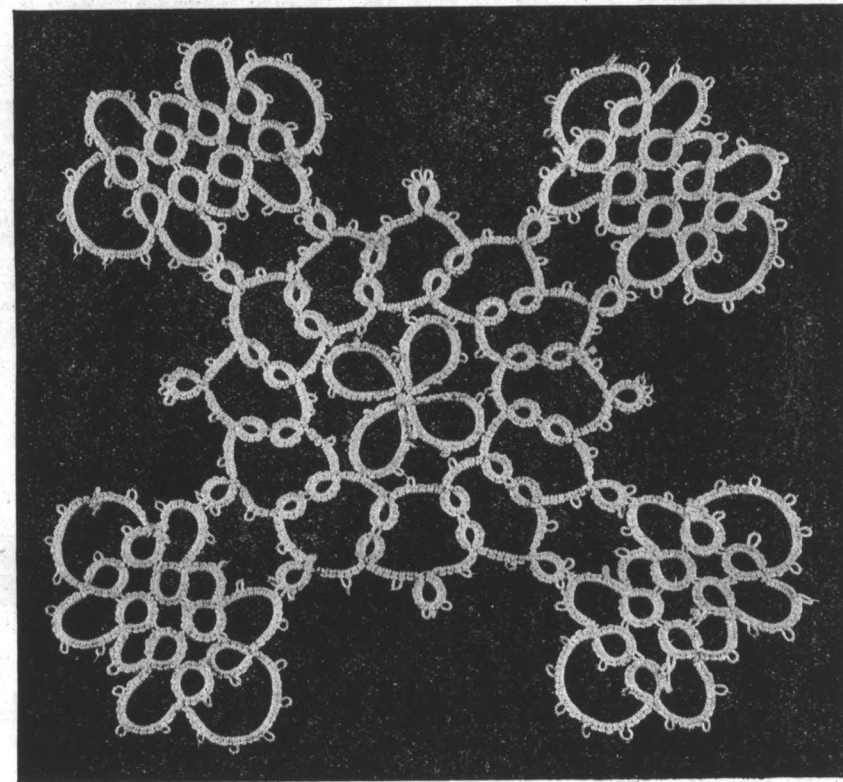
Chicken.—Chop cold, boiled chicken and moisten with mayonnaise dressing. Spread between bread. Lettuce may also be used.

Dates.—Make a filling of one-half cup of stoned dates, one-half cup of sweet cream; spread between slices of buttered bread.

Eggs.—Chop the white of hard-boiled eggs very fine. Mix the yolks with mayonnaise dressing and season with pepper and salt. Add the whites and spread between bread. Lettuce may be used also.

Pimento and Cheese.—Make a filling of one-half cup of cream cheese and one-fourth cup of chopped pimento, two tablespoons of salad dressing, salt and pepper. Spread on butter evenly. Cottage cheese may be used or the pimento may be left out.

Peanut Butter.—Peanuts ground and mixed with a salad dressing make an excellent filling. The commercial peanut butter may also be used. Spread evenly between buttered bread. A crisp lettuce leaf adds to the attractiveness of this sandwich.—Mo. College of Agriculture.



A Unique Design for a Doily.

I had a parrot's memory and could get up Friday afternoons and "speak pieces" miles long. Now, if I could only have drawn the wonderful things on the board that that little girl could, and if she could have memorized the "pomes" that I could we would have been perfectly happy, so we thought. As it was we were rather envious and felt life held too much bitterness.

At home, too, I could wash dishes and trim lamp wicks and polish the chimneys so, they looked like new. But I wanted to bake the bread and make the pies and put out the washings, while I was still only nine or ten years old.

As I grew older and watched human nature more I discovered I was not alone with that trit. Nearly everybody wants to do the thing he can't do, and many go so far as to refuse to do anything because the thing at hand isn't to their liking. Every winter dozens of women ring my doorbell with a hard luck story. They have to earn their own living, and are trying to do it by selling papers of needles and pins, or taking orders for toilet

drift purposeless away. Work is a panacea for bad tempers and distorted mental visions, and even dishwashing and potato paring can be dignified if you do it with your might.

A great many women speak contemptuously of kitchen work, and seem to feel themselves above it. Personally I'd rather be in the kitchen doing honest work, than dawdling in the parlor gossiping or complaining about how hard life had used me. Life has an unkind way of swatting most of us about. And the more we complain the harder are the swats. It is only when we stop feeling sorry for ourselves and decide to grin anyway, that life begins to smile back at us.

Therefore, if our work doesn't suit us, let's do it anyway "with our might." Our distaste will grow in time to tolerance, and if we keep at it long enough the tolerance will change to a wholesome liking. Whatever it is we can get to do, if it makes us independent and keeps us busy, let's do it. Any kind of work is better than idleness and despair.

DEBORAH.

A TATTED DOILY.

BY MRS. EARL TAYLOR.

One sometimes gets tired of seeing round doilies, so here is an odd-shaped one in tatted. It is made of coarse crochet cotton and is especially nice to use on the small shelves of a sideboard or buffet or any other place where a small doily is needed.

Here are the directions for making: For center, 5 d s picot (5 times) 5 d s draw up. Make four of these rings very close together.

First row, * 5 d s picot 5 d s close. With two threads make 3 d s picot 3 d s *. Repeat from * to * 11 times, only, instead of making a picot in middle of every fourth chain it should be joined to middle picot of one of the wheels in center.

Second row, make * 5 d s, join to picot of ring in first row, 5 d s close. With two threads make 3 d s, picot 3 d s. With one thread make 5 d s, 3 picots 5 d s. With two threads make 3 d s, picot 3 d s *. Repeat from * to * 11 times.

For outside motif make 4 d s, picot

(3 times), 4 d s draw up. With two threads chain * 4 d s, picot 4 d s, join to middle picot of one of the wheels on edge of dolly center, 4 d s, picot 4 d s *.

Make another wheel like first, joining to first, then with two threads chain 4 d s, picot 4 d s. Make another wheel, join to preceding. Then a chain like *. Make another wheel and join to preceding. Chain 4 d s, picot (5 times), chain 4 d s. Make this side of the motif the same as first, joining the wheels at center and side. Work three more of these motifs on edge of dolly center, leaving one wheel on dolly center between each motif.

A CURTAIN TALK.

BY OLIVE RICHEY.

An expensive lace curtain is both beautiful and durable. A cheap lace curtain speaks for itself—both in looks and wear. When you purchase a cheap lace curtain you practice the poorest kind of economy.

But one need not lack for curtains nowadays on account of the cost. There are so many pretty materials to be had and the prices are reasonable.

Very pretty net and scrim can be purchased for 10 and 15 cents a yard. Net and scrim comes in both white and ecru. The curtains are ready to hang after hemming, but one can improve them by adding a narrow lace edging. The plain scrim, hemstitched, makes handsome curtains. Should an ecru curtain fade, its color can be restored by dipping it in strong coffee. There is so much pretty scrim, with the colored borders on the counters, that one can scarcely keep from buying, although the very cheapness tells us that the color will fade when the curtains are laundered. The writer has, however, found a way of preserving the color of such curtains for several seasons. Two pairs of ecru scrim curtains, having a large red apple and green leaf in the border, have been laundered four times and the colors are almost as bright as the day they were purchased.

The first time that the curtains need to be laundered, shake well and hang them on the clothes-line to allow as much dust as possible to blow out of them. Let them lay over-night in water. The water should contain a tablespoonful of turpentine to each two gallons of water used. Wash with a mild, white soap. Rinse carefully and hang in the shade to dry.

Muslin curtains, while not as sheer and pretty as other materials, are certainly the most durable.

I have recently made a pretty pair of sash curtains for my pantry window from floor sacks. The sacks were boiled until all the print was gone. I scalloped the edges, using a tumbler to mark my scallops so that they might be even. After cutting around the scallop, they were edged with the button-hole stitch. A few polka dots in different colors were worked in each scallop. In this way quite a number of odds and ends of flour sacks were turned to good account, and I have neat, durable curtains, which cost me nothing but my labor.

Measles

The most widely prevalent of the so-called children's diseases, measles, has a low death rate charged to it. Except in infants and delicate children the disease seldom proves fatal. Though measles spreads more rapidly and widely than scarlet fever, it is seldom given except by contact with the patient, and does not cling so long to clothing, furniture and houses as scarletine. Cases are on record where families have moved out of a house within three weeks after the disease leaving the rooms without disinfecting, and the incoming family escaped.

The disease usually lasts about three weeks, that is the period of infection, and is more severe in the winter and spring.

Measles usually begin with running at the eyes, sore throat, sneezing and a catarrhal discharge from the nose. There is frequently headache, backache and drowsiness. In from two to four days a rash appears back of the ears, on the neck and in the roots of the hair around the forehead. This spreads quickly over the face and trunk and then the legs and arms. Often by the time it is out on the legs it has begun to leave the face, and the whole rash usually disappears in from four to six days. Often the rash is followed by a brownish discoloration of the skin which sometimes remains a week or more. During the eruption the skin itches and burns, and sometimes the face is badly swollen, especially about the eyes. The itching may be relieved by anointing with vaseline.

The eyes are invariably weak and sensitive to light during measles and the patient should be kept in a darkened room. Even where he does not complain of his eyes, it is better to keep him out of the light. Frequently there is a discharge which causes the lids to stick together. The lids should be frequently cleansed with boric acid and anointed with vaseline.

Desquamation in the form of very fine scales follows the disappearance of the rash, but is often overlooked because of its character.

The greatest danger from measles arises from the danger of pulmonary complications. Broncho-pneumonia frequently accompanies or follows the disease, especially in very young children and those with a predisposition to pulmonary troubles. For this reason young children and those who have tubercular antecedents or tendencies toward tuberculosis should be kept from exposure to the disease.

Bronchitis so often accompanies the measles, even the mildest forms, that it is not regarded as a complication. A hard, sharp cough is one of the characteristics of the disease.

A physician should always be called where measles is suspected and his directions implicitly followed. The patient should be kept in bed during the entire course of the disease and kept warm, but not overburdened with blankets and comforts. All other children should be kept away from the patient, and not allowed to attend school until danger of infection is passed.

DEBORAH.

NEW IDEAS IN DINNER WARE.

Fashions change in dishes as in clothes. Only yesterday we were scheming and saving to acquire a set of fine French china, gold rimmed or pink-rose decked, and today, we are turning our back upon it to pick up the solid English ware with its old colors, dull blues and browns and reds. And the reason for this is, not the war, but that the English china possesses the qualities of the English people, durability and substantiality. French china, though exceedingly dainty, is brittle and easily broken, while the English ware is built for long service and more easily resists the ravages of careless handling. Then the dull colors of the English ware make it fit more effectively with any scheme of decorating the table. Your French china with its bright pinks is "killed" by a center of carnations or roses, while the dull old blues and yellows of the English ware bring out the hues of the flowers and are themselves accentuated by the brighter colors of candles and posies.

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When writing to advertisers please mention the **Michigan Farmer**.

and add to the set at her convenience. Birthdays, Christmases and wedding anniversaries would serve as good occasions to remind friends and relatives that she is acquiring a dinner set and contributions will be gratefully received. If the housewife washes the fine ware each time herself instead of trusting it to children or hired help, there is no reason why the first dishes bought need not look as well as the latest additions when the set is completed.

As a start, dinner plates are the best thing to buy, and eight is a sufficient number for the ordinary family. The handsome dinner plates will give a festive air to the table, and the fancy cups and saucers and salad dishes which most housewives own may be used to eke out the set until more can be bought. Following the plates it is well to pick out next bread and butter plates, cups and saucers of medium size so they may be used for either tea or coffee, one or two open vegetable dishes and a fair sized platter. Covered tureens are nice for the vegetables, but they cost more than twice as much as the open dish, so for motives of economy it is well to choose open dishes. The cover of a tureen costs more than a single open dish. Soup plates may be added later, and an odd bowl for gravy, or perhaps a gravy boat. It is well when buying a gravy boat to look for one with the stand attached.

Instead of the china soup plate many are using deep glass plates for soup. These can be used for the hot soup if a spoon is put in the dish before the soup is poured and are very pretty on the English dinner plates. These same glass plates may be used for many things. They are very nice for anything which requires chipped ice, as raw oysters, melon or grape fruit, and they may be used for desserts, such as ice cream, baked apples and cream, apple dumplings and other desserts requiring a sauce. To accompany them, small cups are shown, which are nice for orange juice. These cups set inside the plate and are surrounded with the crushed ice. The plates come in prices from \$5.00 a dozen to \$100. The more expensive ones are in exquisite cuttings, but the cheaper ones are very pretty, as the crystal is unusually clear. In buying glassware of any sort the housewife should be careful not to get that with a yellowish cast.

Salad and cake sets may be easily made up in the English ware, as there are no end of quaint odd pieces which may be matched, bowl and small plates for the salad, or a large plate and a half dozen smaller ones for cake. For salads Martin's shows an unusual bowl on a standard, with handles on each side of the bowl. This shape is shown in many patterns, a quaint one of eighteenth century design being in black with pink roses. The idea of black china is a revival of an eighteenth century design which was copied from the Chinese, but soon fell into disuse. One or two pieces is all anyone would want, but a touch of black in some dish adds strength to the other colors. A pair of black and pink candlesticks on the table, or the black salad bowl would be sufficient. Service plates and bouillon cups have a touch of black in the form of lattice work, with flowers peeping through. Such a set would make a nice gift for a bride, when one wanted to give "something different."

The English sets have another point of interest over the French. They are not so expensive. A pretty set in Wedgwood with an exquisite design of flowers in old blue over which hover butterflies and dragon flies, may be purchased for as little as \$14. Other sets in different designs come for \$11, while, of course, there are many much more expensive.

Let us so live when we are up, that we shall forget we have ever been down.—Stockton.

Cereal Foods

BY FLOYD W. ROBISON.

ONE of the principal reasons why it has been difficult for the digestive systems of human beings to utilize raw starches in a satisfactory way has been that in order to overcome the resistance of the cellular structure which surrounds the starch globules it is necessary that the food material should have prolonged action in the alimentary canal. The human digestive mechanism is not planned primarily with this in view. The intestinal canal is not so long as is that of herbivorous animals and the enlargement of the esophagus and other parts of the digestive canal do not contemplate any very prolonged treatment of the food material. For instance, in the stomach of the cow there is an enlargement of the esophagus which permits of the storage of the vegetable food material where it is modified to some degree before it goes into the stomach. After it is modified the food is again returned to the mouth where it is ground more finely, and intimately mixed with the saliva. In this way the pre-treatment of the starchy foods compensates for the mechanical treatment which human beings give their food when it is cooked. Of course, the salivary digestion is not the only treatment which starches get. In fact, it may not be the more important treatment from a chemical point of view, but it certainly seems to be true that a great many ills of digestion follow an insufficient salivary treatment of our cereal food products.

First Essential is that the Food be well Cooked.

In the manufactured breakfast foods of the so-called predigested type, the food is not only thoroughly cooked, whereby the cellular structure which surrounds the starch globule is mechanically broken up, but active diastatic action has advanced to a marked degree on the starches within the cellulose envelope. Before the passage of the Food and Drugs Act much false advertising and many false claims were advanced regarding the merits of this class of products. Not content to put them upon the market in their own legitimate field and with a truthful statement of the real merits of these foods, they were sold much as patent medicines, and were sold at one time with the most extravagant and fictitious claims imaginable as to their real value.

The Fountain Cannot Rise Higher than its Source.

We have seen statements such as this on the packages and in the advertising matter of some of these foods, "One pound of this breakfast food is equivalent in nutritive value to ten pounds of meat, wheat, oats, bread, etc." There was absolutely no regard for the truthful, scientific statement. Of course, as most of these products are made from either wheat, or oats, with some barley, it must be obvious to any thinking person that one pound of the breakfast food in question could not contain any more real nourishment than was contained in one pound of wheat, oats, or barley from which the product was made.

It is impossible to build up by mechanical or chemical means the nutritive value of any vegetable product. The only way it could be possible would be to concentrate it in some form and, of course, this is a difficult thing to do except by the mere matter of drying or desiccating, and as the breakfast foods contain somewhere near the same quantity of moisture as did the wheat from which they were made, it is evident that desiccation had not taken place to any marked degree.

In addition to the cooking of these products they were in some instances rolled into thin flakes such as the condition in which we find rolled oats today. These flakes were then placed on shelves in an oven where they were

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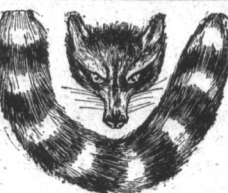
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A pair of mated EVERBEARING STRAWBERRY PLANTS FREE if you will report as to your success with them. Will bear loads of big, red, berries from June to November. We have counted 480 berries, blossoms and buds on a single plant. A postal will bring the plants, also enough seed of the new CEREAL FETTERITA to plant a row square of ground. Also a lot of perennial ORIENTAL POPPY seed. Send 10 cts for mailing expense or not, as you please. Write today and get acquainted with THE GARDNER NURSERY COMPANY Box 745, Osage, Iowa.



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The Berlin Fruit Box Co. Berlin Heights, Ohio.

Government Farmers Wanted \$80 to \$125 monthly. Free Living Quarters. Write, OZMENT, 17 F. St. Louis.

cooked or toasted so that the mechanical condition of the product was similar to that found in toast. In fact, the toasting of bread is just such a process as a good many of the breakfast foods went through in their method of preparation. In this toasting the outside portion coming in contact with the fire was changed into dextrine, or partially changed into dextrine, and thus facilitated the further activity of the product when taken into the mouth.

Thorough Cooking is Fully as Good as Predigestion.

It has been our observation that rarely has the treatment which has been given to the breakfast foods been of any greater advantage than would be occasioned by the prolonged cooking of the cereal product itself without any other treatment. The ideal method of preparing a cereal food is to cover it with boiling water in a double boiler and keep it cooking for several hours in this way. By so doing practically all of the cellular envelope which surrounds the starch granules is broken up and the starch brought into contact in this way directly with the digestive juices of the body. Oat meal, or wheat foods, or any other starchy product cannot be satisfactorily prepared by a fifteen or twenty minute treatment even at a temperature of boiling water.

A bulletin issued from the Michigan Experiment Station some years ago in which we made a study of something like between forty and fifty breakfast foods which were then on the market showed that in very few instances indeed had there been a sufficient amount of preliminary cooking of the food. The amount of cooking can be judged by the quantity of insoluble starch present. If the cooking is insufficiently prolonged the starch is converted into a soluble compound and the amount of insoluble starch present is the best guide as to the amount of cooking which the food has undergone. The real food value of these products may be placed in about the same column as the food value of wheat, rye, barley and oats. They are not to be compared with meats because they are essentially of a different type of food.

Vegetable and Cereal Foods Should Not be Compared with Meats.

Comparative food values as judged in heat units are not a true criterion of the value of the product, for while a strictly lean meat product might not show as high a fuel value when used in the body as do some of the breakfast food products, in another way if one should take as a meat product one which contains a considerable quantity of fat, the fuel value of that meat product would be therefore greatly enhanced. So from food and fuel points of view it is well to bear in mind that foods should not be compared out of their class any more than any other commodity.

The Evil of the Poorly Prepared Breakfast Food.

One great fault which grew up following the advent of breakfast foods was the hasty preparation of the breakfast by the substitution for the nourishing oatmeal and wheat breakfast foods of the so-called prepared breakfast foods which could simply be warmed in the oven and placed at once upon the table. As we have said before, most of these breakfast foods were not sufficiently treated to make them a safe substitute for a well-cooked oatmeal or a well-cooked wheat preparation. Whether we are to blame the breakfast foods for the hasty breakfast or whether we are to lay the blame for a desire for a quick meal for the appearance of breakfast foods on the market, is difficult to say. Certain it is that the two went hand in hand and many a breakfast has been prepared using an insufficiently cooked prepared breakfast food as the basis when time should have been spent in the prolonged cooking in the home of some one of the cereal products.

On the other hand, a few breakfast foods have been well cooked and a few breakfast food manufacturers have been telling the truth about the excellence and scientific value of their products. A number of these products have thus stood the test of time and where it was a common thing to find on the grocer's shelves from forty to fifty different types of breakfast foods, the majority of these have been weeded out and at the present time there are but a few which have stood up under the careful scrutiny which has been directed against them.

Stand by the Old Favorites.

It is well to add in this connection that the old favorites, rolled oats and oat meal, and wheat foods, are still on the market and by an adherence to the old and well established principles of cooking these products will be found yet to be safe and excellent additions to the breakfast menu.

SHORT CUTS TO HOUSEKEEPING.

Put one tablespoonful of yellow corn meal into a wash basin and add enough vinegar to moisten well and rub into the hands thoroughly. After having rubbed them several minutes, add some warm water and continue to rub the meal into the hands. After doing this several minutes, rinse the hands well and you will find that the grime has disappeared and that the hands will remain white and soft for a long time. This is especially nice for women living on farms, whose work of necessity exposes the hands and chaps them.—M. M. M.

If a folded cloth is placed over potatoes after boiling and draining them, they will be much nicer and drier than if the kettle cover is replaced, especially if they have to stand a while.—J. M. S.

When you have ironed a collar and it is ready to fold over, begin at one end and iron the upper part of the inside with the edge of the flatiron, curving the collar as you go. The collar will roll to fit the neck and there will be no wrinkles if properly done.—J. M. S.

Woe to the man who is not ready for the opportunity when it comes.—Hale.

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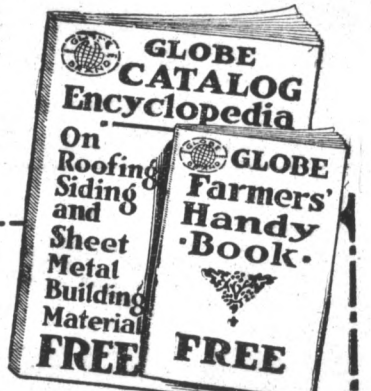
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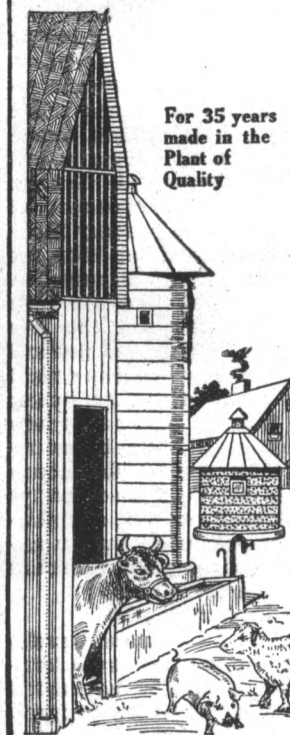
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| 1 can Baking Powder, 1-lb. | .25 |
| 1 package Baking Soda, 1 lb. | .10 |
| 1 package Whole Nutmeg | .05 |
| 6 cans Pork and Beans (large size) | .90 |
| 1 can Hominy | .15 |
| 1 package Breakfast Oats, 1½-lb. package | .15 |
| 1 package Pancake Flour, 1-lb. | .20 |
| 3 packages Spaghetti, 1-lb. packages | .45 |
| 2 packages Shredded Coconut, ½-lb. packages | .40 |
| 4 packages Caramel Pudding | .60 |
| 4 packages Strawberry Gelatine, (package makes 1 pint) | .40 |
| 2 packages Corn Starch, 1-lb. packages | .20 |
| 2 jars Peanut Butter | .40 |
| 2 jars Prepared Mustard | .30 |
| 1 package Black Pepper, (ground) | .10 |
| 3 packages Ever-Ready Tapioca | .45 |
| 5 cans Lustre Bright Scouring Powder | .50 |
| 3 packages Washing Powder | .30 |
| 1 package Gloss Starch, 1 lbs. | .10 |
| 1 box Medicinal Toilet Soap | .25 |
| 20 bars Floating Bath Soap | 1.00 |
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| Total | \$10.00 |

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We have made this offer so big that no one can afford to miss it. We guarantee perfect satisfaction to every purchaser. When you receive this shipment, if you are not satisfied with everything—just send the shipment back to us at our expense and we will refund your money, making no charge for a reasonable amount of goods consumed in making a test. Order direct from this advertisement and get the biggest bargain you ever received. Remember we allow you to try the groceries—test them—let you see for yourself that everything is satisfactory—take all back at our expense if you are not fully pleased. Fill out the Coupon, enclosing \$10.00, and we will ship everything at once. You take no risk whatever. **MONEY BACK IF NOT SATISFIED. ORDER TODAY. Don't Delay. Prices Guaranteed for 90 Days Only.**

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This planter is *guaranteed*. It must be all we claim and all you expect. 190,000 users verify that HAYES Four-Wheels regulate depth of planting to the *fraction of an inch*. Corn all comes up at the same time, allows earlier cultivation, an earlier harvest, a better quality and bigger quantity.

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Farm Commerce.

Big Business by the "Co-ops"

The Following Paper Read Before the State Grange, By C. H. Bramble Shows Present Magnitude of Co-operation in U. S. and Suggests a Wonderful Expansion.

THIS is an age of unlimited production and selfish and imperfect distribution. We can produce all that the body and mind need. We have devoted all our energies to selfish production and none to unselfish distribution. Co-operative associations came upon the business stage of action as a protest against unnatural and artificial conditions which have been forced upon the farmer. The farmer has a natural monopoly of his products and has a primary interest in the markets in which they are sold and in which he buys his supplies.

If a system of marketing has been organized against him and the free play of the law of supply and demand been obstructed the farmer has a right to discard methods which no longer subserve his interest and adopt new agencies which shall bring better returns for his labor and for the money he pays for his supplies. Co-operative creameries, elevators, stores, and shipping associations represent such a system, combining economy and efficiency and greater financial returns.

Laws Protect Capital.

Co-operation is an economic evolution. Our corporation laws were formed for the use of protecting capital and are not conducive to the co-operation among men. The capitalistic view is that business is run for the benefit of the capital invested. Hence the more money invested and the larger the dividends declared, the more successful the business is reported to be. The interest of the producer and consumer is lost sight of. The co-operative view is a company with sufficient capital to transact the business, paying a reasonable wage to the money invested and returning all excess profits to the producer and consumer who create them.

Thus we have the two opposing systems of business, the one benefits the capital with large margins and fat dividends, the other benefiting the producer and consumer by rendering service at a reasonable cost.

Co-operation of Democracy.

An ideal government is a democracy. Co-operation is nothing more than the application of the democratic principle to business. Under a corporation we have a collection of personified dollars, without human interests or emotions. It is a government of capital, by capital and for capital. Capital is the master, every other interest is subservient. On the other hand, co-operation is the association of human beings with wants, desires and aspirations. The individual is the governing unit, and the association of individuals through co-operative effort renders service through their human needs and comforts instead of promoting the accumulation of dollars. Under co-operation, capital is the servant, not the master. Co-operation pays capital wages. All other profits over and above the expense of operation and management theoretically should not have been taken, and are turned back to the members who produce the same.

Doing Business at Cost.

Thus a true co-operative grain or mercantile business makes possible a market service at cost. In other words, the more dividends you pay on capital stock in private corporations, the more you increase the cost of doing business. On the other hand, the more you return to your patrons on the pro rata plan of patronage, the more you reduce the cost of doing business and the more benefits accrue to the patrons. This is the whole gospel of co-operation.

The co-operative principle of one

man, one vote, regardless of the number of shares of stock he owns, the payment of the regular rate of interest upon the money invested, and the division of all profits over and above the legitimate expense of doing business according to patronage and service are the underlying principles of true co-operation. These are the underlying principles of the Rochdale plan of co-operation inaugurated sixty years ago in England. These principles are being applied in a business way in practically every civilized nation today. It has had a wonderful growth in the United States in the last ten years. The first co-operative law embodying these principles was passed by the Wisconsin Legislature five years ago. Three years ago Michigan passed a co-operative law similar to the one in Wisconsin. Since then similar laws have been passed in New York, Indiana, North and South Dakota, Minnesota, Colorado and California, and last year in Illinois and Iowa also. It may be news to you to learn that there are over ten thousand co-operative organizations in the United States owned and controlled and operated entirely by the producers and are engaged in marketing agricultural products and buying supplies for the farms. Three thousand grain elevators, three thousand creameries, fifteen hundred fruit and produce shipping associations, and three thousand miscellaneous undertakings, such as stores, etc. There was marketed through co-operative associations last year one billion two hundred and forty thousand dollars worth of farm products. To say nothing of the supplies which are bought through the same organization. It may be of interest to you to know that there are forty-four co-operative associations incorporated under our Michigan co-operative law, with a capital stock of \$524,200. Included in these are ten co-operative creameries, four elevators, and thirty stores and shipping associations. At least fifty thousand farmers of Michigan are co-operating in buying and selling farm supplies and farm products. I wish it were possible to say honestly that these organizations are formed because the principles involved therein are right but I believe it is nearer the fact that they are formed because of dire necessity. It was the bankrupt condition of the orange growers of California that forced them to form their co-operative shipping and selling association. It was the exactions of the line elevators that forced the farmers of the seven great grain growing states of the west to organize co-operative elevators, form their state association, and the council of the Farmers, Grain Dealers' Association. The following is a list of these organizations:

North Dakota, 450 elevators; South Dakota, 320 elevators; Minnesota, 300 elevators; Kansas, 200 elevators; Illinois, 370 elevators.

Making a total of 2,240 elevator associations belonging to their respective state organizations, each elevator paying annual dues of \$20 each. There are over a thousand other elevators that have not affiliated with the state organizations. They handle nearly one-half of all the grain raised in these states at a saving of from one to three cents per bushel. It was the Farmers' Grain Elevator Associations that fought for six months before the Interstate Commerce Commission to prevent a ten per cent raise in freights on grain and a twenty per cent raise in passenger rates on forty-six of the railroads west of the Mississippi. They won this fight, and it is estimated that

Don't Sow CLOVER

until you have received your copy of the latest book on Alfalfa and Clover prepared by four of the foremost Agricultural Authorities in America.

Here are a few chapters showing you the wealth of valuable information necessary to grow this money crop:

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Results from hundreds of Michigan Farmer users over a period of five years have conclusively proven that seeds drilled at a regulated depth 4 inches apart with Excelsior Clover Drills produced excellent yields.

Seed this year is very costly. You can save many dollars by sowing your seed with an Excelsior Drill and save enough seed in 30 acres to have the drill free.

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You will get these results by learning all about Clovers and Alfalfa, and what the results are when these seeds are drilled with an Excelsior.

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they saved the people west of the Mississippi at least six million dollars in freight charges per year. This shows what organization and co-operation among farmers can do when rightly applied.

Retailing by Co-operation.

The number of retail merchants have increased much faster than the volume of business that they transact. So that in most towns you find from four to ten merchants carrying the same kind of merchandise. One merchant or two at least, could do the same service far more economically. Duplication of stock of goods adds to the cost of distribution. Again, some men pay cash for all they buy. Others receive credit for from three to six months. Still other customers have goods delivered at their door. The cost of credit, delivery and bad debts consequent upon the credit are added to the cost of all the goods sold, which in the last analysis is an added burden to the cash customer. The whole system is costly and unsatisfactory to the cash customer. It is for these reasons that co-operative associations on the Rochdale plan are being organized in this state. This system reduced the business to a cash basis and performs a service of distributing goods to the actual cost of the service.

At Tecumseh 174 farmers bought a business and are doing their own merchandising. They have put over \$19,000 into the business and incorporated under the co-operative law of the state. Under this law, as explained above, the capital invested received six per cent interest. Each man has one vote regardless of the number of shares of stock which he holds, and all profits are divided according to patronage and service.

All goods are sold at the regular retail price and the market price is paid for all produce handled. After all expenses of doing business are paid, the profits are divided or pro-rated to the patrons according to the amount of goods bought or sold.

The association handles a full line of agricultural implements, coal, lime, cement, harness, hardware, all kinds of feed and seeds, and also handles the farmers' cream at Elgin prices, and ship their live stock for them. In the near future they expect to handle the farmers' grain. All goods are sold for cash or its equivalent. This enables the association to take all of its cash discounts upon goods purchased.

Efficiency and economy are the demand of today, and the above is one way to secure the same.

Crop and Market Notes.

Michigan.

Monroe Co., Dec. 27.—While wheat and rye were sown later than usual the late fall gave them a good growth and went into winter in excellent condition. Average amount of feed in farmers' hands, but none for sale. Extra good late pasture put cattle in fine condition for winter feeding. Very few beef cattle being fed. Hogs about all marketed. Whole milk \$1.60 after January 1; beans \$3.85; cattle 4¢@7¢; hogs \$5.50@6; wheat, red \$1.20; white \$1.17; corn, new 70¢@80¢ per cwt; oats 35¢@38¢; potatoes 75¢@80¢; hay \$10@12; apples 75¢@85¢ per bushel.

Cheboygan Co., Dec. 27.—Wheat and rye made a fine growth and went into winter in fine shape. Not enough feed for farmers' use and not much feeding stock on hand. Cream 28¢ at creamery; hogs 8¢; wheat \$1; corn 35¢ per bushel; hay \$12@15; apples \$1; eggs 35¢; butter 25¢. Fine winter weather.

New York.

Genesee Co., Dec. 28.—Fall sown grains in splendid condition. Nearly all farmers have enough feed for own use. Only a limited number have any feeding stock on hand. Butter-fat 35¢; milk \$1.80; eggs 35¢; pork 8¢; lambs, dressed 14¢; calves, alive 9¢@10¢; fowls 12¢; ducks 14¢; wheat \$1.10; oats 35¢; corn 30¢@40¢ a crate; beans \$3.50@4.75 per bu; hay, loose \$12@14; potatoes 70¢@75¢; cabbage \$2.50 per ton; apples 50¢@\$1 per bushel.

New Jersey.

Monmouth Co., Dec. 27.—Fall sown grain is looking well. Most farmers have enough feed for their own use. Hogs about the only feeding stock kept in this section with about the usual amount on hand. Cream 35¢ per quart; milk 4½¢; wheat 95¢@\$1.10;

corn 75¢@80¢; hay \$10@15; potatoes 80¢ per bushel; apples 80¢@\$1 per bushel.

Ohio.

Paulding Co., Dec. 28.—The winter weather has been very nice during December. Sleighting is pretty good. Wheat is looking well. Plenty of feed in farmers' hands for home use. About the usual quantity of stock is being fed. Some corn to husk. Corn 85¢ per cwt; cream 30½¢; milk 8¢ per quart; beans \$4 per bushel; wheat \$1.10; oats 36¢; timothy hay \$14; potatoes 75¢; apples 50¢@75¢; butter 25¢; eggs 30¢; hogs 6¢.

Sandusky Co., Dec. 27.—Soft weather, with rain and snow has checked farm work. Quite a lot of corn to husk yet. Wheat in good shape. Not much rye sown. Plenty of feed and some to sell. Less than usual amount of stock being fed. Corn 80¢ per cwt; wheat \$1.22; oats 41¢; potatoes 60¢; hogs around 6¢; eggs 35¢; butter 28¢; butter-fat 33¢; milch cows high; horses low; help scarce.

Hancock Co., Dec. 27.—The winter wheat looks rather poor. The usual amount of feed in farmers' hands for their own use. Quality of feeding stock is fair. Cream 32¢; hogs \$6.25; wheat \$1.14; corn 54¢; potatoes 80¢; hay \$9@12; apples 50¢, and a poor market at that. Many hogs have been shipped in the last few weeks.

Wisconsin.

Jackson Co., Dec. 27.—We have had damp cloudy weather for the greater part of December, some snow but little sleighing; temperature about zero. Fall sown grain well protected by snow so far. Hay plentiful but many farmers buying grain for feeding. Most farmers sold off stock rather close, retaining dairy cows and breeding stock. Cream and butter-fat 35¢; hay \$8@10; butter 30¢; eggs 20¢@25¢; little or no grain going to market.

LIVE STOCK NEWS.

Abner Whaley, one of the extensive stock feeders of Newton county, Indiana, sold on the Chicago market recently, before the late boom, three carloads of 80-lb. western lambs at \$9.25 per 100 lbs. Mr. Whaley put the lambs on full feed the first day of last October and they may be the remarkably good gain of 20 lbs. per head.

One of the largest goose farms in the United States has been started on the 320-acre farm of George W. English, Illinois, by a syndicate of New York and Philadelphia men. It is intended to furnish the New York, Philadelphia and Boston Thanksgiving and Christmas trade with prime geese. Not long ago several carloads of goslings arrived there from North Carolina and east Tennessee, and it is planned to fatten 35,000 geese for the eastern markets next autumn.

An unprecedented boom has taken place in the Chicago lamb market that carried prime fat lots of medium weight to \$9.90 per 100 lbs., while fat yearlings, wethers and ewes sold relatively high. It is simply a case of extreme shortage in mutton production and a strong demand. Meanwhile there is an extremely large demand for choice breeding ewes, with very few offered on the market, while prices are at least \$1 per head higher than a year ago. Recent sales are reported in western sections at \$6.50@7 per head, and it has been predicted that during 1916 desirable breeding ewes will advance to \$9@10 per head, laid down in eastern destinations.

There is an opportunity for our subscribers to get a good account book, also a book on the horse, free, by writing to the Bickmore Co., Box 57, Old Town, Maine, and mention the Michigan Farmer. Write now before they are gone.

ALMANAC FOR 1916.

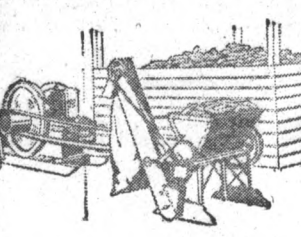
The new 1916 Studebaker almanac is now being distributed. This new almanac is more interesting than any previous issue, containing as it does in alphabetical order many timely articles on feeds, crops, fertilizers, dairy products, farm buildings and a host of other subjects. Take, for instance, the treatise on live stock. This begins with the colt days of the horse and makes many helpful suggestions for the feeding and training of the animal. It goes on to treat the breeding of farm animals and the best way to care for them, to make them 100 per cent efficient and keep them always fit. Other articles of interest are weather predictions for 1916, phases of the moon, and a list of historical events calculated to be of value. If the farmer seeks information on automobiles, fences, silos and silage, hot-beds and cold frames, home hints, implements and tools, summer dangers for man and beast, he need look no further than in the 1916 Studebaker almanac, for every subject is treated at length. To sum up in a few words it is valuable pocket compendium of information—greater this year than ever before.



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IF you are feeding stock, an International feed grinder will soon pay for itself. Whether you are buying ground feed, or feeding whole grain, using your own feed grinder will make a saving for you. In the one case it saves you the miller's profit for grinding, in the other it saves nearly, if not quite, one-fourth of the grain you feed. Besides, it saves all the cob meal, enables you to market steers and hogs in less time, gives you more milk from cows and more work from your horses for the cost of feed they get.

An International is the feed grinder you need, because, with three styles and seven sizes to choose from, all of the highest quality, you can get an International feed grinder of just the right type for your work. Type B grinds corn on the cob and small grain. Type C is for small grain only. Type D is a heavy grinder, used for corn in the husk, Kaffir corn in the head, and other heavy grinding.

Belt your International feed grinder to a kerosene Mogul or Titan engine, and you couldn't have a better or more economical outfit. Let us send you complete information about them. A post card from you will bring it promptly.

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Bates All Steel Oil Tractor

The **Bates All Steel Oil Tractor** is the oldest tractor on the market. Years of hard service has developed every detail and it is entirely out of the experimental stage. It is a **Real Tractor** and will stand years of hard work.

If you buy a **Bates All Steel Oil Tractor** it will last you a long time. You won't have to buy a new machine every spring.

No Chains

The **Bates All Steel Oil Tractor** has positive Steel Gears that are **guaranteed not to break** for five years, you won't have to bother with troublesome chains that have proven a failure in all self-propelled machines.

A Four Wheel Tractor

The **Bates All Steel Oil Tractor** has four wheels, two wide rear wheels for drivers which provides an abundance of traction and won't mire in sandy places or on soft ground in the spring of the year but will go where horses can be driven practically. This construction has become a standard with manufacturers who have had long experience in building self-propelled machines, therefore, we could not ask our customers to accept a machine that is experimental.

All Steel

The **Bates All Steel Oil Tractor** is light in weight which is accomplished by the use of steel in its construction, however, we have not gone to the

extreme and sacrificed strength and rigidity that we might produce a machine that is extremely light. Our engine is **slow speed** and will last a long time.

Oil For Fuel

The Oil Carburetor used in the **Bates All Steel Oil Tractor** is manufactured in our own factory and is of special design. It can be found only on our engines and is the product of 20 years actual experience in the manufacture of gas engines. It is fully developed and will operate equally as well on kerosene as gasoline under all speeds and all loads. It won't bother with carbon or tar. You won't have to change from kerosene to gasoline when the engine is running empty or under part load. Think of the immense saving with this cheap fuel.

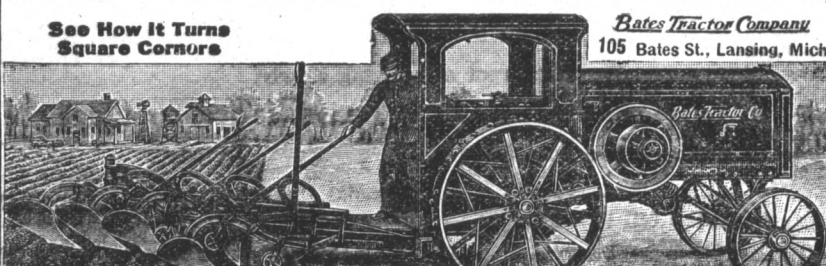
Solid Facts

The **Bates All Steel Oil Tractor** is directly connected to the plow carriage and you can back the plows into the corners of the fence and plow all of the field. The plows operate independently and will do good work in stony and rough ground. One man can operate the entire outfit.

The **Bates All Steel Oil Tractor** has two speeds forward and will draw heavy loads up steep hills. Our cab is appreciated by hundreds of our customers. We are not assemblers, we build our entire outfit in our own factory.

2 sizes: 16 and 30 H. P. Send for catalog.

Bates Tractor Company
105 Bates St., Lansing, Mich.



WINTER



While time and opportunity favors—Make Horse Sound. Don't Wait. Go right at it with **Save-the-Horse**.

20 YEARS A SUCCESS.

"It has Cured the Spavin," M. V. Hart, Emmaville, Pa., so satisfied he writes: "send another bottle for neighbor."

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Druggists everywhere sell **Save-the-Horse** WITH CONTRACT, or we send by Parcel Post or Express paid.

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Air tight—no spoilage—storm proof—anti-corrosive—guaranteed. Write quick for **ZYRO Silo Free Book**. The Canton Culvert & Silo Co., Box 308, Canton, Ohio.





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Booklet Free

\$3 Package guaranteed to give satisfaction or money back. **\$1 Package** sufficient for ordinary cases. **MINERAL HEAVE REMEDY CO.** 463 Fourth Ave., Pittsburgh, Pa.

Markets.

GRAINS AND SEEDS.

January 4, 1916.

Wheat.—Continuous heavy receipts and liberal foreign buying caused price fluctuations in the wheat trade last week. On Monday there was a decline from Friday's values, due to a 5,833,000 bushel visible supply increase, but Liverpool continued strong because of the small amount of wheat afloat and the limited cargoes going to England. Restricted primary receipts are forecasted which should strengthen prices, as liberal marketing by farmers in northwestern sections has thus far aided dealers in holding values down to present levels. Cash wheat is in good demand. One year ago No. 2 red wheat was quoted here at \$1.31½ per bushel. Local prices last week were:

	No. 2	No. 1
Wednesday	1.22½	1.18½
Thursday	1.24½	1.20½
Friday	1.23	1.19
Saturday	1.22	1.18
Monday	1.22	1.18
Tuesday	1.23	1.19

Chicago.—May wheat \$1.25; July \$1.18½.

Corn.—While favorable weather and increased receipts have tended to weaken the corn trade, a normal domestic demand and prospective foreign buying have kept values up to last week's level. The visible supply for the United States increased 1,493,000 bushels. The quotation a year ago for No. 3 corn was 70½c per bushel. Last week's Detroit prices were:

	No. 3	No. 3
	Mixed.	Yellow.
Wednesday	72½	74
Thursday	72½	74
Friday	73½	75
Saturday	72½	74
Monday	72½	74
Tuesday	72½	74

Chicago.—May corn 75.7c per bu; July 76.5c.

Oats.—This cereal remains steady although values were higher at the close of last week. A reasonable amount of business is being done and farmers are marketing in limited quantities. Standard oats a year ago sold locally at 53c per bushel. Detroit prices last week were:

	No. 3	No. 3
	Standard.	White.
Wednesday	46½	44½
Thursday	46½	44½
Friday	47	45
Saturday	46	44
Monday	46	44
Tuesday	46	44

Chicago.—May oats 47.7c per bu; July 46.2c.

Rye.—Steady at 96c for No. 2. **Barley.**—At Milwaukee the malting grades are 68@74c and at Chicago 64@75c.

Peas.—Dull and firm at Chicago with quotation for new field at \$2.35 @2.60, sacks included.

Beans.—Offerings small, market dull and higher. Immediate and prompt shipment \$3.60 at Detroit. Chicago values are steady and firm, with pea beans, hand-picked \$3.85@3.90; prime \$3.70@3.75; red kidneys \$4.65@4.75. At Greenville farmers are paid on a \$3.20 basis.

Clover Seed.—Steady, prime spot at \$12.10; March \$12; prime alsike \$10.25. At Toledo prime cash \$12.05; do. alsike \$10.35.

Timothy Seed.—Prime spot \$3.80 a 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 \$6.80; seconds \$6.50; straight \$6; spring patent \$7.10; rye flour \$5.90.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$24; standard middlings \$25; fine middlings \$30; cracked corn \$30; corn and oat chop \$28 per ton.

Hay.—No. 1 timothy \$18@19 a ton; standard timothy \$17@18; light mixed \$17@18; No. 1 mixed \$14@15; No. 2 mixed \$10@12; No. 1 clover \$10@12. Chicago.—Choice timothy \$17@18; No. 1 do. \$14.50@15.50; No. 2 do. \$12.50@13.

Straw.—Wheat and oat straw \$6.50 @7; rye straw \$7.50@8 per ton.

DAIRY AND POULTRY PRODUCTS.

Butter.—The local market has taken a slump, the price having dropped 3c. Extra creamery 31c; firsts 28c; dairy 22c; packing stock 18c.

Chicago.—Trading is light and the market quiet at prices 1½c lower than last week. A good supply of medium quality stock on hand. Extra

creamery 32c; extra firsts 30@31c; firsts 26@28c; extra dairies 30c; packing stock 19@19½c.

Eggs.—Conditions are dull and the lower prices have not stimulated the trade yet. Prices are 2½c lower than last week. The quotation, based on sales, is 31½c.

Eggs.—Receipts are not large but the demand is light. Current receipts are quoted at 28c; candled firsts 29c per dozen.

Chicago.—Depressing effect from holiday accumulations was counteracted by reports of bad roads and consequently light receipts in near future. Prices are slightly higher. Firsts, 28c; ordinary firsts 26½@27c; miscellaneous lots, cases included 22@27½c; refrigerator April extras 22c.

Poultry.—The demand is good and the prices for springs and fowls are higher. Turkeys 18@19c; spring turkeys 23@24c; fowls 10@15c, according to quality; spring chickens 14½@16c; ducks 18@19c; geese 15½@16c.

Chicago.—Higher prices were obtainable for everything except geese. Offerings were moderate and demand good. Turkeys, young and old 12@18c; fowls 12@14½c; springs 14½c; ducks 15c; geese 10@14c.

FRUITS AND VEGETABLES.

Apples.—There is little change, the market being quiet. Greenings at \$2.50 @3; Spys \$3.50@4; Baldwins \$2.50@3.50; Steel Red \$4.50@5. At Chicago the market lacks demand to give it life. The supply is good and demand tame. Prices are unchanged. No. 1 Greenings \$2.50@3; Jonathans No. 1, \$2.75@3; Baldwins \$2.50@3.25; Wagener \$2.25@2.75; Spys \$2@3.75.

Potatoes.—The market is firm and dull. Prices are unchanged but sharp advances are expected when activity begins. Michigan and Minnesota whites are now quoted at 80@85c; reds 80@82c. At Chicago the market has a strong tone and prices are higher. Fancy Michigan Rurals sold for 90@95c. Other prices range from 80c@ \$1. At Greenville the farmers are being paid 70@75c.

WOOL.

Boston.—Anticipated heavy consumption of wool during the coming months gives holders confidence in higher values and they are consequently setting prices in sales. Domestic orders for woolen goods are flooding manufacturers and mills are running full time and are way behind in making deliveries. Quarter-bloods are selling at 37c; unwashed delaines 28 @31c.

GRAND RAPIDS.

The egg market opens the new year at 30@34c for fresh stock and future prices depend on weather conditions. Dairy butter is steady at 23@24c. The potato market is firm, with 60@70c about the range here. White pea beans continue at \$3.25. No change is noted as yet in the apple situation. The onion market is reported firm, with dealers holding at \$1.25.

DETROIT EASTERN MARKET.

Apples were the main offering on Tuesday morning, with bulk going at \$1@1.50 per bushel; cabbage 55@70c; parsnips 65c; pork \$9.25@9.75 per cwt; dressed chickens 16c; eggs 45@50c; loose hay \$18@22 per ton and moving slowly.

LIVE STOCK MARKETS.

Buffalo.

January 3, 1916.

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

Receipts of stock here today as follows: Cattle 130 cars; hogs 150 d. d.; sheep and lambs 35 d. d.; calves 1000 head.

With 130 loads of cattle on our market here today, we had a strong trade on all kinds. Some little cattle a shade higher, but the good cattle were about steady. The best load here today sold for \$8.50, but there were not any good enough to bring a higher price. Light butcher cattle sold full steady with last week; the bulls sold a shade higher and the canners sold strong, 5@10c higher. We look for steady market, but a great deal depends on the runs in the west.

With Chicago reporting very heavy runs of hogs today, 80,000 head being estimated, and with about 150 loads here, our buyers were rather weak and bought their hogs considerable below Saturday's average in price, but the prices compared very favorably with all other markets when the day was through. It was generally a one-price market for yorkers, mixed medium and heavy, \$7.35 taking the bulk; pigs generally 7c; roughs \$6.25@6.35;

stags \$4.50@5.50. Quite a good many hogs arrived too late to be sold, and with a fair supply in sight for Tuesday and a very weak close here today, looks very much like the trade will be lower for the next few days.

The sheep and lamb market was active today and prices 15c higher than the close of last week. All sold and we look for shade lower prices the balance of the week.

We quote: Lambs \$10.50@10.65; cull to fair \$7@10.25; yearlings \$8@9.25; bucks \$4@5.50; handy ewes \$6.50 @6.75; heavy ewes \$6.50@6.75; wethers \$6.75@7.25; cull sheep \$3.50@5; veals, good to choice \$11.75@12; common to fair \$8@11.50; heavy \$6@9.

Chicago.

January 3, 1916.

Cattle. Hogs. Sheep.
Receipts today..15,000 80,000 10,000
Same day 1915..18,500 32,000 14,000
Last week.....41,532 158,526 60,079
Same wk 1915..13,084 208,186 53,783

The cattle market developed an upward tendency today because of the small supply for Monday, and sheep and lambs were on the up-grade for the same reason, \$10 lambs being expected before the day was over. Hogs broke 15@20c under the enormous supply, with sales at \$6.35@6.95. Hogs received last week averaged 190 lbs.

Cattle supplies last week were large for holiday time, when poultry so largely supplants beef and other meats. Choicer offerings were neglected by most killers, and prices averaged about 25c lower. The general demand showed marked improvement for the cheaper grades. Steers found an outlet at \$6.75@8.50, with not much doing higher than \$9, while the choicer lots of steers found buyers at \$9@9.75 for both yearlings and cattle carrying lots of weight. Good steers sold at \$8.50 and upward, medium, short-feds \$7.50@8.45; warmed-up lots \$6.50 @7.45, ordinary to fair stalk-fed \$5.10 @6.45. Butchering cows and heifers were in animated demand at marked advances in prices, cows going usually at \$5@7.50 and heifers at \$4.40@8.50. Canners went actively at \$3@4.20, cutters at \$4.25@4.95 and bulls at \$4.25@7.15. Calves sold at better prices, with an excellent general demand, the heavier ones going at \$4.50@8.50 and light weaners at \$9@10.50. Canners and cutters sold at the highest prices seen in a long time, and bulls sold decidedly higher than a week earlier, and fat cows and heifers were so scarce much of the time as to be largely nominal. Light receipts of calves caused prices to advance 40 @75c per 100 lbs.

Hogs were marketed last week in greatly lessened numbers, the previous breaks in prices causing many country shippers to withhold supplies. The demand was unexpectedly good, especially for shipping. Hence prices reached a higher level, the closing sales on Friday being the highest prices seen in a month. The week closed with sales at \$6.50@7.10, comparing with \$5.50@6.55 a week earlier, while pigs sold at \$5@6.50. Light hogs brought \$6.50@6.75, medium weights \$6.85@6.95, heavy shipping hogs \$6.90 @7.10 and select heavy packing hogs \$6.95@7. Recent receipts averaged 189 lbs., comparing with 180 lbs. a month ago, 227 lbs. a year ago and 208 lbs. two years ago. Prime light shipping hogs sold 15c below top prices.

Sheep, yearlings and lambs were in meager supply all of last week. Prices underwent a boom that landed top grades of lambs at the highest mid-winter prices on record. Prime lambs sold up to \$9.90 with sales all the way down to \$6.50@7.50 for culls, while yearlings brought \$7@8.75, wethers \$6.25@7.15, ewes \$4.50@6.50 and bucks \$4.50@5.50. Lambs advanced for the week 25@40c and sheep and yearlings 40@50c. Supplies came largely from feed stations near Chicago.

French inspectors took all the horses of the army type at the figures paid right along. Local buyers and eastern shippers operated freely. Sales were made at \$50@100 for the cheaper animals, with best draft valued at around \$240@285. Drivers were worth \$100@200 and the best expressers \$210, while fair light drafters sold at \$215@235.

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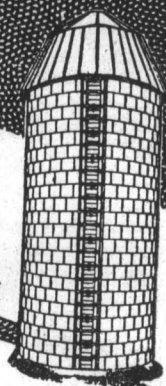
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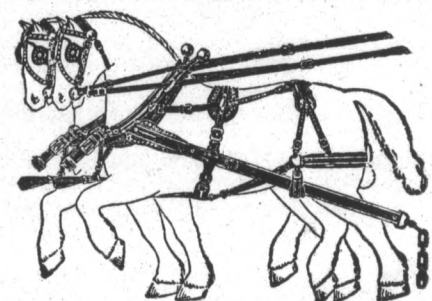
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OXFORDS—no more for sale.
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Start the Boy Shropshire and Oxford ewes bred to imported rams. KOPE KON FARM, Kinderhook, Michigan.

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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.
January 6, 1916.
Cattle..

Receipts 1930. There was a heavy supply of hogs and a fair run in other departments at the local stock yards this week and the service handed out by the various roads, especially the Michigan Central, was very poor. A large number of cars had to hold over from Wednesday, as they could not be unloaded in time. War horses for the English government that reach here in large numbers on market days greatly hamper the proper handling of the general yard business and are the cause of much complaint from shippers.

In the cattle division the trade opened up active and 10@15c higher than last week on all grades, but at the close most of the advance was lost and the close about steady with that of a week ago. The quality was not very good and stocker buyers were scarce. Milch cows averaged about steady and prices ranged as follows: Best heavy steers \$7@7.50; best handy weight butcher steers \$6.50@7.25; mixed steers and heifers \$6@6.75; handy light butchers \$5@6; light butchers \$4.75@5.50; best cows \$5.50@6; butcher cows \$4.50@5; common cows \$3.75@4.25; canners \$3@3.75; best heavy bulls \$5.25@6; bologna bulls \$5@5.50; stock bulls \$4.50@5.25; feeders \$6@7; stockers \$5@6; milkers and springers \$4@7.5.

Bishop, B. & H. sold Sullivan P. Co. 7 cows av 1157 at \$5.50, 8 do av 945 at \$4.60, 5 steers av 1078 at \$7.25, 2 cows av 1175 at \$5.75, 1 do wgh 1050 at \$4.50, 1 bull wgh 1640 at \$5.75; to Hirschleman 9 steers av 1013 at \$7.50; to Sullivan P. Co. 3 cows av 1153 at \$5.25, 4 do av 998 at \$4.50, 6 do av 1091 at \$5, 4 butchers av 875 at \$5.60, 2 cows av 1150 at \$5.50, 6 steers av 1193 at \$7.35, 1 do wgh 1430 at \$7.50; to Morris 8 do av 1111 at \$8, 6 cows av 1016 at \$3.80, 12 do av 906 at \$3.80; to Klapfer 10 do av 957 at \$4.60; to Hammond, S. & Co. 1 bull wgh 1070 at \$5.75, 25 steers av 1062 at \$7.35, 7 do av 893 at \$6, 3 cows av 845 at \$3.75; to Bray 3 do av 900 at \$3.75; to Thompson Bros. 7 butchers av 953 at \$5.75, 3 cows av 1183 at \$5.25, 1 steer wgh 830 at \$5.25, 1 cow wgh 910 at \$4.50; to Sullivan P. Co. 10 do av 1020 at \$4.50, 10 heifers av 775 at \$5; to Resnick 25 butchers av 790 at \$5; to Bordloff 6 do av 773 at \$5; to Alberson 29 feeders av 703 at \$5.50; to Newton B. Co. 3 cows av 1270 at \$5.25, 25 steers av 987 at \$7.25, 19 do av 1026 at \$6.90, 4 do av 1080 at \$7.25, 9 do av 822 at \$6.30, 7 do av 871 at \$5.50, 2 bulls av 1155 at \$5.50, 2 steers av 1010 at \$6.75.

Veal Calves.

Receipts 695. The veal calf trade was active and good ones averaged 50c higher than they were a week ago; common held steady. Best \$11@11.50; medium and heavy \$7@10.50.

Sandel, S., B. & G. sold Hammond, S. & Co. 18 av 160 at \$10.25, 8 av 155 at \$10.75; to Sullivan P. Co. 2 av 155 at \$11, 1 wgh 150 at \$10; to Hammond, S. & Co. 6 av 155 at \$11.25, 8 av 145 at \$11.25, 2 av 155 at \$10, 3 av 130 at \$11.

Sheep and Lambs.

Receipts 5380. The sheep and lamb trade was active and a few extra good brought \$10 per cwt., with the bulk around \$9.75. The quality arriving is not very good. While they look fat when handled, many are found to be thin and not in condition for market, presumably sent in on account of scarcity of feed and high price of corn. Best lambs \$9.75@10; fair do \$9@9.50; light to common lambs \$7.50@8.25; yearlings \$8@8.75; fair to good sheep \$5.50@6; culls and common \$3.50@4.50.

Reason & S. sold Mich. B. Co. 58 lambs av 78 at \$9.70, 28 do av 70 at \$8.50, 21 sheep av 90 at \$6.

Bishop, B. & H. sold Nagle P. Co. 52 lambs av 80 at \$10, 20 sheep av 115 at \$5.75; to Thompson Bros. 7 lambs av 55 at \$9, 26 do av 65 at \$9.60, 28 do av 63 at \$9.50; to Sullivan P. Co. 13 sheep av 110 at \$5.75; to Parker, W. & Co. 79 lambs av 80 at \$9.90; to Nagle P. Co. 90 sheep av 110 at \$5.75, 10 do av 130 at \$6, 23 do av 105 at \$5.90, 50 do av 125 at \$5.75, 75 do av 100 at \$5.75, 14 do av 120 at \$6; to Sullivan P. Co. 24 do av 130 at \$5.75, 12 lambs av 90 at \$9.75.

Hogs.

Receipts 16,881. The hog trade was active and strong and 10c higher than on Wednesday, pigs selling at \$6.50@6.90 and good mixed at \$6.85@6.90, with choice heavies at \$6.95@7. Armour and Swift & Co. bought freely and the close was strong.

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for men to get a new and cheerful understanding of how good a pipe can be. If you *think* you can't smoke a pipe, or if you are taste-tired, we tell you Prince Albert will bring you back without any fuss or feathers—quick! The patented process fixes that—and cuts out bite and parch!



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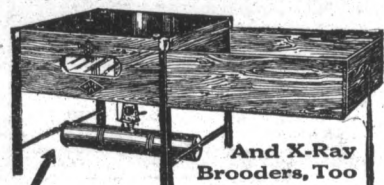
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Squab Raising as a Business

THE demand for squabs, especially in large cities, is gradually increasing, for they are being used to replace dressed game which is decreasing in this country. The supply of squabs, on the other hand, appears to be increasing about as rapidly as the demand, judging from the average price.

Pigeons are kept in all parts of the United States, but most of the large squab-producing plants are found near the large cities in the northeastern states and on the Pacific coast. Many pigeons are kept as a side issue on general farms in the middle west and south, but the average value of the pigeons in these sections is only from 15 to 25 cents apiece, compared with 40 to 55 cents in New York and New Jersey. Prolific pigeons producing large squabs are kept confined in pens on most squab-producing plants, while common pigeons, which are less prolific and produce smaller squabs of a poorer quality, are kept on the general farms and are usually allowed their freedom.

The Average Profit.

An annual average profit of \$1.50 per pair of breeders is considered good on successful plants producing only squabs for market. Success in a special calling requires experience, business ability, and a good market. Most of the large successful pigeon farms make a business of selling breeding stock and are not devoted primarily to the production of squabs for market. There have been many failures on squab plants, as the profit in this business has frequently been greatly overestimated and the care of the stock regarded as something very easy in which anyone could succeed.

Many people can keep pigeons successfully as a side issue, although this requires constant oversight and careful attention to details. The greatest difficulties confronting the successful raiser of pigeons seem to be in securing good breeding stock and finding a good market for the produce of a small flock. Pigeons are a profitable source of income on general farms where they may secure much of their feed from the fields provided they are not a nuisance and the loss by shooting and by hawks, owls, and cats is not large. They can also be raised successfully on farms where they are closely confined, provided the squabs can be marketed to good advantage.

Experience of Large Breeders.

The Department of Agriculture recently sent a list of questions on pigeon raising to pigeon breeders throughout the United States, and, among others, replies were received from breeders who kept from 300 to 2,200 pigeons and produced squabs for market. These large breeders reported keeping the Homer and Carneaux varieties almost exclusively for squab raising, with a comparatively small number of the Dargoon, Maltese Hen, and White King mentioned. All except one breeder kept their pigeons confined. The birds were mated at from five to seven months old, the average mating age being 5.7 months.

Wheat, corn, kaffr corn, Canada peas, millet, and hemp were the grains most commonly fed, while a number of other grains including peanuts, grass seed, oats, buckwheat, sunflower seed, rice, Egyptian corn, cowpeas, and milo maize were also used. About 16 per cent used some extra feed, such as millet or hemp seed, during the molting period, while several who did not use any special feed for assisting the molt supplied these grains in their regular rations. One-third used hoppers in feeding the pigeons. About half supplied tobacco stems as the entire or for part of the nesting material, and hay and straw were commonly used, while others used pine needles, cut pea vines, and alfalfa stems. One-half reported freedom

from all diseases and about one-fourth gave canker as a common cause of sickness. The average annual profit per pair of breeders varied from 32 cents to \$3, and averaged \$1.52; the feed cost from 95 cents to \$2, with an average of \$1.32. All sold squabs for market, while about one-half sold both as breeders and for market. The average price for the year received per dozen squabs varied from \$2 to \$4.62 and averaged \$3.43.

Small Breeders Tell Experience.

A large number of replies were received from breeders who kept less than 300 pigeons. Their answers in general agreed with those from the large breeders, although they were more varied. Many farmers objected to pigeons, claiming that they carried diseases and all kinds of vermin among stock and fowls, dirtied cisterns used for holding rain water, and ate grain from the fields and barns. A very few farmers stated that the pigeons were beneficial to the farms and ate many weed seeds. The average yearly profit from each pair of breeders varied from 20 cents to \$7.50, and averaged \$2.29. The average price for the year received per dozen squabs varied from 60 cents to \$6 and averaged \$3.01.

POULTRY MANAGEMENT THAT BRINGS PROFIT.

One of the most interesting and instructive experiences with hens which it has been my pleasure to learn of in recent years is that of Mrs. J. J. Ransom, of Emmet county.

Mrs. Ransom began raising chickens some nine years ago with seven hens and a rooster. At no time during the past nine years has she attempted to carry on the business with over 150 hens. For some years she bred and raised her own chicks but in more recent years she has found it best to buy baby chicks. She has S. C. White Leghorns. She is careful to buy from a hatchery whose hens have proven themselves great layers.

The baby chicks are handled in the ordinary brooder. Two features of her work should be pointed out, however, as being especially noteworthy, for to them she attributes the entire freedom of her chicks from white diarrhea. First, Mrs. Ransom keeps the brooder temperature up to 95 degrees, then 93 degrees, and by the end of the second week down to 90 degrees. Gradually it is lowered. This great care with the brooder heat, never allowing the chicks to get too cold or too warm, does more to prevent diarrhea than anything else.

Second, oat meal is fed five times per day in deep litter during the first two weeks. After that chick feed is used in the litter. As the chicks get large enough whole grains are fed.

Of course, in nice weather the little fellows are allowed to range somewhat to get green food.

With the above simple treatment Mrs. Ransom rarely loses a chick.

All cockerels are sold to private customers as soon as they are large enough, then the pullets are fed the best possible developing ration and brought to the laying stage in the shortest possible time.

A comfortable laying house of the open front type has been provided and is kept clean and well littered.

Last year Mrs. Ransom had 140 pullets. During ten months they laid 14,400 eggs, or 1,200 dozen which would fill 40 regular size egg cases.

The eggs were all sold locally at an average price of 30 cents per dozen. This made a total income from eggs of \$360. Account was kept of the feed used. It cost \$143.51. The difference is a net income from the eggs of \$216.49, or a net income of \$1.54 per hen for eggs alone during only ten months of the year. I. B. McMURTRY.

Capture Your Egg Market

J. B. Mormon writes in American Poultry Journal: "Danish farmers became keenly alive to the fact that when fowls were intelligently bred and well fed they laid larger eggs, and so captured the London egg trade." You can capture your egg market by feeding Red Comb Mash, the great egg maker for chickens, ducks or turkeys.

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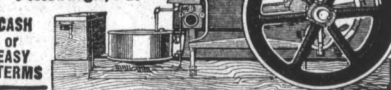
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Feeding for Egg Production

A FULL egg basket means a full cupboard," is an old New England saying that farmers of today believe. An abundance of eggs for home-use and for market purposes is desirable at all seasons, but more especially from fall to spring, as prices at this period are highly profitable.

The farm flock will shell out eggs in abundance without any effort during the summer, for this is their natural laying season, and so the real problem in profitably keeping fowls is the feeding of the right ration during the colder months when prices are high. Poultry rations at once divide themselves into two different classes, namely: Those for the fowl, and those for the egg production. Too many farmers feed for the hen's upkeep, forgetting that they must also feed for eggs. Hens in full laying require rations which have a greater relative content of protein and ash, as against those fed merely for maintenance.

A Good Ration.

The following makes a good ration for laying hens weighing from five to eight pounds: Cracked corn, one pound; wheat 0.75 pound; corn meal, 0.75 pound; with 0.5 each of wheat middlings, buckwheat middlings, and beef scrap, with 0.66 pound of fresh bone and 0.75 of freshened alfalfa or clover.

The natural food of poultry consists of grains, insects, green forage, and grit, and accordingly in domestication it is only reasonable that the hens receive cereal grains and other milling products, and such animal feeds as meat meals and skim-milk, and should also have an abundance of green feed or such substitutes for it as roots or steamed clover. Oyster shells, grit, and an abundance of clean drinking water are also prime requisites.

The relative merits of whole grain and of ground grain made into a mash have been studied considerable. The practice of successful poultry keepers and the results of numerous experiments show that to secure the best results the day's rations should be composed of both sorts of feed. In most cases, best results have been gained when about one-third of the grain ration was fed ground and moistened slightly, but not fed stale, than when all the ration was fed whole and scattered in the litter. But the use of a half foot to a foot of good wheat straw as a scratching bed cannot be recommended too highly, as here the fowls obtain the proper exercise to insure healthy, vigorous bodies, and a disposition to produce eggs. Scattering a portion of the unground grain in this litter causes the fowls to take exercise they would not otherwise.

Opinions differ greatly as to the proper time for feeding whole grains and the mash. But practical poultrymen have found that the best results are obtained by feeding the mash in the afternoon and the whole grain in the morning. The objection to feeding the mash early in the morning is that the hen is likely to become gorged with food early in the day, and thus take to the roost for the rest of the day, which is usually followed by hens becoming too fat, and the egg record becoming small; nevertheless, many successful farmers have been able to obtain a profitable egg record by feeding the mash the first thing in the morning. But mash has its objectionable points as a food at evening, as it becomes digested soon, thus leaving the fowls a number of hours on an empty stomach. With whole grain, this objection is overcome, as this must be ground in the crop, thus keeping the fowl's stomach busy nearly all night.

Some farmers feed their flocks twice a day and others three times, but three meals usually proves more satisfactory. The fowls should be given a handful apiece of whole grain buried in the litter, early in the morning. At noon they should receive about two handfuls of grain per dozen hens, which is scattered as before, and are also given all the roots, such as man-

gel-wurzels, sugar beets, turnips, etc., they can eat, either pulped or whole. Cabbage is a good substitute for roots when not overfed. About four o'clock in the afternoon during cold weather the flock should be given a mash composed of equal parts of bran, shorts, oat chop, and corn meal to which is added 10 per cent animal meal, or cut ground bone or cooked meat. These feeds should be thoroughly mixed together and then added to steeped clover, sufficient water being used for soaking the clover to moisten the grains. The clover should equal about one-third of the bulk of the ration. After the mash the fowls should be given a little whole grain scattered in the litter, over which they will pick until it becomes dark, and they will go to roost contented and willing to perform a good day's work the next day.

The green feeds which are justly considered so important add to the palatability of the ration, furnish a considerable amount of nutritive material, and undoubtedly help to maintain hens in good condition, as this aids in the passage of foul and poisonous gases, and keeps the bowels in good working condition. These feeds also contain more of the needed lime than do grains. Fowls are not fitted to depend too largely upon bulky feed and therefore the proportion of grain in the ration must always be fairly large.

The way you feed your hens will have a great influence over this season's egg production. If you feed right, the results will be right.—E. W. GAGE.

REMOVING THE CAUSE OF DISEASE.

It is better to remove the cause of the various ailments that afflict poultry than to try to bring about a cure, and if we go about it intelligently we shall not have to search far to find what is causing the losses among our birds. In the first place, there are the germ diseases, of which roup and its kindred troubles, such as canker, catarrh and chicken-pox are the most common. These are communicated by the agency of a germ, or they may develop from latent germs retained in the system from a previous attack. At any rate, a bird that is subject to these diseases should never be used as a breeder. She may communicate the weakness to her offspring. When a member of the flock shows signs of any of these germ diseases she should be removed to another pen and the place ventilated and fumigated. Also all drinking fountains and feeders which she may have used should be scalded out and disinfected. It is well also to clean the pen. Filth and large accumulations of droppings beneath the roosts have a tendency to multiply the roup germs. Fresh air, sunlight and cleanliness destroy them.

Poor ventilation claims a large toll from the flock. Overcrowding and overheating decrease the vitality and make the birds an easy prey to inherent and acquired germs that may have lain long in the system awaiting a favorable opportunity to increase and do mischief.

Overfeeding or a poorly-balanced ration causes diarrhea, indigestion and liver troubles. A diet that is practically all of one thing may often be responsible. There may be an overfeeding of corn which causes the birds to become too fat and in that condition they are unable to throw off the germs. Diarrhea is caused by too much animal food. Lack of this, entirely, is also just as dangerous. The happy medium should be struck in all feeding. The ration that contains no green feed is almost as detrimental to the hen as all grain and no hay would be for the dairy cow. Green material of some sort is needed for health any egg production. Liver trouble results, usually, from too much food of a fattening nature. C. H. CHESLEY.

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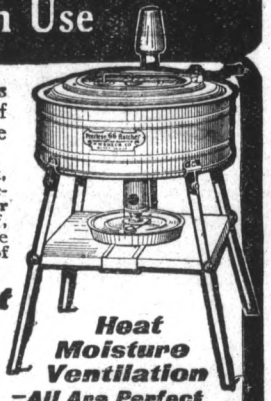
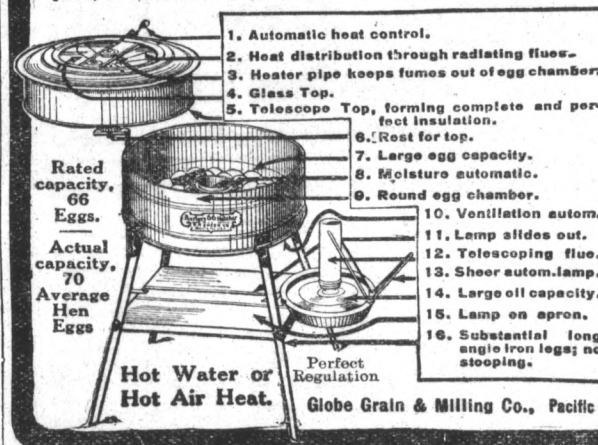
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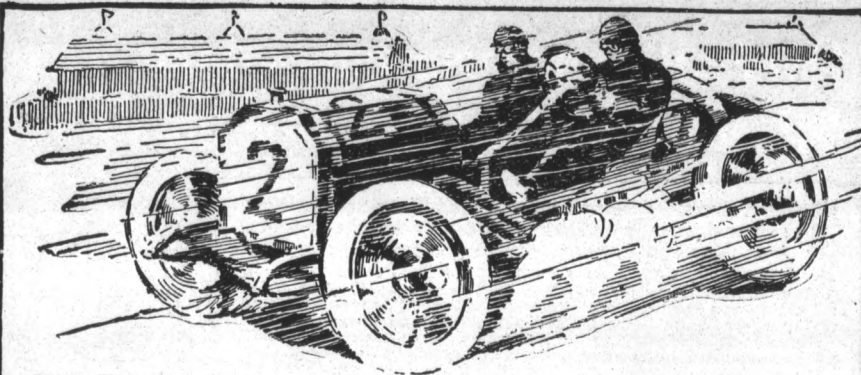
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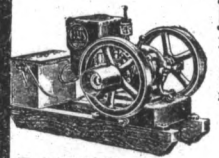
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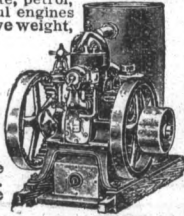
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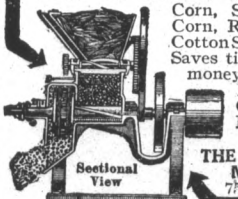
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Grange.

STATE GRANGE OFFICERS.

Master—John C. Ketcham, Hastings.
Overseer—C. H. Bramble, Tecumseh.
Lecturer—Dora H. Stockman, Lansing.

Secretary—Jennie Buell, Ann Arbor.
Treasurer—Frank Coward, Bronson.
Executive Committee—C. S. Bartlett, Pontiac; Geo. B. Horton, Fruit Ridge; J. W. Hutchins, Hanover; W. F. Taylor, Shelby.

REPORT OF STATE LECTURER FOR 1915.

In this, my first year as your State Lecturer, I have tried to get in touch with the subordinate granges, and especially with the lecturers. I have tried to discover their needs and their possibilities.

The enlarged Bulletin is my earnest endeavor to meet the needs. It has grown from a sixteen-page book to twenty-four pages, beside utilizing all four sides of the cover, making twenty-eight pages of printed matter intended for helps and suggestions to meet the needs of the average Grange.

It should be more helpful and I will endeavor to make it so, just as readily as you will make known your wishes and desires of what you want in your Bulletin. For that is what it really is, is your Bulletin, and I am the editor who is striving to serve you.

During the year I have visited 69

gether, shipping to the markets, thus helping to reduce the too wide margin between the producer and the consumer.

Our Grange members and officers are loyally supporting some of the best organized fruit shipping associations.

We welcome and co-operate with the county farm agent, the farmers' institute, and the extension departments of the Agricultural College, the State Normals, and the University Extension workers.

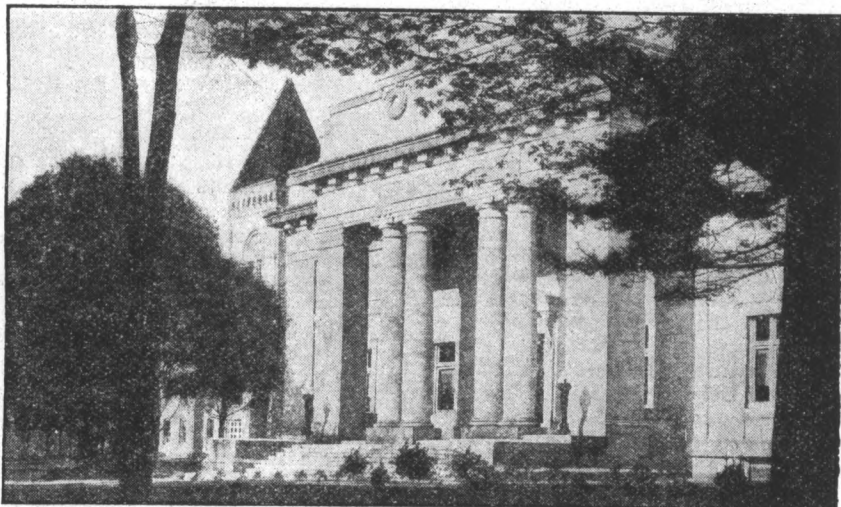
We are encouraging boys' and girls' club work.

Further, this last year has been the greatest year in our history in social advancement and co-operation. We have been "getting together" in rallies that stimulated not only Grange members but the entire communities, including our neighbors in the cities. The big six-county meeting was the largest of this type held at Recreation Park, Ypsilanti, which has resulted in a permanent organization for future meetings.

We have been learning to play. The only places in upper Michigan where they do not know how to play, is where there are no women in the Grange, which is, of course, not surprising.

We have Grange baseball teams, basketball teams, home economics clubs and orchestras, and drill and degree teams.

One would think I might be content with such encouraging signs of progress. Yet one year's work, as your



Alumni Memorial Hall where U. of M. Reception to Grangers was Held.

Granges outside my own county, in 48 different counties, which included a trip through several counties of upper Michigan. Most of these meetings were Pomonas or rallies so that I met members from many Granges.

Greater than the needs, however, I have been impressed this year with the wonderful possibilities in Grange work.

I have been thrilled and inspired by the splendid resources and opportunities available.

I found Grange members studying plant breeding in the remotest parts of our state, whose work would honor a place in an agricultural college. Many of our members are promoting and backing animal husbandry associations in several counties. I have found Granges buying and selling together in the most practical co-operation on a business basis. I wish to mention especially Baraga Grange, whose secretary, a woman, is helping in a very practical way. They buy seed, coal, twine, groceries, etc., through the Grange contracts. Many of their members are foreign born.

The Grange store, supposed to be extinct, is flourishing in upper Michigan in wooden buildings, in southern Michigan it is housed in substantial brick, and one of the latest ventures is a big co-operative store in Tecumseh with a capital stock of several thousands of dollars, with a growing trade. Our Worthy State Overseer is one of its enthusiastic promoters.

In some of the southern counties the Grange members are selling to-

State Lecturer, has convinced me that we are using but a fraction of our latent power.

THREE SUGGESTIONS.

Supplementary to her annual report the State Lecturer gave the following suggestions at the Ann Arbor meeting for the earnest consideration and co-operation of all Grangers:

First. Be Boosters. Help to make your Grange a Standard Grange this year.

Second. Let us protect our boys and girls by "Making Michigan Dry in 1916."

Third. Let us do some construction work for our Grange boys and girls. To this end may we not have a series of oratorical contests in every county in Michigan? Our young people shall give original orations on agriculture and home economics.

The State Grange will give a Grange button to the winners, and it is suggested that the Pomonas also help to make this worth while with prizes to the contestants.

I am looking forward to a series of intercounty higher contests that might worthily terminate in numbers for a State Lecturers' program.

In conclusion I want to thank you and all of the members of the Granges of Michigan, who have aided by their patience, courtesy and kindly encouragement to build the lecture work in Michigan and who are loyally building up a strong, vital, educative lecture hour in the Michigan State Grange.

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."

Associational Topic for January.—

"What can our Club do to help the State Association the coming year?"

CLUB EXTENSION.

A plan for Club extension was adopted at the annual meeting of the State Association which should result in the organization of a large number of Clubs in the state during the coming year. But the results along this line will depend very largely on the co-operation of the local Clubs already in existence. If these Clubs will do a little missionary work by inviting people from adjoining territory to attend their meetings and thus gain an idea of the benefit which would accrue to them from membership in such an organization, the "good seed" would be sown. This is the seeding season for the production of a big crop of new Clubs during the coming year.

CLUB DISCUSSIONS.

Start New Year Auspiciously.—The Watson Road Farmers' Club, of Marion, Mich., met at the home of Mr. and Mrs. Alonzo Richardson, Thursday, December 2. After each had done justice to a sumptuous chicken-pie dinner, the meeting was called to order by the president. Each answered to roll call by giving some current event. Then the subject of tiling was very ably discussed by Mr. D. Baughman, and the general discussion on the subject was very interesting. Mrs. Elizabeth Hamer gave a very pleasing recitation entitled, "The Doughnuts Mother Used to Make." Mrs. Wm. Vallad led the discussion on the subject, "Is a Woman's Work More Monotonous than Man's?" A very lively discussion followed and it was voted that the men won. The following officers were elected for the ensuing year: President, Lester Richardson; vice-president, J. B. Hamer; chaplain, Mrs. D. Baughman; secretary-treasurer, Burr Hamer; organist, Mrs. V. Gastinger. Club adjourned by singing the closing song, and each went home feeling that the meeting was a success. The January meeting is to be held at the home of Mr. and Mrs. Wm. Richardson.—A Reader.

Will Hold Annual Oyster Supper.—Clover Leaf Farmers' Club held its regular meeting at the home of J. I. Buzzard. The election of officers took place with the following results: Pres., J. H. Miller; vice-president, Mrs. Curtis Brigham; secretary, Mrs. Charles Myers; corresponding secretary, Mrs. Ford Myers; treasurer, Mrs. Charles Young. The president and vice-president were re-elected. A very instructive and convincing paper was given by Mrs. Botsford, of Plainwell, on the subject of "Equal Suffrage." She attacked the issue from the viewpoint of the woman in the home as well as the wage-earner. She gave facts to show off the better educational and charitable conditions where the enfranchisement of women had taken place. In contradiction of the statement that women can not bear arms, she told of the heroic European women that are now serving their country so well, and made the statement that "They that bear soldiers, do not need to bear arms." Then from the old clause upon which the Revolution was based, "Taxation without representation is tyranny," is as true now as it was then, the women taxpayers are not represented in saying how their tax money shall be spent. The greatest amount of opposition is found in the liquor interests, because they know that granting the right of suffrage to women sounds the death knell to their infamous practices. Altogether it covered every point and answered every argument that had ever been advanced against equal suffrage. After a piano solo by Miss Weatherwax the meeting was adjourned to meet with O. S. Howe in two weeks for our annual oyster supper. About 75 were present.—Mrs. Starr Fenner, Cor. Sec.

Michigan Farmer's Club List.

For the benefit and convenience of our subscribers we have arranged the following list of papers. Besides the money saved they save the trouble and expense of sending each order separately.

EXPLANATION.—The first column gives the paper's regular subscription price. The second column price is for the Michigan Farmer and the other paper, both for one year. Add 50 cents when the Michigan Farmer is wanted three years, or \$1.00 if the Michigan Farmer is wanted five years. All combination orders may be handed to our agents or sent to us, as is most convenient.

Write for prices on publications not listed.

Subscribers to the Michigan Farmer whose time is not up for one year or more, may have as many other papers as wanted by deducting 50 cents from the second column price. This takes care of those who subscribed for three or five years a year or two ago.

We send sample copies of the Michigan Farmer only.

Mention if you are a new or renewal subscriber. Renewals will be dated ahead from their present date.

NAME OF PUBLICATION.	See explanation above
Daily, (6 a Week) on R. F. D. only.	
Free Press, Detroit.....	2 50 2 50
Journal, Detroit.....	2 50 2 70
Times, Detroit.....	2 00 2 00
Herald, Grand Rapids, Mich.....	2 50 2 50
News, Grand Rapids.....	2 00 2 00
Press, Grand Rapids.....	2 00 2 25
Courier-Herald, Saginaw, Mich.....	2 00 2 00
News, Saginaw.....	2 00 2 00
Tribune, Bay City, Mich.....	2 00 2 10
Blade, Toledo, Ohio.....	2 00 2 05
News-Bee, Toledo, Ohio.....	2 00 2 05
State Journal, Lansing, Mich.....	2 00 2 00
Tri Weekly Newspapers	
World, N. Y. City.....	1 00 1 20
Semi Weekly Newspapers	
Journal, Detroit, Mich.....	1 00 1 25
Weekly Newspapers	
Blade, Toledo, Ohio.....	1 00 1 00
Commoner, Lincoln, Neb.....	1 00 1 05
Enquirer, Cincinnati, O.....	1 00 1 05
Cattle, Sheep, Swine, Poultry, etc.	
American Bee Journal, Hamilton, Ill. (w)	1 00 1 05
American Poultry Journal, Chicago, (m)	1 00 1 20
American Poultry Advocate, Syracuse, N. Y.	50 75
American Sheep Breeder, Chicago, (m)	1 00 1 25
American Swineherd, Chicago, (m)	50 75
Breeders' Gazette, Chicago, (w)	1 00 1 45
Green's Fruit Grower, Rochester, (m)	50 70
Hoar's Dairyman, Fort Atkinson, Wis.	1 00 1 20
Jersey Bulletin, Indianapolis, Ind. (w)	1 00 1 35
Kimball's Dairy Farmer, Waterloo, Ia.	50 70
(s-m)	25 70
Poultry Keeper, Quincy, Ill. (m)	50 70
Poultry Success, Springfield, O. (m)	50 75
Reliable Poultry Journal, Quincy, Ill. (m)	50 75
Swine Breeder's Journal, Indianapolis, Ind.	50 80
Ind. (s-m)	50 80
Michigan Poultry Breeder (mo)	50 70
Popular Magazines.	
Everybody's Magazine, N. Y. City, (m)	1 50 1 60
Etude, Philadelphia, Pa. (m)	1 50 1 60
McClure's Magazine, N. Y. City, (m)	1 00 1 50
Musicalian, Boston, Mass. (m)	1 50 1 55
National Sportsman Boston, Mass. (m)	1 50 1 55
People's Home Journal, N. Y. City, (m)	25 65
People's Popular Monthly, Detroit, Mich.	1 50 1 55
Red Book Magazine, N. Y. City, (m)	3 00 3 00
Review of Reviews, N. Y. City, (m)	1 50 1 60
Ladies' or Household.	
Delincaor, N. Y. City, (m)	75 1 05
Designer, N. Y. City, (m)	75 1 05
Housewife, N. Y. City, (m)	50 80
Ladies World, New York City, (m)	1 00 1 25
McCall's Magazine and Free Pattern, N. Y. City, (m)	50 75
McClure's Mag., Elgin, Ill. (m)	1 50 1 55
Pictorial Review N. Y. City, (m)	1 50 1 50
Today's Magazine and Free Pattern (m)	50 70
Woman's Home Companion, N. Y. City, m	1 50 1 60
Woman's World, Chicago, (m)	35 60
Religious and Juvenile.	
American Boy, Detroit Mich. (m)	1 00 1 50
Boys Magazine, Smethport, Pa. (m)	1 00 75
Little Folks, Salem, Mass. (m)	1 00 75
Young People's Weekly, Elgin, Ill. (w)	75 90
Youths Companion, Boston, Mass.	2 00 2 25

A RAZOR SNAP

A new lot of "Special Steel" Razors at 50 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.

Every man who shaves ought to have at least three razors as it is a proven fact that giving a razor a rest is beneficial to it, and here is your opportunity to get a supply at very little cost.

So, only while our present supply lasts the price is 50 cents each, postpaid, or a half-dozen at \$2.50, postpaid.

A razor and the Michigan Farmer three years for \$1.25, postage paid.

SPECIAL BARGAIN CLUBS

We have arranged here a list of special bargain combinations which will save you considerable on your reading matter. No substitution of other magazines which are the same price can be made. You must take the entire combination as it is. You can make up your own club from the club list if none of these suit you.

Orders may be sent direct to us or through any of our agents. Order by number. Address all orders to the Michigan Farmer or hand to our agents.

EXPLANATION.—Wk. means the paper comes each week, mo. means each month, S-mo. semi monthly. Dailies on R. F. D. only.

Publishers of other papers will not allow us to quote their paper single at less than their regular prices, but Subscribers to the Michigan Farmer whose term does not expire for 1 year or more will be allowed reduced prices on other papers at any time if they will write us the ones wanted, this also applies when other papers are wanted not in the clubs they select.

NOTE.—The Michigan Farmer is figured in "Our Price" at the special season price of only \$1 for 3 years, 50 cents only may be deducted if the Michigan Farmer is wanted for but 1 year.

No. 1.		No. 8.	
Michigan Farmer, 3 yrs., wk.....	\$1.25	Michigan Farmer, 3 yrs., wk.....	\$1.25
Boys' Magazine, mo.....	1.00	Mother's Magazine, mo.....	1.50
The Ladies' World, mo.....	1.00	McCall's Mag. and Pattern, mo..	.50
		Ladies' World, mo.....	1.00

Regular price\$3.25

OUR PRICE ONLY \$1.65

Regular price\$4.25

OUR PRICE ONLY \$2.15

No. 2.		No. 9.	
Michigan Farmer, 3 yrs., wk.....	\$1.25	Michigan Farmer, 3 yrs., wk.....	\$1.25
The American Boy, mo.....	1.00	Choice of either:	
Woman's World, mo.....	.35	Breeders' Gazette, American	
American Poultry Advocate, mo..	.50	Sheep Breeder, Hoard's Dairy-	
		man	1.00
		Poultry Success, mo.....	.50
		Boys' Magazine, mo.....	1.00
		Ladies' World, mo.....	1.00

Regular price\$3.10

OUR PRICE ONLY \$2.00

Regular price\$4.75

OUR PRICE ONLY \$2.70

No. 3.		No. 10.	
Michigan Farmer, 3 yrs., wk.....	\$1.25	Michigan Farmer, 3 yrs., wk.....	\$1.25
American Poultry Advocate, mo..	.50	Today's Magazine, they also give	
The Ladies' World, mo.....	1.00	choice of one May Manton pat-	
		tern free with first issue.....	.50
		Poultry Success, mo.....	.50
		Boys' Magazine, mo.....	1.00

Regular price\$2.75

OUR PRICE ONLY \$1.60

Regular price\$3.25

OUR PRICE ONLY \$1.65

No. 4.		No. 11.	
Michigan Farmer, 3 yrs., wk.....	\$1.25	Michigan Farmer, 3 yrs., wk.....	\$1.25
Pictorial Review, mo.....	1.50	Any Detroit Daily (except the	
Boys' Magazine, mo.....	1.00	News)	2.50
		Poultry Success, mo.....	.50
		Boys' Magazine, mo.....	1.00
		People's Popular Monthly.....	.25

Regular price\$3.75

OUR PRICE ONLY \$1.80

Regular price\$5.50

OUR PRICE ONLY \$3.00

No. 5.		No. 12.	
Michigan Farmer, 3 yrs., wk.....	\$1.25	Michigan Farmer, 3 yrs., wk.....	\$1.25
Youths' Companion, wk.....	2.00	Any Grand Rapids Daily, 1 yr..	2.00
McCall's Mag. and Pattern, mo..	.50	Kimball's Dairy Farmer, S-mo ..	.25
Poultry Success, mo.....	.50	Reliable Poultry Journal, mo....	.50
		People's Popular Monthly.....	.25

Regular price\$4.25

OUR PRICE ONLY \$2.95

Regular price\$4.25

OUR PRICE ONLY \$3.00

No. 6.		No. 7.	
Michigan Farmer, 3 yrs., wk.....	\$1.25	Michigan Farmer, 3 yrs., wk.....	\$1.25
American Swineherd and book, mo	.50	Choice of any daily in Detroit	
McCall's Magazine & Pattern, mo	.50	or Grand Rapids except Detroit	
Poultry Success, mo.....	.50	News	\$2.00 to \$2.50
		People's Popular Monthly.....	.25
		Everyday Life, mo.....	.25
		Woman's World, mo.....	.35

Regular price\$2.75

OUR PRICE ONLY \$1.75

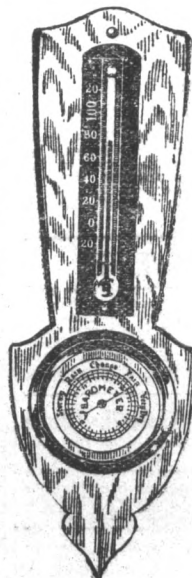
No. 7.		No. 8.	
Michigan Farmer, 3 yrs., wk.....	\$1.25	Michigan Farmer, 3 yrs., wk.....	\$1.25
Choice of any daily in Detroit		Any Grand Rapids Daily, 1 yr..	2.00
or Grand Rapids except Detroit		Kimball's Dairy Farmer, S-mo ..	.25
News	\$2.00 to \$2.50	Reliable Poultry Journal, mo....	.50
People's Popular Monthly.....	.25	People's Popular Monthly.....	.25
Everyday Life, mo.....	.25		
Woman's World, mo.....	.35		

Regular price\$4.60

OUR PRICE ONLY \$3.00

ATTENTION.—On any one of these combinations you save the price of the Michigan Farmer three years and on some considerably more.

The Michigan Farmer in these Clubs is figured for 3 years. Take this into consideration when comparing with Club prices offered by others.



THE WEATHEROMETER

Forecasts Weather Hours in Advance.

Here is a new instrument which combines an accurate Thermometer and a reliable Barometer. It enables you to predict hours in advance what the weather will be. Size of instrument, 13 inches long and 4½ inches wide, metal back, imitation Circassian Walnut finish. The Thermometer is of Oxidized Brass and operates with Mercury, not Alcohol. Scale is five inches long, range 20 degrees below to 120 degrees above zero. The Barometer is of Polished Brass with easy reading dial. Each instrument is guaranteed satisfactory.

Weatherometer alone free for sending three subscriptions to the Michigan Farmer.

The Michigan Farmer, 1 year .50
Weatherometer, value \$1.00 **OUR PRICE BOTH \$1.10**
or with the Michigan Farmer, three years \$1.60; five years \$2.10.

BREEDERS' DIRECTORY.

Change of Copy or Cancellations must reach us
Ten Days before date of publication.

CATTLE.

ABERDEEN ANGUS

If you are in need of an extra good bull or a few choice young cows or heifers, we have them for sale. Our herd is headed by the Grand Champion Black Monarch 3rd. We invite you to come to our farm and see them. They are bred right and priced right. U. L. Clark, Hunters Creek, Mich. Sidney Smith, Mgr.

ABERDEEN-ANGUS

HERD ESTABLISHED IN 1900.
TROYAN-ERICAS and BLACKBIRDS only. Also breeders of Percheron, Hackney and Saddle Horses. Young bulls and Percheron stallions for sale. 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.

THE VILLAGE FARM,
Grass Lake, Michigan,
GUERNSEY CATTLE.

MILO D. CAMPBELL CHAS. J. ANGEVINE

BEACH FARM
GUERNSEYS

The buyer of breeding stock should know that the herd from which he buys is healthy. We believe the Beach Farm Herd is as near perfect health as is possible. The tuberculin test does not show the least sign of reaction. We never had a case of contagious abortion. Have want a whole year without calling a Veterinary or giving a dose of medicine.

—WE OFFER FOR SALE—

Registered Guernsey Bulls

Very High Bred Grade Guernsey Cows

Bred Heifers, Open Heifers and Heifer Calves.

CAMPBELL & ANGEVINE, Coldwater, Mich.

GUERNSEYS—REGISTERED BULL CALVES
Containing blood of world champions.
HICKS' GUERNSEY FARM, Saginaw, W. S., Mich.

REGISTERED Young Guernsey Bulls, great grand-sons of Gov. Chene, Serviceable age nicely marked, exceptional breeding. Avondale Stock Farm, Wayne, Mich.

FOR SALE A choice lot of Registered Guernsey cows, heifers and bulls of May Rose breeding. H. W. WIGMAN, Lansing, Michigan.

Guernsey Bulls of service age and calves from choice. Adv. reg. breeding. T. V. HICKS, Route 1, Battle Creek, Mich.

Guernsey Bull Calves from A. R. dams and whose dams are running for A. R. One ready for service. J. G. A. WIGENT, Watervliet, Mich.

For Sale Registered yearling Guernsey Bull also Bull Calves. Write JOHN EBELS, HOLLAND, MICH. R. No. 10.

Guernseys reg. for sale, Watervliet, Mich. May Rose Seven A. R. cows in herd. Address J. K. Blatchford, Auditorium Tower, Chicago, Ill.

REGISTERED Guernsey Bulls from A. R. Dams, ready for service, tuberculin tested, also Registered Bull calves from A. R. Dams, at Farmers' prices. Byers & Barnes, Coldwater, Mich.

Herefords Yearling and Calf bulls. Females all ages. Polled and Horned. All registered. W. H. McCarty & Sons, Bad Axe, Mich.

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 1/4 fat daughter of Pontiac Aggie Korndyke who has more 30 lb. daughters than any other living bull. If you do write for pedigree.

EDWIN S. LEWIS, Marshall, Mich.

HOLSTEIN Bull Calf: Born Oct. 5. A splendid individual, well grown, and of choice breeding. Dam has A. R. record, butter 7 days 18.04 lbs. milk 419.8 as a 2yr. old. Sir Albina Bonte Butter Boy No. 93124. W. B. Reader, Howell, Mich.

The Two Greatest Bulls

KING OF THE PONTIACS
DE KOL 2d's BUTTER BOY 3rd

I have young bulls from cows having high official records and Granddaughters of above bulls. Stock extra good. Prices reasonable.

BIGELOW'S HOLSTEIN FARMS,
BREEDSVILLE, MICH.

DAIRY TYPE Plus PRODUCTION
Equals Crandall's

Holstein Friesian Cattle

Two very Good young Bulls for sale. Sired by Beauty Walker Pieterje Prince 2nd. No. 107058. Dam, Hengerveld DeKol's Best Daughter. Butter 33.62, milk 582.70. Write for Pedigree if wanting bull.

Frank R. Crandall & Son, Howell, Mich.

FOR SALE

Three Pure Bred Holstein bull Calves 3 1/2 to 6 mo. old, from A. R. O. dams with records up to 22.51. Prices very reasonable.
R. B. Cummings, Wixom, Mich.

\$50 gets another 2 mo. old Hazel-let grandson of Maplecrest DeKol Parthena and Pontiac Maid 30.2 lb. butter 7 days. Dam traces to Pontiac Korndyke twice Pieterje 2nd twice, DeKol 2nd five times. M. L. McLaughlin, Redford, Mich.

THE MICHIGAN FARMER

HERD SIRES

Maplecrest Korndyke Hengerveld and FINDERNE Pontiac Johanna Korndyke

The two great Holstein sires at the head of the herd. Maplecrest Korndyke Hengerveld's dam and grand dam each made more than 1200-lbs. of butter in a year, and including the great grand dam each made more than 30-lbs. of butter in 7 days. His sire has sired three daughters that averaged over 1200-lbs. of butter in a year.

FINDERNE Pontiac Johanna Korndyke is the son of the world's champion cow, FINDERNE Pride Johanna Rue, who gave 28,403-lbs. of milk and made 1470-lbs. of butter in a year. He was sired by a brother to the 40-lb. 4 yr. old Mable Segis Korndyke. The dam of the sire is a 30-lb. daughter of Pieterje Hengerveld Count DeKol. This is believed by many to be one of the most productive combinations in Holstein breeding.

I take pride in tendering the services of these animals to the breeders of Michigan who are interested in yearly production. Many people feel it is the yearly work that makes the greatest profit and our effort is along the lines of yearly records. These two herd sires represent the highest culmination ever yet produced for yearly production.

A few high class heifers in calf to Maplecrest Korndyke Hengerveld, and a few bull calves from dams with records as high as 30-lbs. butter in 7 days, for sale.

D. D. AITKEN, FLINT, MICHIGAN.

Duroc Jersey Boars and Sows

The Record of this Herd at Detroit Proves Conclusively that Our Durocs Have the Individuality and Blood Lines that Insure Good Results.

Choice Spring Pigs and Mature Stock. A large herd gives ample opportunity for selection. Send for our new circular and state your wants. Write, or better come.

Swine Dept., Brookwater Farm, Ann Arbor, Mich.

Purebred Registered
HOLSTEIN
CATTLE

Probably the Longest and most exhaustive tests of dairy cattle in the world, made by the Wisconsin Experiment Station, showed that the registered purebred Holstein-Friesian cows far exceeded all other breeds when the tests were extended over a number of years, due to their more regular breeding, and higher uniformity of butter production every year. The Holstein cow Johanna in a five-year test averaged 480.81 pounds of fat and an average yearly net profit of \$90.17. Investigate the big "Black-and-Whites."

Send for FREE Illustrated Descriptive Booklets
The Holstein-Friesian Association of America
F. L. Houghton, Sec'y., Box 164, Brattleboro, Vt.

Holstein Bulls Ready
For Service.

Grandsons of Friend Hengerveld DeKol Butter Boy and Pontiac Aggie Korndyke. From high record A. R. O. dams at farmers' prices.

LONG BEACH FARM,
Augusta, Michigan. (Kalamazoo Co.)

Choice Holstein Bull Calves

Ready for service, World's Champion Parentage
HILLCREST FARM - Kalamazoo, Mich.

I Have Holstein Bulls, Bull Calves and Cows that I offer for sale. I can show breeding, records, individuality and attractive prices. L. E. CONNELL, Fayette, Ohio.

Espanore Farm,
LANSING, MICHIGAN.

Offers for sale five Holstein Bull Calves sired by the great bull Pledge Spofford Calamity Paul and out of good A. R. O. cows. This sire has more daughters with records of over 30 lbs. than any bull in the state. If you are looking for this kind of breeding, write for prices and pedigrees.

CHAS. S. OSBORN, Owners.
ADAM E. FERGUSON, Owners.

"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, Mich. Established 1898.

HOLSTEIN-FRIESIAN bargains. High grade heifers \$25 to \$75 each. Reg. heifers \$100 to \$150 each. Reg. Bulls \$40 to \$75 each. B. B. Reavey, Akron, Mich.

HATCH HERD
YPSILANTI, MICHIGAN

Registered Holstein-Friesian sires, grandson's of World's greatest dairy sire, out of choice A. R. O. dams and King Pontiac Jewel Korndyke; Brother of K. P. Pontiac Lass 44.15; average record of 50 dams in his pedigree 31.25 in 7 days; average per cent. of fat three nearest dams 4.37; of his own dam 4.93. Sires in first three generations already have over 600 A. R. O. daughters. A few females bred to "King". Prices reasonable.

FOR SALE

Registered Holstein bulls ready for service; and registered Holstein bull calves, the best breeding in the world, grandsons of Grace Fayne 2nd's Homestead, Pontiac Korndyke, King Fayne Segis and Hengerveld DeKol. The dams of these bulls and calves, have large advanced registry records. For prices, write Callam Stock Farm, 204 Bearinger Bldg., Saginaw, Mich.

FOR SALE Registered Holstein Bulls ready for service, and bull calves, also females. FREEMAN J. FISBECK, Howell, Michigan.

Purebred Holsteins Young bulls of best individuality and breeding at reasonable prices. Write us. G. L. SPILLANE & SON, R.D. 7, Flint, Mich.

Choice Holstein Bulls All from A. R. O. Dams. Semi-official records 720 lbs. butter in Jr. 4 yr. old class to over 1000 lbs. in mature class. Breeding: Cross "King of the Pontiacs" and the "Domick blood." Cherry Creek Stock Farm, Hilliards, Mich. M. E. Parmelee, Proprietor.

Holstein-Friesian Bull calves at reasonable prices. Pontiac Korndyke, Hengerveld DeKol breeding. John A. Rinko, Warren, Mich.

Registered Holstein BULL CALVES 2 to 8 mo. old from heavy producing dams at reasonable prices. Fred J. Lange, Sebewaing, Mich.

\$75.00

Buys a pure bred Holstein bull calf 11 mos. old, a son of Colantha Johanna Creamella Lad. One of the good producing sires. GEO. D. CLARKE, Vassar, Mich.

Reg. Holstein Heifer Calves. Dams' records 17 and 18 lbs. butter. Price delivered \$130 each. Also, 1 yearling bull 23lb. dam same price. DEWEY C. PIERSON, Hadley, Michigan.

Registered Holstein bull 3 mos. old. 2 nearest dams average 26 lbs. of butter 649 lbs. of milk in 7 days. Mostly white, excellent individual. \$100 delivered, safe arrival guaranteed. Write for pedigree and photo. Hobart W. Fay, Mason, Mich.

Wanted the best Holstein Bull old enough for service that \$200 or less will buy. Dam must have good A. R. O. Record. Give full particulars in first letter. Murrett Ridenour, R. 1, St. Johns, Mich.

Little Farmstead Jersey Cattle. Bull calves from R. of M. Cows, also heifer calves and several bred heifers for sale. Colon C. Lillie, Coopersville, Mich.

MAPLE Lane R. of M. Jersey Herd. Tuberculin tested by the U. S. Government. For sale R. of M. cows, bull calves and heifer calves from R. of M. dams and grand dams and Hood Farm Sire. IRVIN FOX, Allegan, Michigan.

Dairymen!
—The Truth

You may be prejudiced against the Jersey because you don't know her. Look her up. She's the Money Cow.

Get This Book—a history of the breed and full of very interesting tests and facts. It proves conclusively that for pure dairy type, economy of production, richness of milk, long life and adaptability to feeds and climates—all these combined—she stands way above them all. This book "About Jersey Cattle" is free. Get your copy now. You'll find it mighty good reading.

The American Jersey Cattle Club
346 West 23rd Street, New York City

THE WILDWOOD Jersey Herd. Registered Jersey Cattle of Quality. Herd headed by Majesty's Wonder 90717, one of the best sons of Royal Majesty. The daughters of Majesty's Wonder are mated to a son of Majesty's Oxford King. Herd tuberculin tested. We have for sale a few choice young bulls for fall service from high producing cows. Alvin Balden, Capac, Mich.

Jerseys. Bulls ready for service, extra quality sired by Jacoba's Fairy Emanon. No. 107111, from high producing dams. SMITH & PARKER, Howell, Mich.

Jersey Bulls for Sale from high-producing dams, with testing Assoc. records, also on semi-official test. C. B. Wehner, R. 6, Allegan, Mich.

Jerseys For Sale Young Cow just Fresh. Waterman & Waterman, Ann Arbor, Mich.

HILLSIDE Farm Jerseys, yearling bulls, solid color, half brothers to ex-world's-record senior 2yr. old and from R. of M. dams, with records from 400 lbs. to 800 lbs. C. and O. DEAKE, Ypsilanti, Michigan.

23 Registered Tuberculin tested Jersey Cows for sale. Also, young females. HERMAN HARMS, Reese, Michigan.

MILKING SHORTHORNS. Bull 10 months old \$125.00. 7 months \$100.00. 2 cows. DAVIDSON & HALL, Tecumseh, Michigan.

Shorthorn Cattle of both Sex for Sale W. W. KNAPP, Howell, Michigan.

Shorthorns For Sale 8 young bulls also females, farm 1/4 mile east of Davis crossing on A. A. R. R. W. B. McQUILLAN, Howell, Mich.

Shorthorns—Dairy or beef bred. Breeding stock all ages for sale at farmers prices. C. W. Crum, Secy. Cent. Mich. Shorthorn Breeders' Assn. McBride, Mich.

BIDWELL SHORTHORNS

For "Beef and Milk" Registered Bulls, Cows and heifers, Scotch-topped roans, and reds for sale. Farm at N. Y. Central Depot, also D. T. & I. R'y. BIDWELL STOCK FARM Box B, Tecumseh, Mich.

Albion Stamp 352670

Shorthorn and Polled Durhams for sale. Have white. C. CARLSON, Le Roy, Michigan.

For Sale—18 Short Horn Bulls by Maxwalton Monarch 2nd, a son of Avondale, from 2 to 13 mos. old John Schmidt, Reed City, R. No. 5, Michigan.

Dual Purpose Shorthorns A few young bulls for sale cows hand milked. M. A. Bray, Okemos, (Ingham Co.) Mich.

Milking Strain of Shorthorns. Young bulls \$100 to \$125 each. WARNER BROS. Almont, Michigan.

HOGS.

Durocs & Victorias—Grand bunch of Gilts due March and April. Comprising the blood of Superba, Defender, Much Col., Orions and others. A few young boars. M. T. STORY, Lowell, Mich.

TAKEN FROM LIFE
RAISE CHESTER WHITE HOGS LIKE THIS
(CALLED BY SOME O.I.C.'S)
HOW TO MAKE MONEY FROM HOGS

I have started thousands of breeders on the road to success. I have a very large and fine herd. Every one an early developer, ready for market at six months old. I want to place one hog in each community to advertise my herd. Write today.
G. S. BENJAMIN, R. No. 70, Portland, Michigan.

Royalton Bred Berkshires—Fine October pigs both sexes, sired by Royalton Emperor, registered with papers at fair prices. Write to D. F. Valentine, Supt., Temperance, Michigan.

SWIGARTDALE BERKSHIRES

Are the kind that win at the Fairs and also produce the litters as all of our show stock are regular breeders. They have the size with the bone to carry them and their breeding is unsurpassed. All the leading families are represented. We have a few choice Spring Boars now crowding the 300 lb. mark, for sale, prices from \$20 up. We are now booking orders for Fall pigs for January delivery. Can furnish choice Trios not akin, for \$45 to \$50. We Guarantee Satisfaction.
Swigartdale Farm, Petersburg, Mich.

Berkshires of best breeding. Special price on two Spring Boars. D. W. SMITH, Wixom, Michigan.

Berkshires at cut prices. Choice spring boars. Open or bred gilts. Sow farrow in December. Fall pigs, no akin. Chase's Stock Farm, Marlette, Mich. R. L.

Berkshires. Of various ages, either sex, open or bred, prolific strains. Registered, at moderate price. Elmhurst Stock Farm, Almont, Michigan.

Berkshires Have a choice lot of gilts. I am breeding for spring farrowing. Write me your wants. A. A. Pattullo, DeKerville, Mich.

DUROC JERSEYS—A few choice spring BOARS ready to ship. Carey U. Edmonds, Hastings, Mich.

Capitol Herd Duroc Jersey Swine. Established 1888. Spring pigs for sale, satisfaction guaranteed. Express prepaid. J. H. Banghart, East Lansing, Mich.

Duroc Jerseys—Big Type, Heavy Boned Boars ready for service, real herd headers sired by Volunteer Grand Champion, F. J. Drott, R. 1, Monroe, Mich.

DUROC JERSEY BOARS A choice lot of spring boars, not akin. W. C. TAYLOR, Milan, Michigan.

Duroc Jerseys—Fall and spring pigs either sex, from choice strains, S. O. STAHLMAN, CHERRY LAWN FARM, Shepherd, Michigan.

J. W. KEENEY, Erie, Mich. Breeder of Duroc Swine D. M. & T. local from Monroe or Toledo, Keeney Stop.

DUROC Jersey, Mar. & Sept. pigs either sex sired by a son of Volunteer. And two Holstein bull calves and 2 Holstein cows. E. H. Morris, Monroe, Mich.

DUROC JERSEYS—A few choice sows bred or open. Also two extra good springboars. Wm. W. Kennedy, R. 3, Grass Lake, Mich.

Duroc Jerseys—Choice spring boars and sows of best breeding also 5 high grade Holstein heifers due in Dec. Priced to sell. E. R. Cornell, Howell, Mich.

Duroc Jersey Boars of the growthy, heavy boned type, also a few gilts. Inspection invited. E. D. HEYDENBERG, Wayland, Mich.

DUROCS of the best of breeding. April farrow. Either sex. The gilts will be bred for Apr. farrow. Price \$20.00 to \$25.00 while they last. H. G. Keesler, R. No. 5, Cassopolis, Mich.

FOR SALE. Registered Duroc Brood Sows and August Pigs. E. J. ALDRICH, R. 1, TEKONSHA, Calhoun Co., Michigan.

CHESTER WHITES—The long type, prolific kind, either sex. Write your wants. Meadow View Stock Farm, R. 5, Holland, Michigan.

Registered Chester White males and females. Reg. Holstein male calves, herd bull and cows. Farham's Pedigree Stock Farm, Bronson, Mich.

HAMPSHIRE HOGS—the belted beauties. One yearling boar and spring pigs, either sex. Write your wants. John W. Snyder, St. Johns, Mich., R. No. 4.

HAMPSHIRE SWINE. The kind that makes such big gains on pasture. Have a few choice fall pigs for sale, also one July boar. I have a very choice herd of breeding sows of the best blood lines, headed by a mammoth son of the Great Look Out. Am booking orders now for spring pigs, can furnish pairs and trios not akin. Geo. E. Starr, Grass Lake, Mich.

HAMPSHIRE Swine—Breeding stock of all ages from most popular strains. Write for breeding. Inspection invited. Floyd Myers, R. 9, Decatur, Ind.

Registered O. I. C. Swine
Stock For Sale—All Ages
Correspondence Solicited, Visitors Always Welcome

Brightside, Grand Lodge, Mich.

O. I. C. Serviceable boars, choice Gilts not bred, Spring pigs not akin, also Toulouse Geese. Write for low prices and photo. Alvin V. Hatt, Grass Lake, Mich.

O. I. C's—yearling sows, gilts, fall pigs. Very reasonable. Satisfaction guaranteed. A. R. GRAHAM, Flint, Michigan.

REGISTERED O. I. C. BOARS & GILTS High class fall pigs at reasonable prices. J. CARL JEWETT, Mason, Mich.

Breeders' Directory—Continued on page 55.

Veterinary.

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

Bruised Face.—I have a two-year-old heifer that was kicked on face under eye last winter and there must be considerable soreness for she does not eat well. W. S., Davisburg, Mich.—Apply one part iodine and nine parts lard to bunch on face daily.

Septic Infection.—My six-year-old mare had miscarriage after five months, since then she has run down and is not thriving. We keep her in a warm barn, but her coat is rough and dead. This mare has usually been a good keeper and heretofore possessed good life. F. E. S., Oshtemo, Mich. First of all your mare should be well fed and groomed twice a day. Give her ½ oz. of Fowler's solution at a dose three times a day. Give her 1 dr. powdered sulphate iron, ½ dr. of ground gentian at a dose in feed twice a day.

Partial dislocation of Stifle.—I have a five-year-old cow which, when let out of stable in the morning, one hind leg is stiff and sticks straight out behind her, and after she has taken a few steps, she limbers up and is not lame again until next morning. Our local Vet. says she has a spavin, but there is no enlargement on hock. W. P., Moxley, Mich.—Your local Vet. is mistaken, but your cow has a partial dislocation of stifle and when out she is unable to pull and place hind foot forward. Clip hair off and apply one part powdered cantharides and four parts lard every ten days or two weeks, and she will get well.

Acute Indigestion.—I have lost three calves which were from one to three months old, and would like to know if their eating too much second cutting of clover might be the cause of their death. I also feed them separator milk, oats and bran. These calves appear weak, but eat up to within a few hours of death. Their bowels seem to be normal and they are not sick but a few hours. F. S. W., Parma, Mich.—I am inclined to believe that your calves die the result of acute indigestion, possibly the result of eating too much clover; however, clover that is properly cured should be a good feed for calves, providing it is not too ripe when cut.

Sprained Tendons.—I have been a constant reader of the Michigan Farmer for a number of years and have found the paper very valuable. I own a black draft colt that got his foot caught in a gate, at which time he sprained back tendons of fore leg. He is not lame, but the cords are enlarged. When worked hard or driven a long distance he favors this leg; therefore, I am inclined to believe the tendons weak. L. N., Metropolitan, Mich.—Clip hair off back tendons and apply one part red iodine mercury, one part powdered cantharides and eight parts fresh lard every two weeks. It will be necessary to put on not less than two applications, then I believe your colt will be all right.

Abscess—Thrush.—About 2 months ago a bunch appeared on shin of my eight-year-old mare which gradually enlarged until about the size of a pint measure, then I opened it and allowed some fluid to escape. We called our local Vet. and he prescribed poultices, then later opened bunch, burned it out and thought it would be all right in a week, but he was mistaken. Three other Vets. have examined leg, each one held different views, but I applied home liniment which reduced swelling to almost normal, but now there is a bunch coming on back of leg between fetlock and knee; the old sore is yet running. This same mare has thrush. B. C. B., Midland, Mich.—You will obtain best results by occasionally applying tincture of iodine externally and one part iodoform and five parts boracic acid to wound. Apply calomel to diseased frog three times a week.

Improperly Castrated—Stocking.—I have a three-year-old colt which is fed oats and straw, but both hind legs stock whenever he is allowed to stand in barn over night. C. C. I., Decker, Mich.—Dr. Steffen, Veterinarian, of Brillion, Wis., in writing on chronic edema of the hind extremities (stocking) is of the opinion that a majority of the worst cases that has come under his observation are geldings which were improperly castrated, but before resorting to a surgical operation he recommends giving iodide potassium in 1 dr. doses two or three times a day. It is perhaps needless for me to say that your stable should be kept clean, sufficient fresh air admitted and that your horse should be exercised every day, and the hind legs bandaged in cotton.

Dr. David Roberts' BREEDING TONIC

Your cows should be prepared for calving time. Heifers especially need help. Dr. Roberts, during his more than 25 years' veterinary practice, compounded a prescription which is a wonderful aid to cows in this dangerous period. It has an affinity for the genital organs and puts them in a breeding condition. Give your cows this help which they so much need. Feed in small quantities during pregnancy—it will mean strong, healthy calves. They will be dropped naturally—least injury to cows, less chance for abortion and complications. Cows fed Breeding Tonic do not retain the afterbirth. Breeding Tonic gives to breeding mares, ewes and sows the same help it does to cows. Get Breeding Tonic from your druggist.



Cow Tonic to tone and keep your animals in condition, aid digestion and keep up appetite.

Cow Cleaner removes the afterbirth naturally. Heals and leaves breeding organs in normal condition.

Calf Cholera Remedy prevents scour and calf cholera. Keeps calves in continuous growth.

Calf Meal, Diolice, Badger Balm, Laxative and Stokvigor—valuable remedies, which should always be kept on hand.

Special Sample Offer STOKVIGOR, 10c

Enough to feed a cow two weeks. Aids digestion, tones the system, makes animals grow faster and develop better. Send 10c and we will send Special Sample Package to test on your own stock. Don't fail—don't wait. Enclose dime or stamps.

Get Dr. Roberts' Live Stock Prescriptions at your drug store—nearly 4000 dealers in U.S. If you do not already have the 184-page "Practical Home Veterinarian," treating all diseases of all live stock, send 25c and receive by mail, postpaid. Address

Dr. David Roberts Veterinary Co.
960 Wisconsin Ave., Waukesha, Wis.

SALE OF DRAFT HORSES

By The

Michigan Horse Breeders' Association

58 HEAD 23 STALLIONS 35 MARES

56 PERCHERONS. 2 BELGAINS.

In the Stock Pavilion, East Lansing, Mich.

January 21, 12:30 P. M.

R. S. HUDSON, Sec'y. East Lansing, Mich.

40 Shorthorns

10 Bulls 30 Females

Will be sold in the same Pavilion at 9:30 A. M.

By The

Michigan Shorthorn Breeders' Association

W. W. KNAPP, Pres. Howell, Mich.

Col. Carey M. Jones, L. L. Seeley, Auctioneers.

Catalogues Ready

When Writing Mention The Michigan Farmer.

FOR Sale 4 registered Guernsey Bulls 6 to 17 mos. old, Great Grandsons of Starlight's Excelsior, 22 A. R. daughters, Grand Dam Arvon's Julia A. R. cow, 572 lb. fat. Also yearling Holstein Bull, a grandson of Colantha Johanna Lad, who has 92 A. R. O. daughters. Geo. W. Reeves, R. 2, Grand Rapids, Mich.

O. I. C. SWINE Yes, I will pay express charges to your express office on August and September pigs during the month of January. I also have choice gilts bred for April farrow. A. J. Gordon, R. 2, Dorris, Mich.

O. I. C. SPRING BOARS of good type and Red Polled bull calves. John Berner and Son, Grand Ledge, Mich.

O. I. C.'s STRICTLY BIG TYPE.

March, April and May pigs sired by Lengthy Prince, White Monarch and Frost's Choice, all big type boars and sows weighing from 500 to 700 lbs. with quality second to none. Can furnish in pairs not akin. Prices reasonable. Newman's Stock Farm, Mariette, Mich. R. 1.

O. I. C. Sows bred for March and April farrow. Priced to sell. From best of stock. E. B. MILETT, Fowlerville, Michigan.

O. I. C. Choice 18 mos. old boar, Grand Champ, at West Young Mich. State Fair 1915 also Mar. and Apr. gilts. A. J. BARKER, BELMONT, MICH. R. No. 16.

O. I. C.'S 3 July boars. Bred gilts with size and quality. \$22 to \$30 each. C. J. THOMPSON, Rockford, Michigan.

Way Brothers Stock Farm. The home of the big young herds of O. I. C. Hogs, Stock for sale. Registered free. J. R. Way, Three Rivers, Mich.

O. I. C. March and April farrow, summer and fall pigs. I pay express. G. P. ANDREWS, Dansville, Mich.

O. I. C. Gilts bred for March, April and May farrow. Recorded in buyer's name. H. W. MANN, Dansville, Michigan.

O. I. C. and CHESTER WHITE SWINE Big type with quality. We have the undefeated breeders young herd at seven State fairs this year. They were sired by Abo 2nd, one of our many good herd boars. Special prices on all boars for the next 30 days. Get a Gilt bred to the Great Schoolmaster, the highest priced boar of the breed, Champion over champions. Write for our big catalogues with history of the best herd in the whole country. Come and see them. Rolling View Stock Farms, Cass City, Mich.

O. I. C. Choice Spring boars and bred Gilts. We pay Express and Register free. Glenwood Stock Farm, Zeeland, Michigan.

O. I. C.'s Spring Boars and gilt bred sows. JULIAN P. CLAXTON, Flint, Michigan, R. 8.

Registered O. I. C.'s. Attractive prices on fall pigs and last spring gilts. All from large litters. Elmer E. Smith, Redford, Mich.

O. I. C. Service boars and fall pigs not akin and 25 bred sows. Extra good stock. One extra last Mar. boar, wt. 300, big type, heavy bone. Come and see them. ½ mile west of depot. Otto B. Schulz, Nashville, Mich.

POLAND-CHINAS From our thousand pound Grand Champion Boar and Big Stretchy Sows, of best breeding. Spring Boars at a bargain. Hillcrest Farm, Kalamazoo, Mich.

BIG TYPE P. C. Either sex, pairs or trios not akin. Bred sows and gilts. Have several 1000 lb. boar prospects. Absolutely no larger breeding. Everything guaranteed right. FRANK KRUGER, Ravenna, Mich.

POLAND CHINA gilts bred for March and April farrow. Fall pigs, satisfaction guaranteed. G. W. HOLTON, Kalamazoo, Michigan.

POLAND CHINAS of the big type. Boars ready for service. Barred Rock Cockerels. A. A. WOOD & SON, Saline, Michigan.

Large Type P. C. Largest in Mich. Boar pigs ready for service good enough to go anywhere. First order gets first choice. Priced to sell. Sired by two largest boars in State. Free Livery to visitors. W. E. LIVINGSTON, PARMA, MICH.

LARGE TYPE P. C. Some very choice April and May farrow. Boars for sale. Brood sow sale in February. W. J. HAGELSHAW, Augusta, Mich.

Large Strain P. C. a few choice boars of spring and early summer farrow. A choice lot of spring Gilts bred for spring farrow sired by Big Defender the boar that every body goes wild over. H. O. SWARTZ, Schoolcraft, Michigan.

Heavy BONED POLAND CHINA Spring Boars and gilts not akin. Also older stock. Prices right. CLYDE F. SHER, St. Louis, Mich.

Spring Pigs at Half Price:—Bred from the largest strain of Poland Chinas on earth, none bigger. If you ever expect to own a registered Poland China, this is your opportunity. Get busy and order at once. Pairs and trios not akin \$15 each. A few bred sows at \$25. J. C. BUTLER, Portland, Mich. Bell Phone.

Big Type Poland China—Western bred extra large gilts not akin. Have several good Gilts bred to Smooth Jumbo, Jr. Top Boar of J. D. Collin Sale. Priced right to go quick. A. D. Gregory, Ionia, Mich.

BIG Type Poland China Gilts, bred to a good son of Wonderful Wonder. He sold in Iowa for \$625. This will please you. Robert Martin, R. 7, Hastings, Mich.

25 BIG TYPE POLAND CHINA boars sired by Big Smooth Jumbo 810 lbs. at 20 mos. and Giant Des Moines 743 lbs. at 17 mos. At farmers' prices. Sent C. O. D. Write or come and see 130 head of good big types. Wm. Waffle, Coldwater, Michigan.

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.

Heavy Boned Poland Chinas. Both sex and all ages at bargain prices. Also, B. P. Rock Cockerels. ROBERT NEVE, Pierson, Michigan.

A. G. Meade, Stanton, Mich. Colby's Ranch, has China Boars and Sows. Prices reasonable.

POLAND Chinas—Big and medium type. Gilts bred to big type boars for April farrow. Fall pigs, either sex. L. W. Barnes & Son, Byron, Michigan.

Yorkshire Service Boars—Also sows and fall pigs. Send for Photos. CHAS. METZ, Ewart, Mich.

Large Yorkshires Gilts bred for spring farrow. Service boars. Pigs all ages. Prices Reasonable. W. C. COOK, Route No. 1, ADA, MICHIGAN.

Berkshires of best breeding, of various ages, either sex, all registered stock, no akin, special reduced price. Write your wants quick. Mitchell's Lakeside Farms, R. 2, Bloomington, Mich.

Mulefoot Hogs—Fall Pigs. Brood Sows and gilts. Young service boars. Pairs not akin. Write for prices. C. F. Bacon, R. 3 Britton, Mich.

AUCTION SALE

Of Mulefoot Hogs, Jan. 12th, 1916. At the farm six miles South of Saline and six miles west of Milan, Mich. 60 head of Pure bred hogs all ages. Commencing at 1 o'clock P. M. sharp. Papers furnished with every hog sold. Crates furnished for buyers from a distance. Time will be given on approved Bankable notes. Come to this sale. Saline is on the Lake Shore and Trolley lines from Detroit and Ypsilanti. Milan is on Y. & A. R. R. also Wabash. C. F. Bacon, P. O. Britton, Mich., R. 3. Macon Phone.



Mr. Sidney R. Feil, President of The Feil Mfg. Co. is a Registered Pharmacist, a graduate of the Cleveland School of Pharmacy and the National Institute of Pharmacy. He has been engaged in laboratory work for more than 25 years. For many years engaged in compounding veterinary remedies.

Worms and Indigestion Cause 90% of Live Stock Losses

"Besides ridding my hogs of worms, I know SAL-VET has saved me bushels of grain."
A. H. Evans,
Wingate, Ind.

"I have not lost a single sheep since feeding SAL-VET."
Jno. E. Templin,
Blanchester, Ohio.

Do you know that 90% of all your live stock losses are caused by indigestion and worms? That's what the Dept. of Agriculture says in one of its bulletins. It is estimated that the live stock losses during the past year were \$100,000,000 and that \$90,000,000 of this was probably due to worms and indigestion. Both conditions are preventable. Right now the thieving, blood-sucking parasites are at work in your farm animals. They kill off your pigs and lambs. They stunt the growth of many animals. They lessen resistance to contagious diseases. They keep stock gaunt and thin. They steal hundreds of dollars in stock profits from you every year. Get rid of these dangerous thieves! Clean them out of your herd! You can do it without risking a penny. I'll show you how — I'll prove it at my risk. I'll rid your stock of worms. I'll do it or no pay. Read my remarkable offer to feed your stock SAL-VET 60 days before you pay. I don't ask a cent of money in advance—just the coupon.

Thousands Write Like This

"I have used SAL-VET for about two years, within which time I have not lost a single hog. Have fattened 74 head of May pigs that we sold December 10th, and which averaged 207 lbs. each. They took SAL-VET every day and never stopped growing. We cannot say enough for the merit of SAL-VET."

—F. R. Dalrymple,
Carthage, Indiana.

More Proof from a SAL-VET User

"Before I commenced feeding 'SAL-VET' my hogs were poor, run-down and without appetites. I was advised by neighbors several times to stop feeding them my high priced corn, and to sell them for any price, however small. But instead of doing this, as a last hope, I tried SAL-VET. The change in these hogs is simply wonderful. I will never allow any of my stock to be without 'SAL-VET' in the future."

Chas. Dunlap, Hudson, Ind.



The Great WORM Destroyer

The Great Live Stock Conditioner

SAL-VET is the simple wonder-working remedy that rids all farm animals of their greatest enemy—worms. It destroys these deadly pests without bother or trouble to you. It is the medicated salt which contains no antimony. Stock eat just as much as their condition needs and **doctor themselves**. Unlike other worm remedies SAL-VET requires no dosing—no drenching—no starving. Let me furnish you a 60 days supply for your stock at my risk. I don't ask a single cent of pay in advance. I want you to see with your own eyes how the dull-eyed, thin, scrawny, rough-coated, worm-infested animals in your herds will improve when fed SAL-VET, which destroys the blood-sucking parasites that drag them down in weight, health and vitality. The old appetite will return—the digestion will improve—they will put on flesh better, gain faster and grow into profits for you. SAL-VET is not only the best stock remedy on the market but the cheapest. Costs only one-twelfth of a cent a day for each hog or sheep and one-third of a cent for each horse or head of cattle.

Send No Money — Just The Coupon

Just fill out the coupon—tell me how many head of stock you have and I will supply you enough SAL-VET to last all your stock 60 days; you pay the freight charges when it arrives and feed it according to directions. If SAL-VET does not do what I claim and you make a specific report in 60 days, I'll cancel the charge; you won't owe me a penny. Address

"SAL-VET is doing good work; since feeding it to my cows, my cream test has increased five points."

—N. O. Johnson,
Palmer, Minn.

"One of my horses was full of worms. I fed him SAL-VET and it expelled them. Since then, he has been taking on flesh at a wonderful rate, and has kept in good condition."
Wm. Ross,
Rt. No. 1, Greenfield, Michigan

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SIDNEY R. FEIL, President
THE FEIL MFG. CO., Chemists
Dept. 80 CLEVELAND, OHIO

(243)

Supply me enough SAL-VET to last my stock sixty days. I agree to pay the freight, feed it as directed, and will then pay for it if it does what you claim. If it fails and I so report specifically in 60 days, you are to cancel the charge and I will owe you nothing.

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Mail
To-day

"SAL-VET does all that you claim it will. Since feeding it to my team, the horses look better, keep in better condition and stand their work better; my cows also look fine, are shedding nicely and are in good condition. SAL-VET is the best worm destroyer and conditioner I have ever used."
—Wittie Bush, Rt. 3, Sheridan, Mich.

"Am well pleased with 'SAL-

VET.' Since feeding it my sheep look so well that they are the talk of the township."
—E. L. Powers, Clio, Mich.

"SAL-VET is good stuff. I did not lose a hog since I have been feeding it, although, when I got it, I had one that had what we thought was cholera, but it recovered all right. I do not think that 'SAL-VET' has an equal as a stock remedy."
—A. J. Gilbert, Buchanan, Mich.

Look For This Label



on Sal-Vet packages. Don't buy 'Sal' this or 'Sal' that. Get the original, genuine Sal-Vet prepared only by The Feil Manufacturing Co., Chemists, Cleveland, Ohio. Don't be deceived by imitations.

PRICES

Each	40 lbs. pkge.	\$2.25
"	100 lbs. "	5.00
"	200 lbs. "	9.00
"	300 lbs. "	13.00
"	500 lbs. "	21.12

Special discounts for large quantities. No order filled for less than 40 lbs. on 60 day offer. Never sold in bulk; only in Trade-Marked 'Sal-Vet' Packages. 60 day trial shipments are based on 1 lb. of Sal-Vet for each hog or sheep and 4 lbs. for each horse or head of cattle as near as we can come without breaking regular sized packages. Thousands of dealers sell Sal-Vet at above prices but in the far West and South the prices are a little higher on account of extra freight charges.