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Improving Michigan's Corn Crop

By JOSEPH F. COX

THE corn crop contributes more annually to the material wealth of Michigan than any other crop. Michigan occupies an eminent position agriculturally in bean production, beet production, in the production of oats, rye, potatoes and fruit. The corn crop, however, is worth each year about three times the value of the bean crop, three times the value of the potato crop, eight times the sugar beet crop and about three times as much as the entire fruit crop of Michigan. Michigan is famous as a copper state, but the corn crop each year will just about buy all the copper mined in Michigan. She is a leading furniture state, but Michigan's corn crop is worth considerably more than her entire furniture and refrigerator output each year; in fact, corn growing is one of Michigan's greatest single industries. Statistically, Corn is King in Michigan, but it should be considered that 95 per cent of Michigan's corn crop is grown in the southern part of the state.

In spite of the great value of the annual corn crop, corn production has not by any means reached its zenith. The acre yield remains extremely low, very near the cost of production, which means that many farmers are producing corn at but little or no profit. In individual cases of low yields, scientific methods of corn production when properly applied markedly increase the acre yield. It stands to reason that, when these same methods are used by a majority of Michigan farmers, the state corn yield will be appreciably raised.

All farmers who grow corn are familiar with the rudiments of corn growing and can secure some sort of a crop any season and a good crop occasionally, but success in corn production consists in getting a profitable crop each year. Scientific agriculture has "speeded up" corn production along many lines and has added new practices to the ordinary methods of corn growing which tend toward the

improvement of the crop. The successful corn grower is he who is familiar with these scientific practices and builds them into his routine methods. It is the object of this article to emphasize particularly such practices.

The Proper Variety.

A great number of varieties and types of corn are grown in Michigan. A corn show held for the first time in any locality will often show as many

highly uniform and productive variety. The question of the proper variety will always be a local one owing to the wide range of varying soil and climate conditions in Michigan.

There have been developed a number of corn varieties adapted particularly to the conditions of certain sections. Some of these improved varieties and the section to which they are suited are shown in the accompanying

Yellow, Wisconsin No. 7, Jackson County White Cap.

For central southern Michigan, section 3, Pickett's, Golden Glow, (in the northern part).

For north central Michigan, section 4, U. S. Selection, Golden Glow, Early Maturing Pickett's Selections.

For the northern part of the southern peninsula, section 5, Michigan White Cap, Ogemaw White Cap, Northwestern Dent, Flint Varieties.

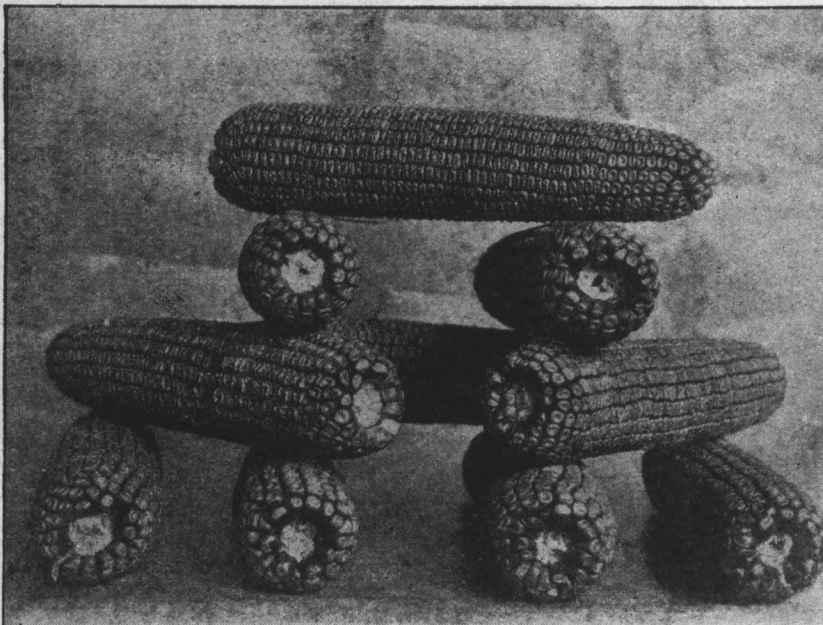
For the upper peninsula, section 6, Flint varieties, early maturing Dent selections.

There are many local varieties which careful farmers have improved by selection, which have not even been named, which, of course, are not shown on the map. The varieties listed are those which have been in the hands of men who make a specialty of improving corn and are varieties which are widely grown.

The Variety Test.

In order to ascertain the high producing varieties of any locality, a community variety test should be made. In this variety test, the leading varieties of the neighborhood and improved varieties of possible worth are included. Such a test will require community co-operation, and can best be performed under the direction of a county agent or field representative from the Agricultural College, or by the co-operation of the members of local farmers' organizations. A field of several acres will be needed. This field should be uniform in regard to soil and preparation. In this field two or more rows of each of the varieties submitted are planted with tested seed and given uniform cultivation until ready for harvest. To secure a sure stand, it is best to plant five or six kernels per hill and thin to a uniform stand. At harvest time, each variety is harvested separately, and the yields weighed, the amount of mature shelled corn calculated. A community picnic at harvest time attended by all the farm-

(Continued on page 571).



Ideal Seed Corn—First Prize Exhibit at the National Corn Show.

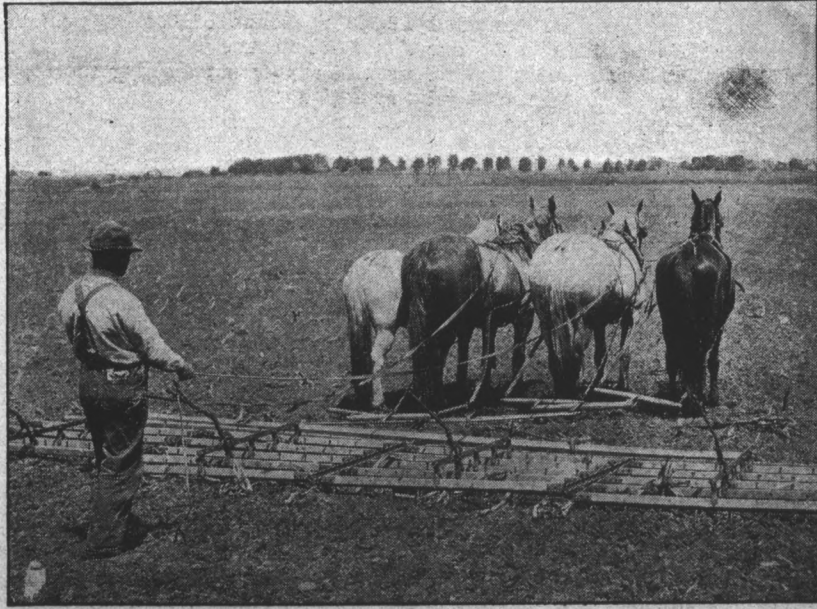
widely different varieties as there are entries. Variety tests show that these varieties vary as much in yield and quality as in appearance. There is a great need for the community's standardization of varieties. Not only are the majority of farmers benefited by changing to the highest yielding variety, but as in stock breeding, the entire community is benefited by becoming known for the production of a cer-

illustration and are here listed. On late soils within the various sections, earlier varieties than those advised would probably be best suited.

Corn Varieties for Michigan.

For southwestern Michigan, section 1, Duncan Yellow Dent, Leaming Yellow Dent, Wisconsin No. 7, Ball's White Cap.

For southeastern Michigan, section 2, Duncan, Leaming, Tyler, Michigan



Increased Efficiency of Man Labor in the Use of Horse Labor Makes for Economy of Production on the Up-to-Date Farm.

The Michigan Farmer

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DETROIT, APRIL 29, 1916

CURRENT COMMENT.

The Milk Inspection Controversy.

In another column of this issue appears an article on the milk inspection situation, written by a correspondent who has had more than ordinarily wide opportunity for observation of the working of the present method of milk inspection in the territory contiguous to Detroit. This writer concedes—as do all well informed men—that the dairymen contributing to the city milk supply have made an earnest and honest effort to deliver a wholesome product, and that no serious objection will be offered to any reasonable rules or regulations which will bring about a still further betterment of the milk supply.

Referring again to the fact that, under the operation of present rules of milk inspection, the Detroit Board of Health has found it necessary to order the pasteurization of all milk entering the city, by way of emphasizing the fact that present methods of inspection have not wholly accomplished the desired result, and to the recent research work which has been done in New York which indicates that the personal equation in milk production is a far greater factor than is the matter of mere equipment in the making of a wholesome product, it appears that the real solution of the controversy is yet to be accomplished. From an educational standpoint, there seems to be no objection to dairy farm inspection, but from the practical standpoint of insuring the object sought, i. e., wholesome market milk, and that without injustice to the producer, it leaves much to be desired. As before noted, only a careful analysis of the product itself will accomplish this desired result. In a future issue the feasibility of carrying out such a plan will be discussed from a scientific standpoint in our Practical Science Department.

In the meantime, dairymen engaged in the production of market milk will do well to give serious consideration to every phase of this subject. Because it is possible to produce good market milk without up-to-date equipment is not a good reason for hesitating to install such equipment in the dairy barn. Without question, it is much easier to produce a good product with good equipment than with poor, and comfortable, sanitary stables will contribute so appreciably to cow comfort as to prove a profitable investment from the standpoint of increased production. On the other hand, the city health authorities need to learn that equipment alone does not insure a wholesome product.

The interests of all parties concerned in this controversy are not greatly at variance. What is really needed is a better understanding of the other

side of the proposition by all parties concerned, particularly by the health authorities. The consumer is entitled to the intelligent co-operation of milk producers and health authorities. He should not be obliged to use unwholesome milk because of the ignorance of one group, nor have the cost of his supply increased because the other group thinks it knows many things which may not really be true. The producers of market milk are in turn entitled to an accurate knowledge with regard to the effect of the various regulations imposed upon the quality of the product of their dairies. Likewise, they are entitled to a compensatory price for a good product which will include a reasonable profit in addition to the cost of production. This, however, is a proposition within their own power of equitable adjustment, and examples of such adjustment brought about by market milk producers of other sections indicate that at the proper time this problem will be equitably settled in the milk producing districts of our own state.

The Index of Good Farming.

A study of the crop statistics of recent years shows a gratifying increase in the per acre yield of most staple crops for the country as a whole. This average increase of yield has been approximately one per cent per year during recent years. The per acre yield of staple crops is a very accurate index of the quality of farming practiced throughout the country. Some years ago when prices for agricultural products were low and farmers were soil robbers of necessity as well as because of a less definite understanding of proper soil management for the maintenance and increase of soil fertility, both statisticians and pessimistic economists were prone to prophesy a food shortage for future generations in this land of plenty, the agricultural resources of which have only commenced to be well developed.

The greatest stimulus to the adoption of better farming methods is the coming of compensatory prices for farm products. The value of knowledge regarding proper methods of soil management should never be underestimated, but without compensatory prices for the products grown, the difficulty of applying that knowledge is materially increased.

This gratifying increase in the per acre crop yield is, of course, due to many causes. It speaks well for the future of our agriculture that one of the important contributing causes is doubtless the greater efficiency of the younger generation of farmers who are better equipped in the matter of education than were their predecessors. This increased efficiency coupled with an ever-broader application of scientific principles to the solution of agricultural problems should create a general spirit of optimism among those who are prone to speculate on the economic problems of the future. The American farmer will be equal to the task of supporting an ever increasing population not only for generations but for centuries to come.

The Sisal Controversy.

Pending official action by Congress as to the result of the special investigation into the sisal situation which is being conducted by a special investigating committee of the United States Senate, an agreement has been reached which will facilitate the distribution of the raw material for this season's supply of binder twine.

Representatives of the Commission Reguladora de Yucatan, which has control of the available supply of sisal fibre, suggested that the investigating committee take charge of the distribution of the supply of sisal fibre remaining in its possession from last year's crop to twine manufacturers of this country. This the committee had

no power to do, but arrangements were made under which the Federal Trade Commission will take charge of the distribution of the raw material, insuring a supply of binder twine to the farmers of all sections of the country on a basis of competitive manufacture, although the price of the finished product will be considerably higher than in recent years, owing to the higher price of the raw material. Under the agreement, no fibre will be sold to manufacturers for use in making rope and cordage other than binder twine until the manufacturers' requirements for this purpose are filled.

This is a practical settlement of the immediate difficulties upon which all parties interested should be congratulated, particularly the farmers of the country who will need the twine to be manufactured from this raw material within a very few months.

There are pending Prison Industries. in Congress several bills, the provisions of which would practically prohibit the transportation of prison made goods in interstate commerce. Some of these bills are so broad in their scope as to apply to goods made in part by convict labor.

It is believed by prison reformers that this would apply to goods manufactured in part by the labor of paroled prisoners, and would thus strike a fatal blow at present advanced methods of the reformation of convicted criminals. The humanitarian consideration should be the paramount one in this connection. Organized labor has for years sought to restrict the market for prison made goods and thus eliminate the competition of prison labor with free labor.

Various states have laws restricting the market of prison made goods and this congressional legislative program seeks to restrict the interstate shipment of goods which are in any way the product of convict labor. In a number of states, including Michigan, the employment of convict labor has been along lines of manufacture which could be easily consumed within the state, but the broader bills above mentioned which might interfere with the interstate shipment of goods made in part by paroled prisoners would be a serious blow to reformation work in this state. In such a case the zealous champions of labor should not be allowed to prevail against the humanitarian considerations involved.

HAPPENINGS OF THE WEEK.

Foreign.

Mexican Affairs.—American troops will remain in Mexico "for the present," according to the announcement given out by Secretary of War Baker. Gen. Funston has plans for the redistribution of Gen. Pershing's columns for the purpose of recuperation, and pending the diplomatic negotiations now in progress between the state department and Gen. Carranza's government. The reply to Gen. Carranza's request that the American troops be withdrawn has not been sent yet, but it will be in such form as to give him further chance to co-operate with the American troops in crushing Villa, and other bandits, or to demonstrate without doubt that the Mexican government can do it alone and prevent further bandit operations along the border. The report that Villa was killed has never been verified. The body supposed to be that of Villa was that of a Villa officer.

The European War.—The Verdun battle is still the momentous question of the war. During the past week nothing decisive has occurred. The arrival of a large number of Russian troops in France to assist in this battle spurred the French troops on so that they made some gains in the northwestern sector in an offensive encounter. Floods are retarding the efforts of the British to relieve Kut-El-Amara where the Turks have been besieging for some time 40,000 British troops. According to a Turkish report the Russians were defeated with heavy losses in southern Armenia.

London reports indicate that the German submarines are still active, four vessels having recently been sunk. The Italian steamer Joseph Agost Tcherzec, whose crew was sav-

ed, was one of the reported losses, as was also the French bark Chanaral, whose crew is also reported safe. The captain and 16 hands of the British steamer Feliciano were saved, and the entire crew of the British steamer Tregantle are also safe. Both of these boats are reported as being torpedoed by German submarines.

The Germans are taking the American U-boat note calmly, while in Washington there is much conjecture as to what Germany's reply will be. The Germans insist that Wilson's note shows partiality to the Allies, and that since their last controversy with this country in regard to submarine warfare, they have kept all of the promises they made. They also claim to have proof that a German submarine did not sink the Essex. They contend that they have done all they could to protect neutrals on passenger boats but cannot grant protection to neutrals on freighters belonging to the Allies, or carrying munitions to them. In official circles at the Capitol it is believed that Germany cannot afford to break with America.

Nearly two million soldiers in the Mediterranean and Asiatic theaters of war are inactive on account of a political tangle between England, France and Russia over Constantinople. About a year ago when the attack on the Dardanelles was started England and France agreed to let Russia have the Straits and Constantinople should they be captured. That campaign was a dismal failure but now Russia is meeting with success in Turkey, and the English and French really fear that Russia will get this port, so valuable in international commerce. They contend that Turkey is tired of war and would gladly give Russia Armenia as a peace consideration but that she would fight to the end to protect Constantinople. Peace with Turkey would be a body blow to Germany and therefore if Russia would resign her claim on Constantinople the possibilities of developments of great advantage to the Allies would be likely.

Dr. Atonia Jose Almeida, the premier of the new Portuguese war cabinet, said that Portugal entered the war on the side of the Allies to assist in ending "Prussianism." He also fully expected that America would join the Allies for the same reason.

National.

Last week the House of Representatives had their annual discussion of the free seed distribution. After much oratory and humor it was decided that the constituents at home were all glad to receive the seeds, and therefore the practice should be continued.

It has been legally decided that Lord Francis Bacon wrote the works credited to William Shakespeare. In a suit between a prominent Chicago moving picture magnate, who held to the prevailing idea that Shakespeare really wrote what was credited to him, and a literary man, who was a Bacon advocate, Judge Richard S. Tuthill, in view of recent developments which he considered sufficient proof, made the above decision.

AGRICULTURAL CONGRESS OF NORTHERN MICHIGAN.

The first agricultural congress of Northern Michigan will be held at the County Court House, Cadillac, Mich., May 17-18, 1916. The reason given by the committee in charge for calling this Congress are as follows:

The economic and industrial needs of the counties in the lower peninsula of our state, usually referred to as Northern Michigan, with their undeveloped wealth, are matters of interest to the whole state.

This Congress is called to consider the essential facts relating to the present situation of these counties and as to their possibilities, and to construct a general program for their development.

A committee of representative men have been selected to report and to advise as to the methods and means of securing results and to report to the meetings its recommendations.

The program for this Congress is intended to devote itself to a few pertinent questions for Northern Michigan. The questions will be:

1. How best to assist the new settlers in developing their lands.
2. How to induce profitable advancement of the live stock industry in Northern Michigan and the utilization of suitable lands for this purpose.
3. What the railroads can do by way of co-operating in best answering this question and in further providing for larger publicity, transportation and marketing facilities.
4. Suggestions that will assist the more rapid advancement of Northern Michigan.

The program for the meeting will be published in a future issue.

Blasting Pine Stumps

By G. F. De La MATER

THE practice of taking out stumps with dynamite is becoming so popular that we believe a description of methods for doing this work would be in order.

Proficiency in stump blasting is reached only by practice, the same as painting, carpenter work, or any other trade; no man can, by reading the work of other men, become an efficient stump blaster. But he can glean hints and bring general problems to meet the requirements of his particular task.

Stump blasting may be divided into two classes; namely, pine stumps and hardwood stumps; and these may each be divided into two classes; light soil and heavy soil. For the present, we will deal with pine stumps.

Having had considerable experience blasting pine stumps, I will endeavor to describe the work in such a manner as to be of use to those who have similar work on their hands. The problem that is most frequently encountered, is the white pine stumps; now, white pine stumps vary with the character of the soil upon which they grow. On clay soil, or soil in which a large per cent of clay is present, the stump spreads out, spider-like, over a large area and rests on top of the ground; these stumps could easily be pulled, but could not be handled after they are out. Consequently, the main object is to split them up so that they can be piled to burn; to accomplish this, the charge must be placed as near the center of the stump as possible, and may be ignited with a cap and fuse in the case of a very large stump, requiring several sticks of dynamite, it is difficult to get the charge all in the same place; it becomes necessary to make a pocket or hollow at the end of the bore-hole to hold the charge; this can be made with a spoon, specially made for the purpose, or, in the absence of a spoon, the pocket can be made by exploding a small piece—say a quarter of a stick—at the end of the hole, then the hole can be re-opened with the auger or bar and the charge placed in the pocket thus made; this can best be done by taking the paper off of the dynamite, or slitting the sticks lengthwise with a knife, the former method is usually the best, the last stick containing the cap and fuse should be left whole. Since the object is to split the stump, the charge should be placed as close up to the bottom of the stump as possible.

When the white pine stump is in sandy or gravel soil the roots go deep and are very difficult to get out; in cases such as this, three or more charges should be placed under the main roots—practice will enable one to determine where the main points of resistance are—and ignited simultaneously with a blasting machine; these charges should be placed well down so as to loosen the roots without breaking them off; if the stump is large and solid a charge—heavier than the others—should be placed under the center to split it. Placing the charge down to a good depth is essential, as a charge placed too near the surface is not only apt to break off the roots and leave them in the ground, but it will often blow out a great hole at the side of the stump, and then it must be dug out, which is neither an easy or pleasant task.

Practice will enable a man to do a very neat job of taking out and splitting these kind of stumps, and at a minimum cost. I believe that white-pine stumps in sandy soil are the hardest of all stumps to get out properly.

Next we come to the Norway pine. Norway pine invariably grows on deep sand, and they have a main, or tap, root which goes straight down to a depth of from four to eight feet. The best way to get these is to place two

charges well down, one on each side of this tap root, and discharge them with an electric machine; a small pocket-size machine can be had, which is very handy and suited to this class of work.

In some localities there are stumps of the Yellow-Jack-Pine. These grow about the same as the Norway pine and as a rule should be treated in the same way.

Blasting on sandy soil should always be done in the spring when the sand is wet and loose, as it gives a much better resistance than when dry.

I have endeavored to state general conditions; none of these rules will hold good in all cases, but will serve as a help to the solution of similar problems.

The great point in blasting stumps is economy; with dynamite of 40 per cent strength at about \$16 a hundred pounds, and blasting stumps that require from two to three pounds each, a man can easily waste many times

IMPROVING MICHIGAN'S CORN CROP.

(Continued from first page).

ers who submitted corn, and their families and those of the community who were interested, adds great interest to such a test and demonstrates to all, the varieties which are the best for that community. Corn, in a variety test, is mixed, or cross pollinated, and seed corn of the leading varieties must be secured from the original sources.

CORN VARIETIES FOR MICHIGAN.

- SEC. 1. DUNCAN LEAMING WISC. NO. 7. BALL'S W.G.
- SEC. 2. DUNCAN LEAMING WISC. NO. 7. TYLER JACKSON CO. W.G. MICH. YELLOW.
- SEC. 3. PICKETT GOLDEN GLOW
- SEC. 4. U.S. SELECTION GOLDEN GLOW
- SEC. 5. OSEMAW W.G. N.W. DENT. FLINT VARIETIES
- SEC. 6. FLINT VARIETIES VERY EARLY DENTS.

Such a test is more valuable after it has been conducted two or three years, but one year's test usually gives a very good indication of the best corn varieties for the neighborhood. Any farmer can carry on a variety test in his own field at no great inconvenience by planting a number of rows each of those varieties which he considers as promising, harvesting them separately and calculating the yield.

Germinating Test.

Though the germination test of seed corn has been urgently advocated, there are many who do not avail themselves of this easily performed method of securing only ears of high germinability for seed. There are a number of methods in use—the rag doll method, sand box and sawdust box

his wages every day; and he can waste more money by using too little dynamite than by using too much, because, when too light a charge is used the soil is loosened under the stump so that the ground will not give the resistance necessary to make a second shot effective; consequently, the stump is in worse shape than it was before it was tampered with. Personally, I have had a great deal of experience in stump blasting, the worst job I ever attempted was re-blasting a field that had been "deviled over" by a novice. Therefore it can readily be seen that it is a trick worth knowing, and one that requires good sound judgment, to be able to calculate to a nicety the amount of powder to be used.

As a rule, on clay soil, the best results can be obtained with dynamite of 40 per cent strength, while on sand use 60 per cent or even stronger.

At present, owing to the war, the price of dynamite is very high, but there is every reason to suppose that as soon as the war is over the price will come back to where it formerly was.

methods and many manufactured germinators. Practically all of these methods are effective and enable the operator to discard dead or weak ears in a very short time and at very little expense. When it is figured that one ear produces, when planted, about five bushels, it is readily seen that seeding one dead ear per acre may cause a loss perhaps equal to the cost of plowing. As a matter of fact, seed corn this year, as it occurs throughout Michigan, will not give an average germina-

Each ear to be tested is numbered to correspond with its square in the box and six kernels from each ear are laid in that square with the corresponding number, germ face up. In taking the kernels from the ear, it is well to take two from near the butt, turn the ear, taking two from the middle, turning again and taking two from near the top. When the box is filled, the kernels are covered with a half-inch or so of moist earth and set aside for a week or so where the temperature favorable for growth prevails. After a week or ten days, the test is ready to read; the squares which show six strong, healthy, vigorous shoots represent ears that are suitable for seed; those squares which produce no shoots or weak sprouts, and not the full number, show ears which should be discarded for seed purposes. Such tests are remarkably reliable and even poorly stored seed corn can often be worked over so as to produce fairly good seed.

A HOME-MADE CEMENT MIXER.

The mixer described in this article was made and used by men engaged in constructing concrete silos. It consisted of a wooden tank mounted on an axle. The tank was barrel-like in construction, being made of wooden staves. The staves were hooped together and the tank was the same diameter throughout its entire length. A hole left in one side provided means for filling and emptying the machine. This hole was fitted with a cover which could be locked down when the tank was rotated. The axle passed through the center of the cylinder. The axle was fitted with ratchets so it could be locked to turn when the wheels did, or when unlocked the wheels turned without rotating the tank. From the description it will be readily seen that the size of the machine can be varied to suit the individual needs.

Motive power for mixing was provided by hitching a pair of horses to the apparatus and drawing it about. With the ratchets set the cylinder rotated and the materials inside were thoroughly mixed. Where the machine was in operation the concrete materials were eight or ten rods from the location of the silo. The mixer was filled at the piles of materials and then driven to the point where the silo was being built. The rotation of the cylinder during this trip mixed the ingredients so they were all ready for the builder when the silo was reached.

A little earth had been scooped out near the site of the silo and the bottom of the depression had been cemented. The mixer was driven over this depression, the cover unlocked, and the cylinder turned over, letting the concrete out. From there it could be scooped into buckets for the hoist.

Where a silo is being built and for some reason the materials can not be brought near the site, this mixer would prove very advantageous. Any person who has cranked a hand-power mixer will also appreciate the advantage of letting a horse or a team of horses do the work. Almost any old pair of wheels can be used in building the machine. A pair taken from a wornout manure spreader were used on the one described. The ratchet device for locking the axle can also be varied to suit the builder.

Ingham Co.

P. J. A.

EXPERIENCE WITH OLD BEAN SEED.

For the benefit of H. H. V., of Ionia county, and others, I would like to tell the experience of one of my neighbors. In the spring of 1914 I purchased my seed beans of him. He carried some of that seed over, and in 1915 planted that seed, of which he had about half enough. For the other part he purchased the new seed of me. Where he planted the old seed the crop was almost an entire failure.

Van Buren Co.

A. B.



IT WORKS With Every Inch!



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You have scores of things daily to be hoisted, lowered or hauled, such as unloading hay or grain, hauling timbers, elevating ice, driving fence posts, loading or unloading coal, fertilizer, machinery, fruit, etc. Let us help you save money, work and two-thirds of your time with an

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A HEALTH INSURANCE POLICY TOWER'S FISH BRAND REFLEX SLICKER \$3 when it rains



A. J. TOWER CO.
BOSTON

IS MICHIGAN TO HAVE A NEW FIBRE INDUSTRY?

One of the interesting and hopeful things in the minds of men is additions to our sources of textile supply. Clothing the world is as necessary as feeding it. Wool, cotton, flax and silk are the main clothing fabrics, while sisal, jute and hemp are the main cordage textiles. The despised swamp milkweed, so general throughout the lowlands of this and other northern states, has been receiving favorable notice for the past it contains or fibres in the stalk, and not the cottony fibre around the seed.

A government report as far back as 1894, speaks of this fibre in glowing terms, soft and glossy and quite as strong as some grades of hemp. The textile experts at that time were searching for a fibre for making binder twine, and as wool and cotton at that time were cheap and plentiful, fabric making was not considered. The government was anxious to carry on the work with the milkweed fibre, but apparently the high price of 50 cents a pound for 300 pounds was not able to secure the dry stalks at that time to make additional experiments. Then came the development of the sisal fibre from the hennequin plant in the tropics, and the milkweed of the swamps was forgotten for years.

Through the persistence of Sidney Smith Boyce, who has devoted a large part of his life to textiles and who formerly lived in Illinois, but later in the Saginaw Valley, continued experiment and improvement in methods of treatment, the swamp milkweed with which he has worked gives great promise as a textile source. The fabric is soft and glossy and would make garments wonderfully well suited to the finest grades of dress goods. There is a gloss and richness of texture away beyond the finest of mercerized goods. It is more soft than wool and can be washed and pressed without damage to the goods. An average acre of the thickly planted milkweed will produce four tons of the dry stalks and there will probably average 20 per cent in weight of the raw fibre. Some tentative prices of the dry stalks have been made which would be around \$75 to \$100 per acre of fibre making material. There is also promise that the non-fibrous portions of the plant would have value for pulp to be mixed with sulphite stock for paper making. The ordinary swamp milkweed is apt to grow too bushy and not make as good fibre as when grown thickly. It is claimed that a single planting will remain profitable for at least five years. The persistency of the milkweed in cultivated fields has led many to class it with the extremely noxious weeds. Low wet ground, of which there are so many thousands of acres, is especially the environment of the milkweed. It is said that Michigan could easily produce three million bales annually.

Swamp lands of the state have, except for special limited crops, like celery, onions and peppermint, not been over profitable in cultivation. The seeds of the milkweed plant are not over strong in vitality, but what they lack in this direction is fully made up in their enormous quantity. Dean Hart, of Denver, spent considerable time in Denver trying to vulcanize the milk into rubber, but without signal success. If all these facts can be verified, Michigan could look forward to an added textile industry, with cheap water power and fuel, and with an abundance of raw material that would rival the great textile centers of the east. Mr. Boyce has spent a lifetime in the textile industries and apparently has every claim for this utilization of the swamp milkweed substantiated with facts and samples of products.

To him may come even greater honors than to Eli Whitney, who made cotton available by the invention of the cotton gin. The making available and valuable now much of the discredited swamp land, and to build a great

industry employing labor to clothe in fine garments her people would be one of the greatest accomplishments possible for any man.

JAS. N. MCBRIDE,
State Market Director.

CROP AND FERTILIZER QUESTIONS.

Purchasing a Fertilizer Drill.

I wish to use some commercial fertilizer, possibly some lime. Could I get as good results by using a fertilizer distributor as a fertilizer drill? Our dealer asks \$95 for a drill with fertilizer attachment, \$75 for just the grain drill, and \$45 for a distributor. The combined drill is the cheapest, but I prefer the drill and distributor if I can get as good results with the same material. I have some fertilizer purchased last spring. Does it lose its strength in a year? Have kept it in a dry place.

Gladwin Co.

J. E. W.

This same question came up in my own personal experience 30 years ago. I had little or no experience with fertilizers. Then to me it was an important question. I decided to take the question to the Grange meeting and have it discussed. Some thought the fertilizer drill of no use, but one old man in whom I had confidence said, "buy the fertilizer drill. I might want to use it." I did so and have never regretted it.

I like a broadcast distributor, too, but if I could only have one I would by all means have the drill. For all cereal crops it is the most practical way to apply fertilizer. The application is made at the same time you sow the grain, and the fertilizer is mixed with the soil, as it always should be. You must go over the ground extra if you use a distributor. When you are in a hurry sometimes you neglect to do it.

Applying the fertilizer broadcast and harrowing it into the soil is the very best way for heavy applications but for light applications sowing with the drill puts the soluble plant food just where the young plants can get it when they most need it—right after germination. It is like giving fresh new milk to a calf. The heavy application of say 500 to 1000 pounds is mixed all through the soil so the young rootlets can get it, but when only 200 pounds, or perhaps 100 pounds is applied you can't get such good distribution. The plants find it after a while but they need it at once. They are better able to care for themselves after a while.

A distributor is very handy—almost necessary to apply lime, although lime can be applied with a fertilizer drill by going over the land twice or three times to get a sufficient amount and every time you go over the land with a drill, especially a disc drill, you are preparing a better seed bed. One trouble in applying fertilizer with a distributor is in adjusting it to sow small amounts. Most of them will not sow less than 500 or 600 pounds.

Fertilizer does not deteriorate by being kept over if it is kept dry. Should it get wet and ferment—heat—then there would be a loss of ammonia the same as in manure. If the fertilizer cakes or gets somewhat solid it can usually be fixed by striking the bag with the back of a shovel.

What Sized Tile to Use.

I have read your paper with interest for many years and got lots of good advice out of it. I would like to ask what size tile you would advise me to use to take the water off 25 acres of rolling land? The main drain is 75 rods long and I can give it about three feet of fall (or about half inch to the rod).

Gratiot Co.

H. G. H.

A six-inch tile for the main is sufficient for 25 acres, with half-inch fall to the rod. I have used a six-inch main on 30 acres and believe now a five-inch or even a four-inch would have carried all the water satisfactorily, but I have a much greater fall. That makes a big difference. I am sure, however, that six-inch tile for the first 25 rods of the main drain, the five-inch tile for 25 rods and finally

four-inch for the last 25 rods will do the business satisfactorily. I would use three-inch tile for all the laterals. Where a lateral is itself a main for a ways, with three or four laterals, it might be wise to use a four-inch up to the first or second lateral.

Clipping Clover Intended for Seed.

I have a piece of clover I would like to clip for seed. Does it pay to do so? Where should I do it and can I pasture it some before clipping?

Barry Co.

W. I. F.

No one can tell whether it will pay to save clover for seed or not. It is a finicky crop, that is very uncertain. It nearly all depends upon the season. If the weather is dry when the clover is in bloom the flowers will fertilize fairly well, but if wet weather occurs at that time fertilization fails to take place and you have no seed.

A seed crop is more certain, if the clover is clipped—all agree to this. It is just as well to pasture lightly through May and then clip as it is to not pasture—the result is the same. It would not be necessary to clip at all if the stock would feed the clover off evenly all over the field, but they will leave places untouched and it is necessary to clip to have it all uniform.

The clover should be clipped between the first and the tenth of June, depending on the maturity of the crop. Don't let it get to blossoming stage.

How Large for Main Tile?

I have 40 acres with a ravine through it about 15 rods from the road. This is a square 40 and quite level, although there is fall enough to drain. I dug an open ditch about three and a half feet deep in this ravine and use it for an outlet for tile. Now I wish to put tile in this open ditch; how large do I need. No other water runs on this land from other land.

Isabella Co.

M. T.

It is not stated how large the tile is for the lateral drains nor how many or how close they are together. The distance the laterals are apart and their aggregate length, will make considerable difference in the size of the main drain tile.

If the water from a heavy rain is quickly taken care of by numerous laterals it will require a larger main drain tile than as though the laterals were far apart and the water must be absorbed slowly.

I would recommend eight-inch tile for the first one-third of the drain, six-inch tile for the next one-third, and five-inch for the balance. This ought to carry the water under any and all conditions.

Soy Bean Questions.

Can soy beans be planted in the hill with corn and grow successfully for silage, and can it be cut with the corn binder or will it have to be done by hand? Should the beans be planted at the same time as the corn and how many to the hill? In regard to the white field beans what do you think about using lime for them, drilling them in with a grain drill and drill a row of lime on each side of the row? What is the best kind of lime to use for it? My ground needs lime but I cannot put it on the whole field this spring so I thought that might help the bean crop this year. I also want your idea about inoculating for beans. And is rye plowed under good for beans and other crops?

Newaygo Co.

B. M. McQ.

The soy beans should be planted right in the hill with the corn when they are intended for silage. The corn harvester will gather the most of them right with the corn. Plant four or five beans to the hill. They should be planted at same time corn is planted. Do not wait and let the corn get the start of the beans.

Lime ought to be applied some time before the beans are planted and be well harrowed into the soil. If you can not apply it to the whole field, better get a sack of lime and put it on a piece two rods square. Then next year you can tell if your soil needs lime.

It will pay you well to inoculate a portion of the beans, say get enough culture to inoculate one bushel of seed and try it. Try the same thing with clover. Then you will know for sure.

COLON C. LILLIE.

A Method of Aphis Control

The green aphis is a pest of increasing importance among apple growers. At least men are coming to realize its importance more than formerly. And the expense of the nicotine treatment is such that many do not use this spray, but take the chances on the ravages of the aphis. Some seasons the insect is not troublesome, and a good many men take a gamble on the season.

To such as would like to experiment with a cheap and simple means of control an experiment last season may be of interest. Prof. Pettit, of Michigan Agricultural College, has stated that the sludge produced in cooking the lime-sulphur solution is beneficial in controlling the aphis, and last season we tried this treatment. We had no aphis in our apple orchards early in the season. That this was a result of using the sludge one would hardly be justified in saying from a single experiment. Sometimes this pest is troublesome in some orchards while it is

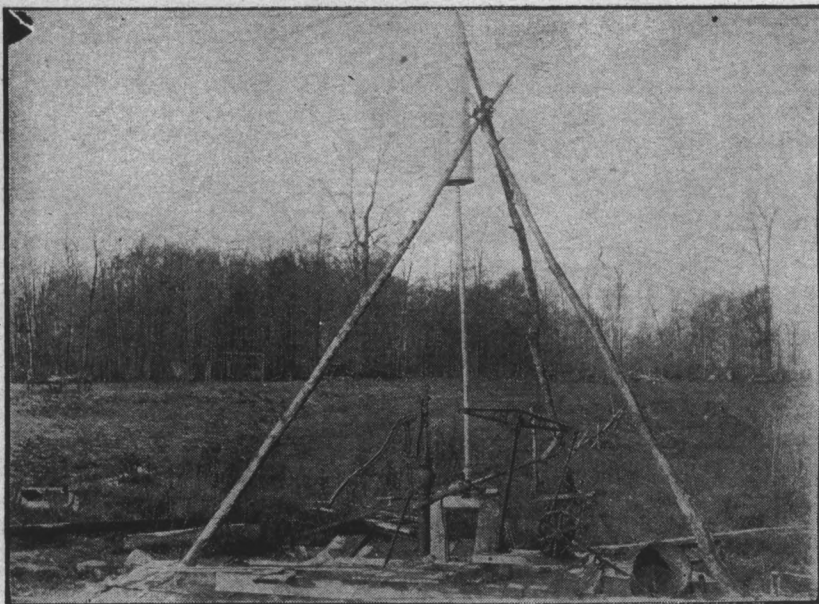
be put on soon after mixing as it will crystalize if left standing.

If this method should be tried a person should be able to tell in a short time what success he was meeting, as the aphis can be seen on the buds and twigs if it is present, and if one becomes satisfied that the treatment is not going to be satisfactory he can change and use the nicotine solution if he wishes. There will still be an advantage in the use of the sludge that will be worth all its costs, and that is as a marker to tell where the spray has been applied. But upon the authority of Prof. Pettit, and with present experience, I am satisfied that this method is worth following up.

Allegan Co. EDW. HUTCHINS.

IRRIGATING THE STRAWBERRY PATCH.

The feature of irrigation in strawberry growing, now quite common in this section, dates back to the season



A Simple Outfit for Irrigating Strawberries.

absent from others, and this, of course, might have been the case with our orchards last spring. But the season was a favorable one for the development of the aphis, so we rather concluded that the sludge treatment was in a measure responsible for the immunity. Later in the season—late July and early August—there was some purple aphis on the trees but not enough to do any considerable damage; but it is not to be expected that one treatment will control the aphis during the whole season any more than that a single spraying will be sufficient for any of the other pests which we have to combat. However, the outcome of our work last season was such that we plan to follow the same course again this spring.

Like other sprays, in order to have this treatment effective it is necessary that the application be made at the proper time, and for aphis control this is just as the buds are swelling or beginning to open. So the dormant or scale spray has to be delayed somewhat. We like to put this spray on as late as possible and have the work properly done, anyway, as it seems to be more effective in controlling the San Jose scale. As we cook our own spray material we just stir the concentrated mixture up, sludge and all, and put in a fair proportion of this into the spray tank—about one to eight or one to 9, and that is all there is of it.

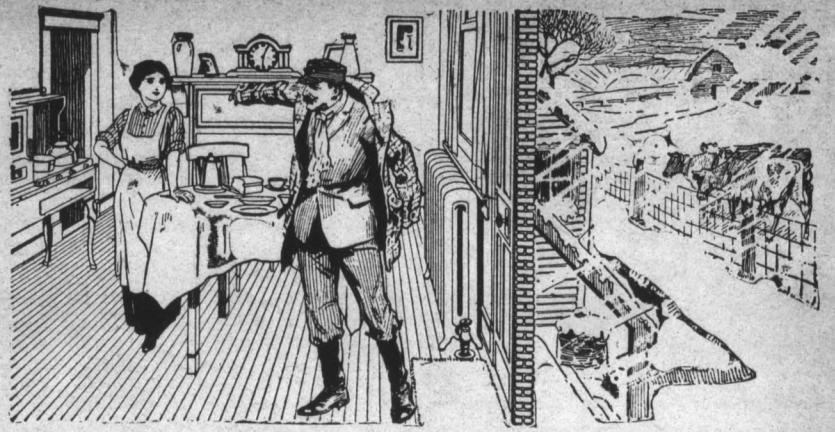
If a person using the commercial lime-sulphur and living near a plant producing this liquid wishes to try this experiment he can readily procure a supply of the sludge, as the manufacturer has no use for it and will be glad to have it taken away. Or no doubt the maker will ship it to his customer for the expense of barreling. Probably a pail full or two, perhaps more, might be diluted and strained into 100 gallons of the lime-sulphur spray. But it should

of severe drouth some twelve years ago, when we drew water from a creek one-half mile distant and applied it directly to the rows of plants from pails. It was a slow and inefficient method of irrigation, but it paid us well for the time invested. The water was applied just in time to save the crop, for though not of itself sufficient to make a crop, it kept the vines alive until rains came a few days later.

After this experience, for a season or two, we took chances with the weather man. Then a well was dug convenient to the berry beds at the time, and pipes, pump jack and gasoline engine installed. The water was pumped directly through the pipes to the plants where it was run on through a hose at the highest point and directed by shallow furrows down the rows. It was pretty dry that year and the water applied more than made good in increased yield the expense of installing the outfit.

In the years that succeeded our initial experience, we have acquired considerable knowledge of the practical side of irrigation. For one thing, I have come to realize something of the magnitude in quantity of water required by plants in their growth and fruition. An inch of rainfall may not appear to be so large a quantity till one attempts to apply the same quantity through a three-fourth inch hose; then, if not before, one realizes what a gift nature makes to earth in a copious shower.

Another thing in the problem of irrigation I have come to appreciate in strawberry growing is the usefulness of the straw mulch, both in conserving soil water and realizing on that applied artificially. Indeed, protection to the surface is absolutely necessary to successful irrigation; it is necessary both to check surface evaporation and prevent baking of soil. M. N. EDGERTON.



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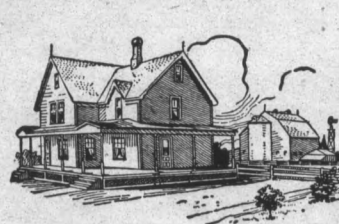
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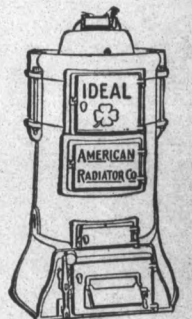
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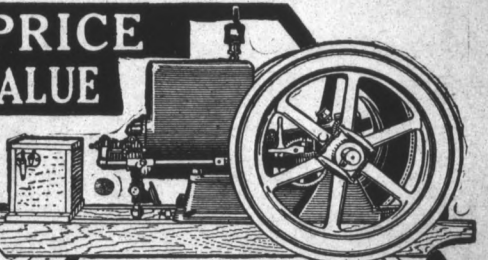
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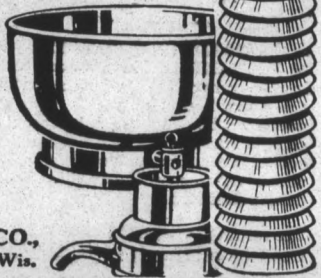
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The Milk Situation

By N. A. CLAPP

I HAVE read with much interest the paper prepared for and read at the Lenawee County Farmers' Institute, by Hon. Geo. B. Horton. I think that the facts presented should be read and considered by every milk producer who seeks to sell his milk in the city markets. The query arises in my mind as to why milk producers have not cried out loudly before, and sought means that could be made effective in correcting various wrongs imposed upon them by those with whom they have felt obliged to deal in order to sell their milk.

I have also read two articles by Dr. Robison, which, I think, should also be read very carefully by each and every milk producer. It should be the duty of all who produce milk for consumption in the large cities and towns, to become informed as to what should be reasonably expected of them, and then comply with all the requirements necessary to produce a wholesome and sanitary milk.

As all has not been said which should be known in regard to the milk producing and selling problems, I venture to add a little to what has already been given to the public. In doing so I do not desire to stir up any ill feelings on either side of the matter, for both sides, the producers and the dealers and consumers, all have rights, which have been pretty fairly set forth by Dr. Robison and should receive consideration.

Dairy Products Improved.

When the law enacted by the Michigan legislature in 1905, giving broad powers to the Dairy and Food Department, it was generally supposed that it would be the function of said Department to stimulate and increase the interest in the dairy business, and at the same time promote and sustain better conditions surrounding the dairy business throughout the state. We looked upon the scheme as not only commendable but necessary. During the eleven years that the new Dairy and Food law has been operating much good has been accomplished. The dairy products have been greatly improved, and we have reason to believe that the different foods sold and resold in the markets of our state are very much nearer what they are represented to be than those sold before the dairy and food inspectors were allowed to examine what was exposed for sale, secure a chemical analyses of the same and prosecute those who were violating the pure food laws. A little "administration of justice" has helped to bring about better conditions. In other words, it has helped to make straighter those who were inclined to be crooked.

I am not of the opinion that the Dairy and Food Department has greatly increased the magnitude of the dairy business, but it has been an active factor in improving the quality of the dairy products of the state, and helped to secure the high level of prices beside the products of other states where the dairy business has been developed to a high degree. The high prices are the legitimate results of a limited supply of dairy products, against a rapidly increasing population, reveling in good times in which there is a liberal supply of money. When money is plentiful among the laboring classes there is sure to be an active demand for foods of excellent quality.

The Farmer Gets the Balance.

After the high level of quality of foods were obtained along other lines, it might be expected that there would be a cry from the consumers in our large cities and towns against the inferior quality of milk sold, and the bad condition in which it was offered for sale. True to their nature and a desire to shift the blame to some other shoulders than their own, the farmers were blamed for the bad condition of

the milk, especially in hot weather. Complaints went up to the boards of health and there was a demand made that something be done to correct the evils. As bad as the conditions were on some of the farms from which milk was sent to the city markets, the farmers were not entirely to blame for the bad condition in which the milk reached the consumer.

It is a well known fact that the facilities for shipping and handling the milk were not good. Milk started from the farms in good condition could not reach the consumer in good condition after being left on uncovered platforms and exposed to the burning rays of a summer sun for any considerable length of time. The farmers felt that if they produced a good quality of milk and delivered it in good condition to the shipping station their responsibility ought to cease. But dealers were prone to blame the farmers in all cases, and would send the milk back to them.

City Inspectors Installed.

In order to insure to the consumer milk that was supposed to be wholesome, city inspectors were selected. Those men were but human and were liable to err in judgment and action. Simply appointing a man to an office may put upon him responsibilities, but it does not add to his native good sense and judgment. In some cases it builds him up in his own conceit and weakens his judgment.

Knowing that the milk sent to Detroit would be inspected, I sincerely believe the milk producers made extra efforts to put their milk in good condition and hold it there until it left their hands. But, alas, their efforts were not rewarded by satisfactory treatment. Quite regularly a certain percentage of the milk was returned with marks of condemnation attached. Having faith in their own senses they examined the returned milk and were not able to detect anything wrong in the smell or taste of the milk. I was told of cases where the milk returned one day was returned to the city the next day and passed inspection.

Some exasperating practices have been indulged in by the city inspectors. I have been told by dairymen that after sending their milk to the city in good shape they have received word from the dealers that their milk had been dumped in the gutter and was a total loss. Of course, those dairymen protested against such treatment, knowing very well that the inspectors had no moral or legal right to destroy their property. Subsequently an occasional can was returned with red ink mixed into the milk which made it useless. In such cases the farmers could have the privilege of dumping their own milk.

Inspectors Sent to the Country.

Assuming that the board of city inspectors had superior knowledge of what the practices should be on dairy farms, inspectors have been sent out to the farmers, clothed with authority, and instructed to enforce certain rules formulated by said board. Those inspectors have been selected from people of various callings outside of dairymen, and for what reason some of them were selected and sent out, it seems to have been beyond the comprehension of ordinary mortals to tell or make a good guess. They have been insistent in their demands and exacting in regard to non-essentials. They have paid more attention to barns and stable fixtures in some cases than they have to the production of good quality of milk. They professed to be vested with unlimited authority and if a farmer refused to make the changes in barn arrangements at once he was promptly told that he could not ship any more milk to Detroit. In many cases the desire to display their au-

(Continued on page 585).

The Cow Pasture

MANY fields used for pasturage possess but small value for that purpose and the cows or other stock pastured upon such land have a very hard time securing enough grass to satisfy their appetites. When a cow is compelled to cover a large area of ground to secure that which should be obtained from a small plot she is going to be too busy to produce any great quantity of milk. It is best that the cows should not take more exercise than is really necessary for their health. Every bit of the extra foraging is going to cost money in the way of milk and butter. The cow that can fill her stomach from a small area and then lie down to rest and chew her cud in contentment is the one that is going to return the greatest per cent of profit to the owner.

The problem is, what shall be done with these sort of pasture fields so that they may be brought to a profitable condition. Fertilizing with barnyard manure is hardly to be considered as that would be very distasteful to the cows, therefore, it will be necessary to buy some sort of a commercial mixture and use same in connection with a combination of seed of the various grasses that are most suitable for pasturage and are adapted to the soil.

During the spring months is a very good time for working with the pasture fields. Go over them with a slant tooth harrow, giving a thorough dragging, and then apply the grass seed. A mixture of June grass and white clover makes a very nice pasture. The addition of a little red clover may be helpful and such other grasses as are adapted to the locality should be added also. Next apply the top dressing which should be a good commercial mixture that seems best adapted to the requirements of the soil. It will also be found highly beneficial if this be followed with a dressing of land plaster. Be liberal when applying the dressing and endeavor to distribute it over the field as evenly as possible.

The future handling of the pasture will decide whether or not the work is to be of any great benefit. One thing that serves to make the work of small value is over pasturing, the cows keeping the grass so closely grazed that it has no opportunity for renewal and the building up of a strong root system. To avoid this the pasture may be divided into separate fields. If the acreage is at all large it should be divided into three fields. Put the cows into a third one week, another third the next week and the other third the following week. Then start back and follow the same routine. In this way each parcel is given an ample opportunity for renewing itself and will furnish excellent croppage which means more milk and better flavored cream and milk.

SHERLEY CONNELL.

DAIRY PROBLEMS.

Soy Beans in Corn for Silage.

Would like to hear your experience with soy beans and corn planted together for silage in 1915. How much bean seed is required per acre if planted between corn in rows three feet apart, (corn two feet apart in row)? What variety would you recommend?

Ottawa Co. D. H. B.

I think it paid well to plant soy beans in the corn last year. The corn was in drills and it was difficult to estimate the amount per acre of soys. But I will estimate there was at least two tons of green beans per acre and they did not seem to interfere with the growth of the corn.

We planted in drills following the corn planter with another planter planting beans. We used about six quarts of corn and eight quarts of beans per acre. This was sweet corn grown for the canning factory and the stalks and beans were put into the silo. It made good silage.

When the corn is planted in hills (check rowed) it is claimed the soy beans can be mixed with inoculated

earth or with fertilizers and planted through the fertilizer attachment of the planter, dropping the seed in the hill with the corn. I shall try this this spring.

Medium green, or medium yellow, will do for this purpose possibly better than an early or a late variety.

Peas and Oats for Forage.

What is the best way for putting up peas and oats for green feed for cows during the dry spell? How much oats and how much peas per acre? Shall I sow the oats first one way and then peas the other way? How deep on light gravelly soil should the peas be planted? What kind of peas would you recommend and when can I get them? Would you put in peas and oats the same for hay as you would for the above purposes?

Allegan Co.

J. A. T.

On a rather light gravelly soil, that is liable to dry out badly in hot, dry weather, it is best to sow peas rather deep. On a soil containing more clay this is not so necessary. The farther south the pea crop is grown also, the deeper the seed should be planted so the plants will not be affected by hot dry weather.

On our light soils peas are best planted four inches deep. This can be done by plowing them in with a gang plow. Then the oats may be sown afterwards and somewhat shallower.

Peas and oats grown for hay or soiling should be in proportion of equal parts by weight and two and a half to three bushels per acre. Common field or Canada peas are the ones used for this purpose.

When this crop is grown for grain there should be a greater proportion of peas to oats, say equal parts by measure. This crop is not a late soiling crop. It comes early in July. Sweet corn is better for August.

Ground Wheat or Wheat Chop for Cows.

Would wheat make a good feed to mix with oats, (we are short of corn), to feed to dairy cows? I have grade Jerseys.

C. F. H.

Ground wheat might make a better ration to mix with oats than corn. It will depend largely on the roughage part of the ration and this is not stated. If you are feeding clover or alfalfa hay and corn silage, corn and oat chop make a splendid grain ration, but if your roughage is timothy hay and corn stalks then ground wheat would be better than corn as it contains more protein and makes a more balanced ration.

In general, ground wheat makes a very good grain for part of the ration. I would not care to feed it alone, but mixed with oats it will be splendid.

A Good Ration.

I would like to know if it would be a balanced ration for my milch cows to feed dried beet pulp, ground oats and cottonseed meal with corn silage and clover hay.

J. K.

The feeding stuffs named can very easily be arranged so as to form a nicely balanced ration. It would be difficult to find a better lot of feeding stuffs to coax the milk out of cows than those.

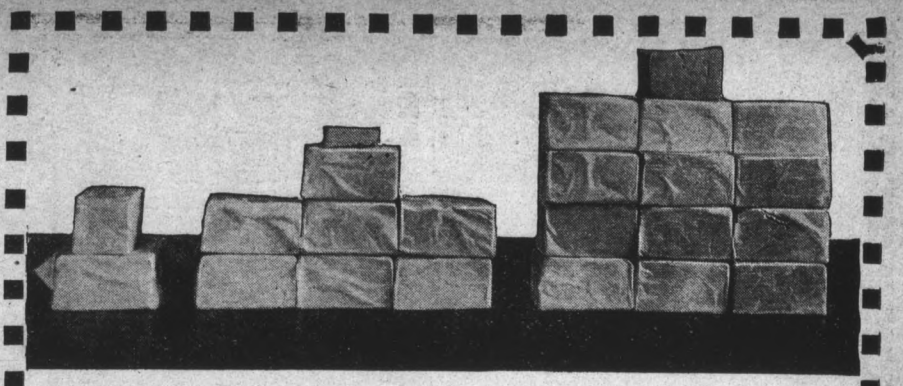
I suggest that you feed only two pounds of cottonseed meal per day. Feed this either morning or night as you prefer, but scatter it on the ensilage. Then the other feed of grain is to be equal parts of beet pulp and ground oats. That is, mix 100 pounds of beet pulp and 100 pounds of ground oats together and then feed one pound of grain (including the cottonseed meal), for every four pounds of milk produced. Feed all the clover hay and all the ensilage the cows will eat up fairly clean.

A RECORD JERSEY COW.

Michigan has again produced a star in the Jersey firmament, Sadie's Crown Princess 224307, having completed a year's record of 16,578.4 lbs. of milk and 876.7 lbs. of fat.

This is ranked as tenth in butter-fat and ninth in milk production in the Jersey breed, and gives Michigan two cows in the first ten producers of the breed.

Sadie's Crown Princess was bred by her present owner, Mr. H. F. Probert, of Jackson county.



Separator running at full speed. Loss of butter 1.75 pounds

Speed reduced 10 revolutions. Loss of butter 7.28 pounds

Speed reduced 20 revolutions. Loss of butter 12.74 pounds

Which pile did you lose?

These figures from the Purdue Experiment Station Bulletin No. 116, show the loss in butter resulting from not turning a fixed-feed separator at exactly the speed stamped on the crank.

And investigations showed that 19 out of every 20 separator operators thruout the country turned their machines too slow much of the time.

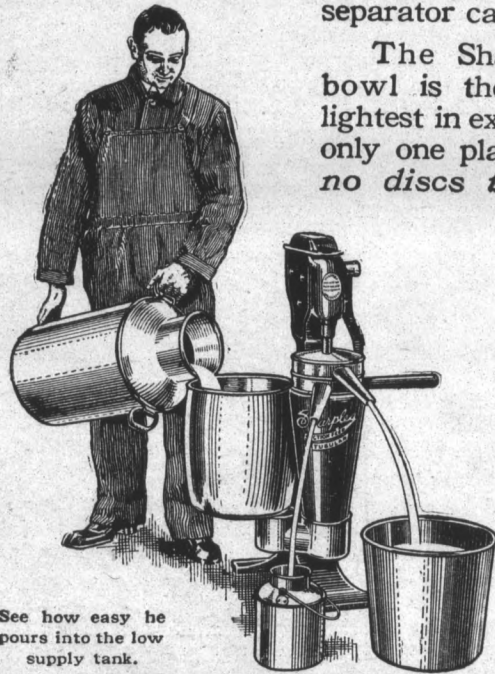
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is the *only* separator made which *will not lose cream at varying speeds*. The wonderful "Suction-feed" always feeds the milk to the bowl in exact proportion to the separating force being generated. At 45 revolutions it *skims clean*; at 55 it *skims clean* and at 35 revolutions it *skims equally clean*. No other separator can do it.

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Practical Science.

OIL MIXED CONCRETE.

BY FLOYD W. ROBISON.

SOME time ago there was printed in these columns extracts from a bulletin of the United States Department of Agriculture, treating of the water-proofing of cement concrete with the use of mineral oil. This article caused a number of our readers to write in, making further inquiry in the matter. In the meanwhile we have obtained the original bulletin and will present herewith a resume of the main points covered therein, so that our readers may know just exactly how the Department of Agriculture planned this work to proceed.

One of the greatest objections to the use of concrete for building purposes has been the readiness with which it will absorb moisture. The foundations of houses have been made to a large extent, of cement concrete but in a good many instances this has been unsatisfactory because of the fact that it was not impervious to water. Now that roofing is being made of concrete material it is more important than ever that some procedure should be adopted which will render the concrete entirely impervious to the infiltration of water, for it is evident that roofing material which is not water-tight is by no means satisfactory. Likewise in barn floors and granaries it is highly desirable that the material used for their construction should not only not leak but should not readily lend itself to the gathering of moisture.

The Department of Agriculture discovered that when a heavy mineral oil was mixed with a paste of Portland cement the oil apparently distributed itself intimately throughout the mixture and even after the cement had set to a firm hard mass the oil still remained an integral part of the structure and did not ooze out as one might at first instance expect in the use of a mineral oil, which apparently has no combining properties whatsoever. The oil used in the mixture with the cement and sand in the concrete amounts, on an average, to about 10 per cent of the total weight of cement used. The specifications for this oil as given by the Department of Agriculture are as follows:

Oil Specifications.

First. The oil shall be a fluid petroleum product and shall contain no admixture of fatty or vegetable oils.

Second. It shall have a specific gravity not greater than 0.945 at a temperature of 25 degs. C.

Third. It shall show a flash point of not less than 150 degs. C. by the closed-cup method.

Fourth. When 240 cc. of the oil is heated in an Engler viscosimeter to 50 degs. C. and maintained at that temperature for at least three minutes the first 100 cc. which flows out shall show a specific viscosity of not less than 15 or more than 30.

Fifth. With one part of the oil is shaken up with two parts of hundredth normal caustic soda there shall be no emulsification, and upon allowing the mixture to remain quiet the two components shall readily separate in distinct layers.

To our readers these specifications perhaps do not mean very much. What they do mean is that the oil shall be an oil of a paraffin base and not of an asphaltic base. In general they will compare in constituents quite well with the ordinary polarine which is used in motor cars. In fact, this type of oil, a paraffin oil with a gravity and viscosity of the ordinary lubricating oil used in the engine base of an automobile, is the type of oil which is covered by the specifications.

The method of mixing as detailed in this bulletin will be reviewed in a future issue.



The Rest of Your Farm Is Up-to-Date —What About Your Home?

You modern business farmer—with your up-to-date machinery, labor saving equipment and improved methods of farming—what about your home?

Have the improvements in your home kept up with the improvements you have purchased to save your labor on the outside?

Or, in your efforts to succeed have you been too busy to think of and provide the modern comforts and conveniences for your wife and children?

Chief among the modern improvements for the farm home is good light.

Times have changed. The dirty, dangerous oil lamps and lanterns have long ago gone out of fashion—where progressive farmers are concerned.

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They have chosen the PILOT not only because it gives them all the bright, safe, clean light they can use—but cooking fuel as well.

Because they can light their houses and barns without matches. Because the PILOT entirely eliminates all the dirty, disagree-

able daily labor of caring for lamps. Because they have an abundance of brilliant light always on tap whenever they need it.

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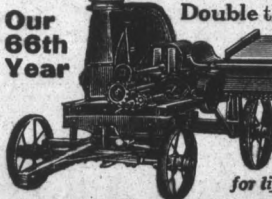
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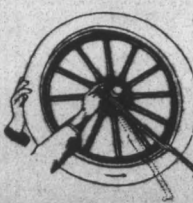
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FORD OWNERS. Six dollars makes your car ride as easy as a Packard, Pierce-Arrow, etc. Satisfaction or money refunded. ALEX. BALLANTYNE, Evart, Michigan.

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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

Organized Agriculture In France

By WM. B. HATCH

IT was the third of July when we were out among the farmers of northern France. The wheat was just turning and harvest had begun. The average French yield is thirty-five bushels to the acre. Very little rye is seen here but considerable oats and barley. The harvesting was done by American binders.

Considerable areas of sugar beets

are seen. The French farmer has learned that there is a decided increase in the yield of wheat following a crop or two of sugar beets, thus making this a valuable crop in rotation with oats and wheat. This part of France seems distinctively a grain sec-

tion. Stock raising appears to be less largely followed than in most sections visited. But we have to bear in mind in this connection that there being practically no fenced fields, the stock is accordingly kept confined about the farm buildings, under soiling systems.

Sheep are herded along the highways and corralled at night with a light fence on parts of the farm most in need of fertilization. There are no fenced fields.

In a country that was old when America was yet a wilderness, we might expect to find good roads, here forty miles from the nation's capitol, with its three millions of people. We did.

WORLD EVENTS IN PICTURES



Four-year-old Gains Parents' Freedom by Singing to Mexican Bandits.



Richard Harding Davis, Author, Dies.



Wireless Operator of American Expeditionary Force in Mexico Receiving Messages from the Border.



Kauff and Cobb to Battle for Baseball Supremacy this Season.



Valuable Piece of Art Lost in Fire.



French Shells Being Inspected Before Shipping to Verdun Front to be Used Against the Germans.



Scarcity of Water is One of the Serious Problems Confronting American Soldiers in Mexico.

They are lined on either side with rows of elm and poplar trees, trimmed high. Wood as used in Continental Europe, is in the main, smaller than most of the brush we burn to get rid of at home, hence shade trees are trimmed high and often a second or third growth is seen growing at the sides of these tall trees, approaching its next trimming. Along many of the railroad rights of way may be seen systematic plantings of apple, Norway spruce and cross-tie timber. The soil naturally grows lighter as you journey northward toward the sea and finally ends in sand dunes and bathing beaches along the English Channel. The roads run irregularly, which adds to rather than detracts from the landscape effect. In Lombardy, of course, the Lombardy poplar is much in evidence and reflects a peculiar charm to the perspective of the French landscape.

In considering the accomplishments of the French in co-operative agriculture we are studying a country which, in area, practically equals that of Michigan, Wisconsin, Illinois and Indiana, and with about three times the population of these four states.

As an example of rural credit benefit we stopped to see a farmer who owned no land but who was successfully and profitably farming a six hundred acre farm on a cash rent basis of about \$6 an acre. The farm was part of an endowment fund of a hospital and so held in perpetuity. The lease was sold at auction once in seventeen years. The local co-operative bank, knowing this worthy, but not over-pecunious farmer, extended the necessary credit to enable him to swing the deal. The picture shows the character of the farm buildings. The advantage of the local co-operative banks in realizing the financing of such a proposition as this is an obvious asset in the community. The officers of this local bank know intimately this thrifty young French farmer. They see him daily at his task, they help him perchance, garner and thresh his crops. They see his thrifty stock and his progressive, intelligent methods. They see how he spends his money as well; they see that he does not waste it. The rural credit system capitalizes such unlisted security for the glory of the Republic.

It is impossible to fully appreciate agricultural credit, at least, if not the promotion of agriculture generally in France, without considering the relationship to it of the Bank of France. This great bank is what is known as a bank of issue; that is to say, its function is to issue paper money and to reimburse it. It issues notes either against deposits or on the guarantee of credit operations, but is prohibited from issuing loans on any other ground. The repayment of the one billion dollars of its notes in circulation is therefore guaranteed, either in coin or in commercial paper, protected by bonds. Legal limitations are still imposed to some extent by statutes a century old.

The Bank of France assists agriculture in three ways. First, it facilitates the securing of loans and the making of discounts. It furnishes a great service to the agricultural organizations in credit lines by its discounting and re-discounting power. Second, it makes possible the success of the agriculture credit bank through re-discounts and agriculture indirectly through re-discount facilities offered the commercial bank. Third, it provides the government with funds, in the form of an advance and an annual grant, with which to supply the needs of the agricultural credit bank and other agricultural requirements.

It should be remembered, of course, that this great bank gets its charter from the people. In return for this grant the people have required certain services in return. The charter was renewed in 1897. Under this new charter the bank consented to advance to the government the sum of eight million dollars, repayable and without interest, for the purpose of agricultur-

al credit. It also consented to make the state an annual grant in proportion to its profits, not less than four hundred thousand dollars to be used for the same purpose. This annual grant has, in fact, been considerable more than that sum. During the sixteen years preceding the visit of the American Commission the Bank of France had given over eighteen million dollars to the government for agricultural credit. This, together with the loan of eight million dollars, make twenty-six million dollars advanced by the Bank of France for agricultural purposes. It was estimated that the amount it would grant for the year of the Commission's visit would amount to two million, eight hundred thousand dollars.

The Bank of France also has brought nearer home to the farmers, its banking facilities by establishing branch banks in all towns of eight thousand or more inhabitants. There are five hundred and seventy of these branch banks. A representative of agriculture is made a member of the board of administration of each of these branch banks and the bank has recently called to its general board a representative of the agricultural interests to counsel with the representatives of the great financial, commercial and industrial interests. The bank has also conducted an educational propaganda for the promotion of better agriculture. The rate of discount of the Bank of France is

same manner as any ordinary banking account. This kind of an account is only granted for a maximum period of nine years.

Ordinary mortgage loans were formerly made at an interest rate of four per cent, but the condition of the money market at the time of the Commission's visit had caused the rate to rise as high as \$4.65 per cent. Loans are made to municipalities and public bodies at one-half of one per cent lower than the loans granted on mortgages. The rates charged on current accounts are higher than the current rates, usually about 4.95 per cent. The security on which the mortgage loans are made consist of a mortgage taken out on the property itself on a basis of not more than one-half of the value of the property mortgaged.

The Credit Foncier obtains the capital which it requires, by the issue of bonds, repayable by annuities in the maximum period of seventy-five years. The mortgage loans are repayable in semi-annual installments. The real work of the Credit Foncier is to provide for the repayment of the mortgaged indebtedness of France and to make land credit in France liquid. Since its origin it has loaned more than one billion, eight hundred million dollars, and at the present time has outstanding loans to the amount of one billion dollars. Its business is increasing every year. It is provided that the rate of

equally advantageous to those enjoyed by the large land owners. Only farmers can be members of a French agricultural syndicate. Only local farmers can be members of the local agricultural credit bank. Only local banks can form regional banks. Only regional banks can join the federation of Regional Banks. Only members of these several institutions, which compose organized agriculture in France, can avail themselves of the credit which the Bank of France has placed at the service of French Agriculture.

The activities of the French farmers have manifested themselves in a co-operative way in quite as many directions, at least, as they have in any other country visited. There are six thousand five hundred agricultural syndicates organized since 1884. Over four thousand of these are organized for co-operative purchase of farm requirements. There are also co-operative consumers' societies. For example, there are some seven hundred co-operative rural bakeries, selling their bread to consumers at cost price and often exchanging bread against corn brought by the farmers. There are co-operative flour mills and rural co-operative grocery stores.

Societies for co-operative production are also numerous. The co-operative dairies and cheese factories are perhaps the most numerous. There are also co-operative vintages, co-operative starch and farina works, oil refineries, societies for the distillation of sweet-smelling plants, orange flowers, roses, etc.; for threshing, for steam plowing; and co-operative plants for lighting and electric power are found everywhere in France.

Co-operative societies for distilling resins and the making of turpentine are in evidence. There is even a co-operative railway. Also a co-operative sauer kraut factory, co-operative stables and breeding societies and societies for the making of tomato, vegetable, apricot and caper preserves. In a word, co-operative associations for the production, the transformation and the sale in common of agricultural products is put into practice generally. This results in two thousand, six hundred agricultural societies for co-operative production and sale. There are ninety-seven regional banks of agricultural credit having about four thousand local branches with one hundred thousand members. There are in addition at least seven hundred independent rural banks, having about thirty thousand members. There are approximately twelve thousand mutual agricultural insurance societies for insuring cattle, with sixty-five "resurce banks;" two thousand, seven hundred mutual fire insurance societies with thirty resurce banks; and a number of mutual societies insuring against hail, personal accident, sickness, old age, and labor accident. There are also about one hundred pension banks, exclusively agricultural, assuring to aged workers of the soil, a pension for their old age.

These associations, of which the total group exceeds forty thousand, are federated in regional and national groups of which the principal are the National Federation of Mutuality and Agricultural Co-operation, and the Central Union of Syndicates of the Agriculturists of France. They show that agriculturists have renounced their isolation, that they recognize the usefulness and benefits of solidarity. It also shows how useful may be the role of the state when it encourages the putting into practice of ideas of solidarity, and as M. Louis Tardy, chief inspector for agricultural credit, in the Ministry of Agriculture well says: "Co-operative association is one of the best means of keeping the field workers on the land and of struggling against the desertion of the country. It can be safely stated that if the 'return to the land' of which so much is said, finally becomes a reality, it will be due to the development of co-operation."



Buildings on 600-Acre Farm Rented at \$6 Per Acre to Tenant who was given Financial Assistance by a Credit Association.

said to be the most stable as well as the lowest in the world, three per cent being the regular rate.

Credit Foncier.

Scarcely less important and in some respects more important, to the success of agriculture in France, is the Land Credit Bank (Credit Foncier). This was founded in 1852. Its capital was fixed at five million dollars. The government granted to the bank a subsidy of two million dollars, which had to be invested proportionately to the amount of the loans made at a rate of five per cent of the loans realized. The bank has also issued up to date, four hundred and fifty thousand shares of the par value of one hundred dollars per share.

The Credit Foncier transacts two kinds of business. First, it grants loans on mortgage security; and second, extends loans to municipalities. Mortgage loans are made on the security of mortgages on houses and town property, or mortgages on agricultural lands. Such loans may be made in three forms: First, as short-term loans on mortgage not to exceed a term of nine years—these loans are not repayable by amortization and cannot be repaid until the expiration of the term; second, in the form of long term loans which run from ten to seventy years; these are repayable by amortization, and can be repaid in full at the pleasure of the borrower before the expiration of the term for which they are made; and third, in the form of current account on mortgage guarantee, or by the opening of what is called a mortgage line of credit. Under this last system the borrower is given a line of credit which he may use in the

interest on mortgages cannot exceed by more than six-tenths of one per cent the rate of interest on the bonds. This difference constitutes the profits of the bank, including the cost of administration and general expenses.

The French idea today is, that agricultural credit should begin with the lowest group and work outward and upward rather than as might be expected by the presence of the Bank of France as a sort of hand-down policy from one great moneyed center. In the actual organization of agricultural credit the co-operative society or syndicate forms its own credit bank and from this unit grows the departmental or regional banks and finally the central federation of credit, where all these local and regional institutions are organized together for mutual protection and promotion. The government stimulates independent initiative but does not replace it. These local banks may be organized on both the limited and unlimited liability principle. The French resemble the citizens of this Republic to a considerable extent in having a prejudice against unlimited liability.

Liberty is the basis of the French System. It is an organization especially and exclusively built up for the use of the farmer—there is no middleman. It is not organized in the interest of bankers, of financiers, nor in the interest of large land owners. It is organized in the interests of the real tillers of the soil—the small land owners, the tenant farmers, the crop-sharing farmers, and the agricultural laborers. It arose and has been developed so as to enable rural democracy, to till the soil of France under conditions

Land O' Nod Stories.

By HOWARD T. KNAPP

The Aero Trip

WHY are you so silent Billy Be Bo By Bum?" asked Tinker Teedle Tee after the captain of the guard had finished telling about his African cousins, the terrible Driver Ants. "You haven't said a word for nearly five minutes. You aren't sick are you?"

"I was just thinking that farmers must regard ants as terrible pests," replied Billy Be Bo Bum.

"What put that idea into your head?" asked the merry little elf.

"Well, for one thing I should think they would injure the roots of grain when they dig their vast underground cities. And then the foragers, surely they must do a great deal of damage to the crops."

"The ants that live in this part of the country do not bother the farmers very much," replied Tinker Teedle Tee. "To be sure, they invade people's houses and make the cook a lot of trouble by getting in the food, but they do little real harm. Now, down in Texas, however, there is a family of ants known as the Parasol Ants, and they sure are great pests for they destroy grain and plants and even strip the leaves from big trees."

"Why do you call them Parasol Ants?" asked Billy.

"Because they carry parasols just like a young lady going out for a walk in the sun."

"Now you are trying to josh me," protested Billy. "You can't make me believe ants carry parasols."

"But they do," Tinker assured him. "They carry parasols which they make of leaves, and a very funny sight it is to see a column of the busy little fellows marching along, each with a green sunshade held above its head."

"I sure would like to see them," said Billy wistfully.

"Well, now, I wonder if we wouldn't have time to slip down to Texas and visit one of their cities. I think we could be back before bedtime if we didn't make too long a visit."

"Why, Tinker Teedle Tee, how you talk," laughed Billy. "It is more than a thousand miles from here to Texas and it would take us more than a day and a night just to get there on the fastest train that ever ran."

"Yes, I know it would, but you see elves do not travel on trains."

"If we didn't go on the train how would we get there?" demanded Billy, more puzzled than ever.

"Magic, Billy Boy, magic," and without wasting any more time in words, Tinker Teedle Tee pulled out his tiny handkerchief and spread it on the ground.

"Now, then, if you will sit beside me on my fairy rug I will have you down in Texas in a jiffy," he invited.

Now, although Billy knew Tinker was a wonderful person and could do some strange things with the aid of his magic, he did not believe the elf could whisk him off to a place a thousand miles away and get him back again in an hour or two, and his face showed that he didn't take much stock in Tinker's promise.

"Didn't my magic brew make you so small that you got into an ant hill?" demanded the elf when he saw Billy was hanging back.

"Yes, it certainly did that, all right," Billy admitted.

"Well, is this any more wonderful than changing you from a big boy to a tiny fellow no bigger than a minute?" demanded the elf. "Even if you don't believe my magic rug will do the trick, it won't hurt you to try it."

So, more to please Tinker than because he thought it would do any good, Billy Be Bo Bum sat down on the

handkerchief. As soon as he was seated, the elf produced his magic wand and tapped Billy on the head, at the same time muttering some mysterious charm which Billy could not understand. And then what do you think happened? Well, sir, the rug shot up into the air like a skyrocket, and the next minute they were flying through the clouds at such a great rate that Billy could hardly catch his breath. At first he was rather frightened, but Tinker was smiling reassuringly, so Billy laughed too, and looked over the

Light of Western Stars

By ZANE GREY

Suddenly Russ, the keener of the wolf-hounds, raised his head and growled. Madeline feared he might have scented a mountain-lion or wild-cat. She quieted him and carefully looked around. On each side was an irregular line of massive blocks of stone that had weathered from the crags. The little glade was open and grassy, with here a pine-tree, there a boulder. The outlet seemed to go down into a wilderness of canons and ridges.

Looking in this direction, Madeline saw the slight, dark figure of a woman coming stealthily along under the pines. Madeline was amazed, and then a little frightened, for that stealthy walk from tree to tree was suggestive of secrecy, if nothing worse.

Presently the woman was joined by a tall man carrying a package, which he gave to her. They came on up the glade and appeared to be talking earnestly. In another moment Madeline recognized Stewart.

She had no greater feeling of surprise than had at first been hers; but for the next moment she scarcely thought at all—merely watched the couple approaching. In a flash came back her former curiosity as to Stewart's strange absences from camp, and then, with the return of her doubt of him, she recognized the woman.

The small, dark head, the brown face, the big eyes, as Madeline now saw distinctly, belonged to the Mexican girl Bonita. Stewart had met her there. This was the secret of his lonely trips, taken ever since he had come to work for Madeline. This secluded glade was a rendezvous. He had her hidden there.

Quietly Madeline arose, with a gesture to the dogs, and went back along the trail toward camp. Succeeding her surprise was a feeling of sorrow that Stewart's regeneration had not been complete. Sorrow gave place to insufferable disgust, for which she had been romancing about this cowboy, dreaming of her good influence over him, he had still been base.

Stewart had been nothing to her, she thought, yet she had been proud of him. She tried to reconsider the thing, to be fair to him, when every instinctive tendency was to expel him from her thoughts. Her effort at sympathy, at extenuation, failed utterly before her pride. Exerting her will-power, she dismissed Stewart from her mind. Madeline did not think of him again until late that afternoon, when, as she was leaving her tent to join several of her guests, he appeared suddenly in her path.

"Miss Hammond, I saw your tracks down the trail," he began eagerly, but his tone was easy and natural. "I'm thinking—well, maybe you got an idea—"

"I do not wish for an explanation,"

side of his strange conveyance, but you may be sure he held on as tight as tight could be. But they were going so fast he could not see a thing, and the wind whistled through his hair like sixty.

On and on they went, over rivers and mountains and often dashing right through a fleecy cloud that was like a big bank of fog. Their speed was increasing every second. In fact, they traveled so fast that almost before Billy had settled himself comfortably to enjoy the ride, the magic rug began to descend. Then it slowed down and the next minute Billy and Tinker found themselves on solid ground again in Texas, a thousand miles from home.

"Here we are," cried Tinker as he folded up his magic handkerchief and put it in his pocket. "And we are in luck for right over there is one of the cities built by the Parasol Ants."

Stewart gave a slight start. His manner had a semblance of old cool audacity. As he looked down at her, it subtly changed.

What effrontery, Madeline thought, to face her before her guests with any explanation of his conduct! She stood there, outwardly cold, serene, with level eyes upon Stewart; but inwardly she was burning with rage and shame.

"I'm sure not going to have you think—" he began passionately, but he broke off, and a slow, dull crimson blotted over the healthy red-brown of his neck and cheeks.

"What you do or think, Stewart, is no concern of mine except where it interferes with your service to me; and that is no longer desirable."

Madeline had not intended to go so far; but with the liberation of word after word, that strange inward flame grew into hot rage. It drove her to cold speech. Her sympathy, her kindness, were dead. For the first time in her life she was passionately furious; and because of that, and the absence of any adequate reason for it, she was consumed by shame. She betrayed nothing, however, except well-controlled anger; it was as if she were dismissing a servant who had failed in duty.

"Miss—Miss Hammond! You won't—discharge me?" faltered Stewart. The crimson receded from his face, leaving it pale. His eyes were appealing. They had a kind of timid look that struck Madeline even in her anger. "You won't—discharge me?"

"I no longer desire your services," she replied coolly.

He took a step forward, and reached out with his hand, open-palmed, in a gesture that was humble, yet held a certain dignity.

"But listen. Never mind now what you—you think about me. There's a good reason—"

"I have no wish to hear your reason."

"But you ought to," he persisted.

"Sir!"

Stewart underwent another swift change. He started violently. A dark tide shaded his face and a glitter leaped to his eyes. He took two long strides—loomed over her.

"I'm not thinking about myself," he thundered. "Will you listen?"

"No!" she replied, and now there was passion as well as freezing hauteur in her voice.

With a slight gesture of dismissal, unmistakable in its finality, she turned her back upon him. Then she joined her guests.

With fierce suddenness Stewart leaped at his black horse and dragged him to where his saddle lay. With one pitch he tossed the saddle upon the horse's back. His strong hands flashed at girths and straps. Every action was swift, decisive, fierce. Bounding



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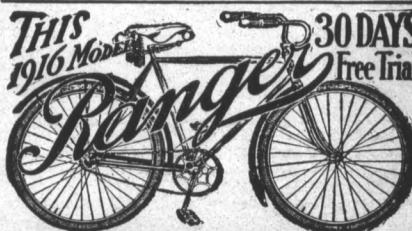
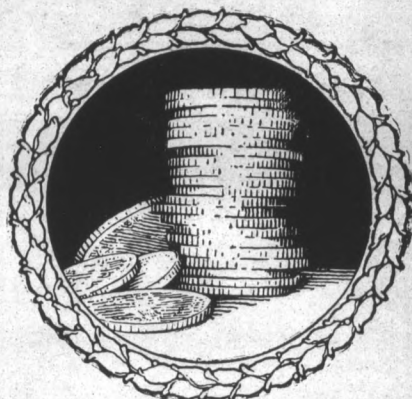
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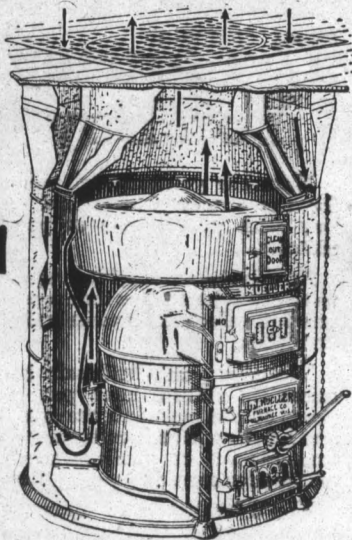
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for his bridle, which hung over a bush, he ran against a cowboy, who awkwardly tried to avoid the onslaught.

"Get out of my way!" he yelled. Then with the same savage haste he adjusted the bridle on his horse.

"Mebbe you better hold on a minute, Gene, ol' feller," said Monty Price.

"Monty, do you want me to brain you?" said Stewart, with a short, hard ring in his voice.

"Considerin' the high class of my brains, I oughter be real careful to keep 'em," replied Monty. "You can betcher life, Gene, I ain't goin' to git in front of you. But I jest says—listen!"

Stewart raised his dark face. Everybody listened. And everybody heard the rapid beat of a horse's hoofs. The sun had set, but the park was light. Nels appeared down the trail, and his horse was running. In another moment he was in the circle, pulling his bay back to a sliding halt. He leaped off abreast of Stewart.

Madeline saw and felt a difference in Nels's presence.

"What's up, Gene?" he queried sharply.

"Fired!" replied Stewart thickly.

His black horse began to stamp as Stewart grasped the bridle and mane, and kicked the stirrup round. Nels's long arm shot out and his hand fell upon Stewart, holding him down.

"Fired! Shore I'm sorry," said Nels slowly. "Then you was goin' to hit the trail?"

"I am going to. Let go, Nels."

"Shore you ain't goin', Gene!"

"Let go!" cried Stewart, as he wrestled free.

"What's wrong?" asked Nels, lifting his hand again.

"Man, don't touch me!"

Nels stepped back instantly. He seemed to become aware of the other's wild passion. Again Stewart moved to mount.

"Nels, don't make me forget we've been friends," he said.

"Shore I ain't forgettin'," replied Nels. "An' I resign my job right here an' now."

His strange speech checked the mounting cowboy. Stewart stepped down from the stirrup. The hard faces of the two cowboys were still and cold, while their eyes looked glances.

Madeline was as much startled by Nels's speech as Stewart. Quick to note a change in these men, she now sensed one that was unfathomable.

"Resign?" questioned Stewart.

"Shore. What'd you think I'd under circumstances sich as has come up here?"

"But see here, Nels, I won't stand for it."

"You're not my boss no more, an' I ain't beholden to Miss Hammond, neither. I'm my own boss, an' I'll do as I please." Nels's words were at variance with the meaning in his face.

"Gene, you sent me on a little scout down in the mountains, didn't you?" he continued.

"Yes, I did," replied Stewart, with a new sharpness in his voice.

"Wal, you was so good an' right in your figgerin', as opposed to mine, thet I'm sick with admirin' of you. If you hedn't sent me—wal, I'm reckonin' that somethin' might hev happened. As it is, we're shore up against a bad proposition!"

The effect of Nels's words upon the cowboys was significant. Stewart made a fierce and violent motion, terrible where his other motions had been but passionate. Monty leaped straight up into the air, in a singular action as suggestive of surprise as it was of wild acceptance of some menace. Like a stalking giant, Nick Steele strode over to Nels and Stewart. The other cowboys rose silently, without a word.

Madeline and her guests, in a little group, watched and listened, unable to divine what all this strange talk and action meant.

"Hold on, Nels; they don't need to hear it," said Stewart hoarsely, as he

waved a hand toward Madeline's silent group.

"Wal, I'm sorry, but I reckon they'd as well know fust as last. Mebbe thet yearnin' wish of Miss Helen's fer somethin' to happen will come true. Shore I—"

"Cut out the joshin'," rang out Monty's strident voice.

It had as decided an effect as any preceding word or action. Perhaps it was the last thing needed to transform these men, doing unaccustomed duty as escorts of beautiful women, to their natural state as men of the wild.

"Tell us what's what," said Stewart, cool and grim.

"Don Carlos an' his guerillas are campin' on the trails thet lead up here. They've got them trails blocked. By to-morrer they'll hev us coralled. Mebbe they mean to surprise us. He's got a lot of greasers an' outlaws, any they are all well armed. Now, what do they mean? You-all can figger it out to suit yourselves. Mebbe the don wants to pay a sociable call on our ladies. Mebbe his gang is some hungry, as usual. Mebbe they want to steal a few hosses, or anythin' they can lay hands on. My idee is this, an' mebbe it's wrong. I

long since separated from love with greasers. Thet black-faced Don Carlos has got a deep game. Thet two-bit of a revolution is hev'in' hard times. The rebels want American intervention. They'd stretch any point to make trouble. We're only ten miles from the border. Suppose them guerillas got our crowd across thet border? The U. S. cavalry would foller. You-all know what thet'd mean. Mebbe Don Carlos's mind works thet way; mebbe it don't. I reckon we'll know soon. An' now, Stewart, whatever the don's game is, shore you're the man to outfigger him. Mebbe it's jest as well Miss Hammond fired you. An' I resign my job, because I want to feel unbeholden to anybody. Shore it struck me long since thet the old days hed come back fer a little spell, an' there I was trailin' a promise not to hurt any greaser!"

Stewart took Nels, Monty, and Nick Steele out of ear-shot, and they evidently entered upon an earnest colloquy. Presently the other cowboys were called. They all talked more or less, but the deep voice of Stewart predominated over the others. Then the consultation broke up and the cowboys scattered.

"Rustle, you Indians!" ordered Stewart.

Madeline and her friends waited for someone to tell them what to do; but for a time the cowboys appeared to have forgotten them. Some of the men ran off into the woods; others into the open, grassy places, where they rounded up the horses and burros. Some spread tarpaulins upon the ground and began to select and roll small packs, evidently for hurried travel. Nels mounted his horse to ride down the

REJUVENATION.

BY T. G. MORRIS.

Incessantly they pass, those city faces; That pale for want of breath in country places; They haunt me, even as the smoke and soot; They picture endless strife and passion's loot.

There is no peace, nor quiet in their glances; The stream of "madding crowd" retreats, advances; Oh, for a red-cheeked boy, a buxom lass Whose smile is radiant sunlight, as I pass.

When life grows dull and nature, thrilling, calls me, When weary and the city's strife, appalls me; Let me come close to Mother Earth, and bide Where flowers bloom and rippling brooklets glide.

Let me come home to field and hill and vale; Forget the city and its visions pale; Let me lie close to Nature's soothing breast, And in her soulful quiet find true rest.

trail. Monty and Nick Steele went off into the grove, leading their horses. Stewart climbed up a steep jumble of stones between two sections of low cliff behind the camp.

Castleton offered to help the packers, but was curtly told that he would be in the way. Madeline's friends all importuned her—was there real danger? Were the guerillas coming? Would a start be made at once for the ranch? Why had the cowboys suddenly become so different? Madeline answered as best she could, but her replies were only conjecture. Helen was in a white glow of excitement.

Soon cowboys appeared riding bare-backed horses, driving in others and the burros. Some of these horses were taken away and hidden in deep recesses between the crags. The string of burros was packed and sent off down the trail in charge of a cowboy.

Nick Steele and Monty returned. Then Stewart appeared, clambering down the break between the cliffs. His next move was to order all the baggage belonging to Madeline and her guests taken up the cliff. This was strenuous toil, requiring the aid of lassoes to haul up the heavy bundles.

"Get ready to climb," said Stewart, turning to Madeline's party.

"Where?" asked Helen.

He waved his hand at the ascent to be made. Exclamations of dismay followed his gesture.

"Mr. Stewart—is there—danger?" asked Dorothy, and her voice trembled.

This was the question Madeline had upon her lips, but should could not speak it.

"No, there is no danger," replied Stewart; "but we're taking precautions we all agreed on as best.

Dorothy whispered that she believed Stewart lied. Castleton asked another question, and then Harvey followed suit. Mrs. Beck made a timid query.

"Please keep quiet and do as you are told," said Stewart bluntly.

At this juncture, when the last of the baggage was being hauled up the cliff, Monty approached Madeline and removed his sombrero. His black face seemed the same, yet this was a vastly changed Monty.

"Miss Hammond, I'm givin' notice I resign my job," he said.

"Monty! What do you mean? What does Nels mean now, when danger threatens?"

"We jest quit—thet's all," replied Monty tersely.

Castleton jumped up from the log where he had been sitting, and his face was ominously red.

"Mr. Price, does all this fuss mean we are to be robbed or attacked or abducted by a lot of ragmuffin guerillas?"

"You've called the bet."

Dorothy turned a very pale face toward Monty.

"Mr. Price—surely you wouldn't—couldn't desert us now—you and Mr. Nels?"

"Desert you?" asked Monty blankly.

"Yes, desert us—leave us when we may need you so much—with something dreadful coming!"

Monty uttered a short, hard laugh as he bent a strange look upon the girl.

"Me an' Nels is purty much scared, an' we're goin' to slope. Miss Dorothy, bein' as we've rustled round so much, it sort o' hurts us to see nice young girls dragged off by the hair."

Dorothy uttered a little cry and then became hysterical.

Castleton, for once, was fully roused.

"By Heaven, you and your partner are a couple of cowards! Where's the courage that I've heard you boast of?"

Monty's dark face expressed extreme sarcasm.

"Dook, in my time I've seen some bright fellers, but you take the cake, figgerin' me an' Nels so correct! Say, dook, if you don't git rustled off to Mexico an' roped to a cactus-bush, you will hev a swell story fer your English chums. Bah Jove! You'll tell 'em how you seen two old-time gunmen

run like scared jack-rabbits from a lot of greasers! Yes, you will, like—"

"Monty, cut it out!" yelled Stewart, as he came hurriedly up.

Monty slouched away, cursing to himself. Madeline and Helen, assisted by Castleton, worked over Dorothy; and with some difficulty quieted her. Stewart passed several times without noticing them, and Monty, who had been so ridiculously eager to pay every little attention to Dorothy, did not see her at all. Rude it seemed; in Monty's case more than that. Madeline hardly knew what to make of it.

Stewart directed cowboys to go to the head of the open place in the cliff and let down lassoes. Then, with little waste of words, he urged the women toward this rough ladder of stones.

"We want to hide you," he said, when they demurred. "If the guerillas come, we'll tell them you've all gone down to the ranch. If we have to fight, you'll be safe up there."

Helen stepped boldly forward and let Stewart put the loop of a lasso round her and tighten it. He waved his hand to the cowboys above.

"Just walk up, now," he directed Helen.

It proved to be an easy, safe, and rapid means of scaling the steep passage. The men climbed up without assistance. Mrs. Beck, as usual, had hysteria; she half walked and was half dragged up. Stewart supported Dorothy with one arm, while with the other he held to the lasso. Ambrose had to carry Christine. The Mexican women required no assistance. Edith Wayne and Madeline climbed last.

Once up, Madeline saw a narrow bench, thick with shrubs and overshadowed by huge, leaning crags. There were holes in the rock and dark fissures leading back. It was a rough, wild place. Tarpaulins and bedding were then hauled up, and food and water. The cowboys spread comfortable beds in several of the caves, and told Madeline and her friends to be as quiet as possible, not to make a light, and to sleep dressed, ready for travel at a moment's notice.

After the cowboys had gone down, it was not a cheerful group left there in the darkening twilight. Castleton prevailed upon them to eat.

"This is simply great," whispered Helen.

"Oh, it's awful!" moaned Dorothy. "It's your fault, Helen. You prayed for something to happen!"

"I believe it's a horrid trick those cowboys are playing, all because Madeline discharged that vile-tempered Stewart," said Mrs. Beck.

Madeline assured her friends that no trick was being played upon them, and that she deplored their discomfort and distress, but felt no real alarm. She was more inclined to evasive kindness here than to sincerity, for she had a decided uneasiness. The swift change in the manner and looks of her cowboys had been a shock to her. The last glance she had of Stewart's face, stern, almost sad, and haggard with worry, remained to augment her foreboding.

Darkness appeared to drop swiftly down; the coyotes began their haunting, mournful howls; the stars showed and grew brighter; the wind moaned through the tips of the pines. Castleton was reckless. He walked to and fro before the overhanging shelf of rock where his companions sat lamenting, and presently he went out to the edge of the bench.

"The cowboys below had built a fire, and the light from it rose in a fan-shaped glow. Castleton's little figure stood out black against the light. Curious and anxious also, Madeline joined him and peered down from the cliff. The distance was short, and occasionally she could distinguish a word spoken by the cowboys. They were unconcernedly cooking and eating. She marked the absence of Stewart and mentioned it to Castleton. Silently Castleton pointed almost straight down and there in the gloom stood Stewart

with the two wolfhounds at his feet.

Presently Nick Steele silenced the campfire circle by raising a warning hand. The cowboys bent their heads, listening. Madeline listened with all her might. She heard one of the hounds whine, then the faint beat of a horse's hoofs. Nick spoke again and turned to his supper, while the other men seemed to slacken in attention.

The beat of hoofs grew louder. It entered the grove, and then the circle of light. The rider was Nels. He dismounted, and the sound of his low voice just reached Madeline.

"Gene, it's Nels. Somethin' doin'," Madeline heard one of the cowboys call softly.

"Send him over," replied Stewart.

Nels stalked away from the fire.

"See, here, Nels, the boys are all right, but I don't want them to know everything about this mix-up," said Stewart as Nels came up. "Did you find the girl?"

Madeline guessed that Stewart referred to the Mexican girl, Bonita.

"No; but I met"—Madeline did not catch the name—"an' he was wild. He was with a forest ranger. They said Pat Hawe had trailed her, an' was takin' her down under arrest."

Stewart muttered deep under his breath, evidently cursing.

"Wonder why he didn't come on up here?" he queried presently. "He sure can see a trail."

"Wal, Gene, Pat knowed you was here, fer thet ranger said he had wind of the guerillas, an' Pat said if Don Carlos didn't kill you—which he hoped he'd do—then it'd be time enough to put you in jail when you come down."

"He's dead set to arrest me, Nels!"

"Gene, the reason thet red-faced coyote didn't trail you up here is because he's scared. He allus was scared of you; but I reckon he's shore scared to death of me an' Monty."

"Well, we'll take Pat in his turn. The thing now is, when will that greaser stalk up on us, and what'll we do when he comes?"

"My boy, there's only one way to handle a greaser. I shore told you thet. He means rough toward us. He'll come smilin' up, all sociable like, insinuat' an' sweeter'n a woman. But he's treacherous; he's wuss than an Injun. An', Gene, we know fer a positive fact how his gang hev been operatin' between these hills an' Agua Prieta. They're no nervy gang of outlaws like we used to hev; but they're plumb bad. They've raided and murdered through the San Luis Pass an' Guadalupe Canon. They've murdered women an' wuss than thet, both north an' south of Agua Prieta. Mebbe the U. S. cavalry don't know it, an' the good old states; but we—you an' me an' Monty an' Nick—we know it. We know jest about what thet rebel war down there amounts to. It's guerilla war, an' shore some harvest-time fer a lot of cheap thieves an' outcasts."

"Oh, you're right, Nels, I'm not disputing that," replied Stewart. "If it wasn't for Miss Hammond and the other women I'd rather enjoy seeing you and Monty open up on that bunch. I'm thinking I'd be glad to meet Don Carlos. But Miss Hammond! Why, Nels, such a woman as she is would never recover from the sight of real gunplay, let alone any stunts with a rope. These eastern women are different. I'm not belittling our western woman. It's in the blood. Miss Hammond is—is—"

(Continued next week).

SPRINGTIME AGAIN.

BY B. F. M. SOURS.

After the winds of winter
The spring has come again;
After the gales of tempest
The sun shines warm on men:
After all bleak were hillsides
The violets are here;
After the desolation
The fields are full of cheer.

When I hear a young man spoken of as a great genius, the first question I ask about him is, always, Does he work?—John Ruskin.



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Woman and Her Needs

At Home and Elsewhere



NOW, don't do any washing while I am gone, nor baking, unless you have to bake bread. We can't always get that in town," Grace Ludlow admonished her mother as she stood on the steps waiting for John to drive up and whisk her to the train. "I've left two kinds of cookies and fried cakes and a fruit cake, and if that isn't enough to last until I get back the men can eat bread pudding. They've been pampered too much. It will be good for their stomachs to do without for awhile. And don't feed the chickens, let John do that. And whatever you do, don't carry in a stick of wood. If they don't keep the box filled let them go hungry. John always likes three cups of coffee," she added hastily in an undertone as that gentleman drove up and she stooped to give her mother a farewell kiss. Then as the buggy rolled away she turned to shrill back over her shoulder, "The dessert for dinner is already under a pan on the broad shelf in the pantry."

"Oh, let her alone. Your mother kept house before you were born," growled John. Grace's contemplated visit of a week in the city did not fill him with the same pleasure that it did her. Not that he objected to her absence, she needed the vacation. But why must she drag her mother over to keep house for him while she was gone? He didn't need her. Any able-bodied man could dig up enough food to keep alive for seven days, and no woman could beat John making coffee. Who cared whether beds were made or not, or rooms swept and dusted? It would be a real pleasure to be able to muss things up once more. John sighed as he thought of the good time he might have had. But no, he must be taken care of. Grace's father could be left alone the week, neither woman seemed to think how much that poor old man needed a housekeeper, but a strong young fellow like him couldn't run a farm and keep house without a woman to help!

Meantime, entirely unconscious of the dark thoughts lurking in John's brain, Grace chattered of her long-anticipated trip to the city.

"It certainly was good of Dolly to remember to set a date when she invited me," she said. "Of the sixteen people from Detroit I entertained last summer, and sent back loaded with fruit and butter, she's the only one who really invited me to come and visit her. The rest were all polite and said come 'sometime', but, of course, I can't very well set the time. She's picked the very time I would have chosen, too, Easter week. That gives me a chance to hear all the fine church music."

"And see the spring duds," John interposed. "I suppose you'll come back all toggled out to beat Solomon. Don't you dare get a skirt above your shoe-tops. If you do you'll walk home from the depot."

"Don't worry," laughed Grace. "It's not a skirt I want. It's one of those aeroplane hats and a pair of white shoes, and a couple of tablecloths and a start on my china dinner set. Of course, there are a dozen other things, but some of them'll have to wait."

"You'll have to buy what you want most and let the rest go until we sell the farm for a subdivision to Holt, Mich.," John replied factotiously. "There's the burg, now, and if we don't speed up a little we'll miss your car."

"Speeding up" effectually cut off any

The Domestic Crucible—25

John Tries a New Housekeeper

further conversation and there was just time to hustle Grace onto the interurban before it whisked off on its way through erstwhile peaceful farmlands to the distant city. John turned his horse's head homeward, his depression which had forsaken him for a few minutes coming back tenfold now that Grace, with her last, "Don't forget," was out of sight. Hang it all, why is a mother-in-law," he thought moodily. Mrs. Martin had been all right as Mrs. Martin. A dandy little woman he used to think her until she became John Ludlow's mother-in-law. What changed her? Somehow they had never got on together since. "Got on" wasn't the way of it. They got on well enough for each was politeness itself to the other. But they were uncomfortable in each other's presence. Each eyed the other fruitively as though looking for a sign of disfavor, and John was secretly certain that Mrs. Martin thought he wasn't good enough for Grace and was making her work too hard. She was always telling how Grace never got up to help get breakfast when she was a girl and never did a washing and always had time to keep up her piano practice. Well, most girls did have things easier at home with their mother than after they got married. But if they wanted to go on that way why did they get married? You can't have your cake and eat it, and if you want your own home, of course you have to work to keep it up. So reasoned John, and so apparently agreed Grace, who certainly never refused to do her part and always tried to hush her mother when the poor lady began to lament.

John jerked the lines impatiently, and the horse, already trotting briskly, replied with a jump and a spurt of speed that jerked all thoughts of mothers-in-law out of John's head. He resolutely kept them away until dinner time, when necessity compelled him to return to the subject.

"I don't suppose this is just as Grace would have done," apologized poor Mrs. Martin. "We never did do things alike." "I should think not," John thought, surveying the table. "But I've done the best I could and I guess we can eat it." And the dinner, though not served with Grace's daintiness, certainly could not have been better cooked. Even John had to admit that, and while doing justice to the viands forgot that the table cloth was askew, the centerpiece three inches out of plump and his pet salt and pepper dishes at the remotest corner of the table. You could forgive a lot to a mother-in-law who could cook like that, and as he left the table John had even a slight tinge of pity for Grace's father, whose freedom he had been envying.

But the feeling passed away at supper time. Filled with contentment and good food at noon, John and the hired man had entirely forgotten they would ever need to eat again, and had gone away leaving the woodbox in the condition of Mother Hubbard's cupboard. Of course, Mrs. Martin could not start the week by leaving them supperless as Grace had ordered, and she had conscientiously filled the box to the brim and piled several armsful of wood on the floor for good measure.

Her martyred face and hands pressed to an aching back struck John like a bucket of ice water as he entered the kitchen.

"I know now why Grace complains so much of backache," Mrs. Martin quavered. "There's ten steps up from the ground. I counted them every time."

John's face flushed angrily, as he muttered an apology for his forgetfulness. Of course, it was his fault. He should have remembered wood. But why couldn't she have rung the bell early and called him up to get it, or just carried in enough to get supper? She didn't need to fill the whole kitchen just because he forgot once. His temporary pity for his father-in-law changed to envy. What a glorious week the old fellow would have!

DEBORAH.

SPRING'S FIRST FRUITS.

BY M. A. L.

The first spring offerings of the average garden are asparagus and rhubarb. How to serve them seldom bothers the cook for the first week or two, so welcome is the taste of "green" after a long season of canned and dried vegetables and fruit. But after the family tire of the well-known ways of cooking, and the anxious cook looks about for a change of methods until strawberries, lettuce radishes and other early vegetables come to her aid.

After you have tired of plain rhubarb sauce, which, by-the-way, does not take so much sugar if you boil it first with a quarter spoonful of soda and add the sugar after it is removed from the fire, try these ways of serving it.

Jellied Rhubarb.—Wash the rhubarb thoroughly and cut in inch pieces. Put in a double boiler without water except what clings to it after washing, and cook to a soft pulp, stirring occasionally. Put through a colander, measure, and add cup for cup of sugar. Return to the fire and cook until the sugar is thoroughly blended with the fruit. Then pour in a salad bowl and serve.

Baked Rhubarb.—Wash the rhubarb carefully and cut in pieces three or four inches long, arrange in layers in an earthen pudding dish and sprinkle liberally with sugar, adding between each layer a few raisins or figs which have been boiled up well. Add two tablespoonfuls of water, cover the dish and bake until the rhubarb is tender.

Rhubarb Jelly.—Cut up one pound of rhubarb and make into a sauce with one cup of sugar and a half cup of water. When thoroughly cooked add two tablespoonfuls of gelatin and pour into a mould to harden. This may be served with a meringue or with whipped cream well sweetened.

Rhubarb Charlotte.—Cut up a dozen medium-sized stalks of rhubarb and just bring to a boil with one cup of sugar, enough water to keep from sticking, the grated peel of one lemon and a tablespoonful of butter. Line a pudding dish with thin slices of bread, buttered on each side, pour in the rhubarb, cover with buttered bread crumbs and bake until the bread is a nice brown. Serve with cream.

Rhubarb Tart.—To one cup of stew-

ed and strained rhubarb add one cup of sugar, two beaten eggs, half a cup of cracker crumbs, a tablespoonful of lemon juice, a tablespoonful of melted butter and a half teaspoon of orange extract. Blend well. Have ready a flaky pie crust, baked on an inverted tin, pour in the rhubarb mixture, cover with a pie frosting and brown in the oven.

Rhubarb Short Cake.—Make a crust as for strawberry short cake and fill with rhubarb prepared as follows: Cut rhubarb into inch pieces and cook in the double boiler, without stirring until the rhubarb is tender, allowing one cup of sugar to every pint of rhubarb. Pour the juice of the sauce over the short cake and serve at once.

Rhubarb Dumplings.—Make a dough as for meat dumplings, roll out thin, spread thickly with rhubarb which has been washed, cut in inch pieces and rolled in powdered sugar. Roll up the dough, pinch the edges well together and steam one-half hour. Serve with the following sauce:

Fairy Butter Sauce.—Cream one cup of powdered sugar with one large tablespoonful of butter, then beat lightly with the yolk of one egg until smooth and creamy. Beat the white separately to a stiff froth and fold into the other mixture. Sprinkle with nutmeg and set in a cold place until ready to serve.

Canned Rhubarb.—The cooking school rule for canning rhubarb for winter use is to pack cold cans full of washed and diced rhubarb and set under the cold water tap for 20 minutes, sealing immediately. A country housekeeper who had neither the time nor the inclination to pour or pump water over the rhubarb for 20 minutes discovered it would keep exactly as well if she simply filled the cans to overflowing with cold water and sealed at once.

Rhubarb Preserve.—A rich preserve is made as follows: Cut up six pounds of rhubarb with one pound of figs, a half pound of candied orange peel, one pound of raisins and the juice and grated rind of three lemons. Arrange in layers in a preserving kettle with five pounds of sugar, let it stand over night and in the morning boil until thick.

Asparagus in Branches.—Of course only the tender ends of asparagus should be cooked. Wash thoroughly, scrape off coarse scales, cut in pieces of equal length, about five or six inches, tie loosely in bundles and cook in boiling, salted water. This may then be served with a white sauce, with melted butter or on toast with white sauce poured over all.

Asparagus with Cheese.—Cook asparagus as above until nearly tender. While the vegetable is cooking make a white sauce and add to it the beaten yolks of two eggs and two tablespoonfuls of grated cheese. Arrange the asparagus in layers in a baking dish, pouring over each layer a covering of the sauce. Sprinkle each layer with cheese, and over all arrange a layer of buttered crumbs. Bake until crumbs are well browned.

Asparagus and Eggs.—Break tender asparagus in inch pieces and boil until done, in a small amount of salted water. Remove asparagus to a serving dish, add two tablespoonfuls of vinegar to the water and in it poach as many eggs as you need for serving. Place the eggs in the asparagus nest and serve at once.

THE PLAY CORNER.

BY HILDA RICHMOND.

In a large house where a room can be set apart for a playroom for the children it is easy to keep the living-rooms tidy, but in a small one it takes care and contriving to keep the floor from being littered with playthings. Personally I should not like the playroom, even if our house was large, which it is not, as I want to know what goes on when the children are with their toys and games. The idea of a separate room where the mother can not see nor hear what goes on never appealed to me.

So one corner of the dining-room is sacred to the playthings and there they lie undisturbed, except when cleaning is going on. Perhaps some mothers will consider it a slack way not to have everything picked up the instant the children are through playing, but memories of my own childhood have taught me that children like to run from one thing to another. To take out the playthings and have to put them all away at the end of half an hour robs the play time of all enjoyment, but to be able to run back to them and find them undisturbed is pure joy. I should not like to have somebody tidy up my desk when I leave it to get dinner or supper or put away my sewing if I am called away for a few minutes, so I know children do not like to be putting away things all the time. In their corner they should have some freedom, is my humble opinion.

In a few years my small boy will be forever past the toy period and will be wanting to spend his time in outdoor games, so for the present we can put up with a little disorder. In very hot weather and in very cold weather the play corner furnishes a safe refuge, though he likes out of door sports, too, so the little forts and railroads and stations are not ruthlessly torn up every few minutes for the sake of tidiness.

Of course, children like playthings that are quite incomprehensible to adults, but in our childhood we liked much the same things as now vex us. It is not pleasant to me to see the blocks and cigar boxes which my son delights in, but very soon the box and block period will be past forever. A little patience and a little sympathy will work wonders and keep the boys and girls under the maternal eye. I know housekeepers who will not allow the "trash" a place in the house, but the children do not care to linger in the house either. Sometimes I slip out a few of the things, thinking they will not be missed, but I soon find that each block and box is a treasure and have to slip it back again. Children have rights and the best way to teach them the rights of others is to respect their little harmless whims and possessions.

CHILDREN'S WORST ILL IS THE MEASLES.

Measles is the most serious disease of childhood, says Dr. I. J. Murphy, secretary of the Minnesota Public Health Association.

Although more difficult to control, measles can be prevented just as effectively as can scarlet fever or diphtheria. Parents and teachers should be familiar with the early symptoms of the disease and endeavor to prevent its spread.

Measles must not be regarded as a trifling ailment. In the beginning, the illness is apparently trifling. Its complications, however, make this disease the most serious that is common to children. It is especially likely to be followed by tuberculosis, pneumonia, kidney disease, impairment of sight, deafness or heart disease.

The disease simulates in the beginning an acute cold—running of the nose, redness of the eyes, sneezing and a dry cough prevailing. This is the

most infectious stage and the fresh discharges from the nose and throat carry the infection. The running nose is likely to be the forerunner of the measly rash. So, when measles is present all suspects should be isolated to await development of the rash, which usually appears the third day of the disease. Exposed children, not protected by a previous attack, may come down with the disease in from seven to fourteen days, usually on the eleventh day. They need not be restricted then for seven days after exposure, but should be isolated thereafter for at least ten days.

If, in spite of precaution, a child develops measles, he should be kept in a warm bed, preferably in a darkened, but well-ventilated room. Convalescence after the rash has disappeared is the critical time, and unless proper care is taken, complications, some of which may not be evident for several years, may develop. DEBORAH.

SWAT THE FLY EARLY.

BY DON B. WHELAN.

Swat the fly early before it can get a chance to breed or lay its eggs. This will do much to prevent the annoyance caused by these pests. A good many flies pass the winter in houses where they may be found in the attic, or other refuge, tucked away in cracks or crevices. The stable, garage or outhouse may contain many that will emerge early in the spring and begin to lay their eggs. The fly also hibernates as a pupa in the ground and will come forth as the adult early in April. After feeding on refuse near stables and in outhouses, it will lay, in one of these places, from 120 to 300 small, elongate, white eggs. These hatch, in a few days, into small dirty-white, footless maggots which shortly become full grown and migrate to the nearby soil where they pupate. The adult fly seems to have a fondness for breeding in manure heaps and privies. It has been estimated that there are on the average, two and one quarter millions of bacteria on each fly, while some have been found to carry over six million. Most of these are located on the feet of the fly. Now if these bacteria happen to be the organisms that cause typhoid fever it will be seen what a deadly beverage the fly prepares for us by swimming in the milk.

"For every fly you kill early in the season you kill a million," has often been said, and there is much truth in it. One authority says: "A pair of flies beginning operations in April may be progenitors, if all were to live, of 191,010,000,000,000,000, flies by August. Allowing one-eighth of a cubic inch to a fly, this number would cover the earth 47 feet deep." Thus it will be seen that the earlier we begin to fight this pest the better will be the result.

Methods of combating the fly may be summed up as follows:

1. Protect the breeding places from the fly.
2. Kill them in their breeding places by some chemical.
3. Place traps near their breeding places to catch them before they lay their eggs.
4. Shelter food and dwellings from them.
5. Poison their food.

HOME QUERIES.

Household Editor:—Will you please give the pattern of a patched quilt of two colors, roses with leaves and stems? The blocks will be white and the flowers are hemmed on. They were in fashion many years ago.—M. G.

Can anyone furnish this pattern?—Editor.

If Mrs. F. L. S., Traverse City, will thoroughly saturate the soil on her flower pots with lime water, she will rid them of white worms and also of black flies.—Mrs. W. C.

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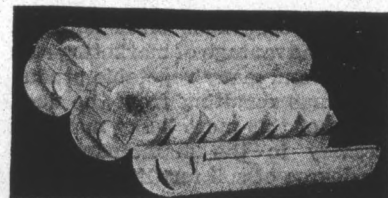
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Farm Commerce.

The Middleman Occupation

By DR. W. O. HEDRICK, Economics Dept. M. A. C.

THE marketing improvement fur-
ore stirred up by the "high prices" period through which we are passing, has been fertile of panaceas. The "parcel post" scheme of bringing consumer and producer in touch with each other finds many advocates. The establishment of municipal open markets everywhere would cause the elimination of the middleman, according to others. Standardization has been a much used term and some have even advocated price making by the government. Much material has been published upon the subject of marketing and in recent years governmental commissions of many sorts have come into existence to deal with this pressing question.

In the midst of so much ardor and ingenuity devoted to this subject, may it not be the part of wisdom to refresh ourselves with a re-examination of some of the fixed and rather stable features of this problem. The example of Darius Green, of flying machine fame, still remains an eloquent witness to the importance of adhering to the actual facts in any problem.

The Reason for Marketing.

The practice of marketing of any sort anywhere comes about almost invariably through the simple fact that things are produced in accordance with environment. Marketing would be a useless activity—a purposeless waste—if anything could be grown indifferently in any neighborhood as well as in another. Our census reports enumerate some forty or more soil products in this country. Now the fact that by nature these things have to be grown in the environment best suited to them while at the same time they are in demand for consumption everywhere is what causes marketing. The invention of the motor truck, the inter-urban and the telephone has temporarily obscured our sense of distance and it is on this account doubtless that many would-be market reformers seem heedless of the fact that cotton can only be grown in the Gulf states, and oranges in California and Florida.

One of the Functions.

Middlemen have long been indispensable as "go-betweens" in picking things up at the places where they are produced and in transferring them to the places where they are consumed. And it is believed that they are still indispensable for this service and it is further believed that they unite so many other services along with this principle one as to constitute them, craftsmen, the same as carpenters or jewelers; or, occupational specialists, the same as farmers. Take, for example, the familiar stock buyer or drover of our small cities or towns. He is the assembler, primarily, of the live stock of his neighborhood for shipping purposes. This last achievement is of itself no small performance since it necessitates knowing where as well as how to ship. On the other hand, successful buying operations almost required special gifts. Who would dare, for example, without experience, to go out upon the farms—the usual bargaining place of the drover—and under the limitations of making a profit, buy at its proper price all the offerings of live stock from the neighborhood! The craftsmanship of the stock-buyers' occupation could be demonstrated in no better way, doubtless, to the doubting Thomas's, than for the unbeliever to try his hand at the business.

Where Special Skill is Required.

It will be noticed that the middlemen service which we have just described, carries the product through

only the first stage of its progress towards the consumer. Another set of middlemen facing a different set of circumstances must carry the product through another stage and finally a new set of middlemen distribute it to the ultimate consumer. And who will say that this last distributor—the retailer—is not a specialist of infinite detail and serviceableness? With what care the consumer's taste must be cultivated by advertising and by display in order that large quantities of a product may be sold, what judgment must be used in meeting the consumer's demands or whims and in encouraging him to buy through allowing him credit and even in the practical matters of storage and handling, what expert skill is required!

A few—a very few—of the trade contracts between producer and consumer are so simple that they can be handled without the intervention of the "go-between" middleman, but not infrequently it can be easily shown that products would be marketed more cheaply were there more, rather than less, specialists to handle the necessary processes. Nothing is received as more perfectly true in modern business than that specialization has been a great cheapener of production. May it not be that this principle would be found just as true of greater specialization and more specialists in marketing, as it is found true in other undertakings if we simply accepted the fact that middleman-work constitutes an occupation?

When one recalls the simple fact that retailing is a part of the middle-

man business the occupational nature of the middleman performance comes out with distinctness. Never since retailing came into prominence has it been thought possible to carry it on extensively without much time being given to learning the art. The old apprenticeship system of our forefathers found its chief examples in the cases of young men who bound themselves out to learn the business of storekeeping. Can anyone suppose that with our present-day heightened standards of living and the kaleidoscopic changes in tastes and prejudices on the part of consumers that the methods of distributing farm products is less difficult now than was formerly true?

The investigational work of the Markets Office in the Department of Agriculture has led to the tracing through of specific quantities of farm products from the hands of the producer to the consumer. The last report from this office, page nine, states that ninety-one carloads of products were traced through in this way in part to the consumer and an impression of the skillfulness and serviceableness of retailers is gained from the following com-

plaint: "Frequently so many retailers participated in the distribution and the products moved so quickly that it was practicable to obtain final prices on less than five per cent of the contents of the car."

There seems little doubt that the occupational nature of marketing should be given more attention than has been the case. The easy assumption that the successful distribution of products from producer to consumer is a simple matter, finds no foundation in fact. Few inexperienced persons would undertake the extensive production of honey because bee-keeping is recognized as a specific occupation requiring aptitude and training. On the other hand, everyone apparently feels competent to tell just how honey or potatoes, or any other product should be marketed, whether he has had any experience or not. It seems certain, therefore, that until the occupational side of marketing is recognized and until the same detailed study is given to its processes as is given to potato growing or the work of any other occupation that little progress will be made in improving the business.

Live Stock Selling Assn's

THE main purpose of the rapidly increasing number of live stock shipping associations is to enable their members to ship in carload lots to the central markets instead of being more or less at the mercy of local buyers in disposing of a few animals from time to time. The fact that no capital is required for the organization of such an association makes them possible in communities in which more complicated forms of co-operation would not succeed. Such associations are scarcely practicable in regions where there is so much live stock that feeders generally market in carload lots, or in those other districts where live stock is so scarce that an association would have little business. To organize such an association it is

necessary only for the farmers of the community to meet together, adopt a simple constitution and by-laws, a sample of which is given in Bulletin 718 of the U. S. Department of Agriculture, to elect officers, and, in turn, for them to appoint a manager. It is recommended, although it is not absolutely necessary, that the organization incorporate. This can be done at a nominal cost—usually not more than \$10. For this small expenditure of trouble and money the association usually enables the farmer to market his stock when it is ready instead of compelling him to wait until the local shipper is ready to buy it. He obtains for himself the benefits of the cheaper carload transportation, and the shipments of the association realize for the owner the market price of his stock, less the actual cost of marketing. In particular, it has been found that when thin stock, calves or lambs, are sold in small numbers, the local price is usually very low. It is on this class of stock that the associations have been able to save their members the most money.

In order to avoid misunderstanding, the department advises that all stock be marked at this shipping point. This precaution prevents disputes in regard to shrinkage and dockage and assists in making adjustments in case of loss or damage in transit. There are three common methods of marking. Numbers or other characters may be clipped in some conspicuous part of the animal, paint may be employed, or numbered ear tags used. The last method is the least frequent because it is somewhat difficult at the stockyards to get close enough to the animal to see the number on the tag. If the second method is adopted, ordinary paint is undesirable, especially for hogs, as it does not dry readily enough to prevent smearing. This difficulty may be overcome by using paint containing about one-fourth varnish. In the case of sheep, however, painting is objectionable because the marks will not scour out and wool manufacturers object to them, and branding fluid, therefore, is preferable. Whatever system of marking is adopted, the important features are that it should be uniform for all shipments and that the marks should be plain and conspicuous. In many cases hogs are not marked, but are graded by the manager at the shipping point. A record of those subject to dockage is kept in such cases. Marking is advised, however, as a precaution against mistakes.

Since no payments are made for stock shipped until returns from the central market are obtained, these co-operative associations may be formed without capital. All that is necessary

Marketing Bulky Products



THE demands of soil fertility on the average farm and under normal conditions often nullify the financial advantage of marketing straw, roughage and many vegetable products. The humus resulting from the decomposition of this more bulky material is necessary to the maintenance of a high degree of soil fertility, and if it is marketed some system of replacing the humus thus lost must be substituted by the farmers who desire to keep their fields up to present producing power or to improve them.

Here is where the feeder profits. He concentrates this more bulky material into meat, dairy products, wool, etc., and thereby markets a product having a small amount of fertilizing elements, while he retains the more bulky humus making material for the improvement of his soils. It only requires a little additional care to keep such soil in a high state of productivity.

But in rapidly widening areas about our great cities, vegetative products must be produced in larger and larger quantities to satisfy increasing populations, for it takes a larger area to produce a certain unit of food value in the form of animal products than it does of the vegetative kind. And besides, prices for animal products are now becoming so high through restricted production and enlarged demand that city families are obliged to include in their meals a greater number of vegetable dishes.

These opposing factors of soil fertility, proportionately higher prices for animal products and restricted buying capacity of the city consumer, give to the farmers of every locality, whether near or far from the centers of population, a problem in determining to what extent he can afford to sell the more bulky crops produced upon his land.

is for the farmers to comply with their engagement to furnish the stock to the manager when, where, and in such quantities as they say they will. In some associations a fixed sum of money is exacted from a shipper for failure to deliver stock to the manager as agreed. In every case the amount to be exacted should be reasonable and should fairly represent the actual loss which hit is estimated the association will suffer as the result of non-delivery. The provision for liquidated damage is proper, because the manager must arrange for a certain amount of car space, and if all of it is not used, the expense to those who do ship is proportionately greater.

MARKETING PERISHABLE PRODUCTS.

Today we find the tenderest perishable fruits being shipped thousands of miles. Formerly cities depended upon milk produced within a prescribed circle of small diameter. Today distance seems no barrier. It is true that many of these improvements have been brought about by great transportation companies and by fast trains and steamer lines.

The government has done much, also, by seeking out the things that cause decay and teaching the growers how to overcome them. There is not a little that may be done—nay, should be done—right at home on the farm. In the case of milk and all dairy products, absolute cleanliness of the milk, itself, and all vessels in which it may be put goes a long way towards neutralizing the effects of the germs and spores.

In the case of eggs, of which the people of this country use more than \$750,000,000 worth every year, it is said that at least ten per cent are spoiled before reaching the consumer. This figures out at quite a tidy sum and indicates that something is wrong. Of course a good part of this loss occurs in the storehouses, but at least some of it could be avoided if farmers and poultrymen would put their eggs on the market regularly instead of holding them until they are just on the edge of spoiling. Eggs may be usable after being kept in the cellar three or four months if the weather is cool, but when the middleman puts them in storage they are more liable to spoil than those that are strictly fresh.

In the case of fruits and vegetables, better methods of storage will—in a great many cases—eliminate rot. Co-operative storage plants for apple and other fruits, as well as for certain vegetables, are desirable improvements that most communities need. Growers can, in many cases, combine their products and ship in carload lots, where no single grower would find it economical to do so, and the fruit might go to waste. Almost everything can be marketed if it can be gotten where it is needed. Fruit growers' associations are able to render valuable aid in this direction.

There is another way that many products, including the perishable vegetables and fruits, may be saved. This is by the medium of the home-canning outfit. There may be times when the surplus cannot be profitably marketed and for this emergency the home canner should be called into account.

New Hamp. C. H. CHESLEY.

THE MILK SITUATION.

(Continued from page 574).

thority they displayed very poor judgment. When the farmers considered themselves unfairly dealt with there was no chance for redress on their part, as there was no appeal from the exactions of the inspectors.

It is safe to assert that the inspectors were not selected on account of their fitness for the work, or knowledge of what is necessary in order to produce good, wholesome milk. In many cases the profound ignorance of

the matters which they professed to teach, as shown by their words and their works, was very remarkable.

On account of the cruelty and injustice wrought upon the dairymen around Detroit by the inspectors and dealers who have ruled them with an iron hand, there has been repeated demands for relief. Organization in a feeble way has been attempted, but thus far with unsatisfactory results. Farmers have failed to stand together and fight for their own interests.

Legislation Attempted.

When Charles Downing was a representative in the state legislature in 1913 he introduced a bill which provided that a man in order to be eligible to the office of milk inspector must have spent at least two years on a dairy farm after he was twenty-one years of age. It was hoped that if the Downing Bill could be enacted into law, that "dairy educated" and competent inspectors could be secured, and better conditions be brought about.

It was my privilege to be present when the Downing Bill came up before the committee. Dr. Price, then chief of milk inspectors in Detroit, and Dr. Kieffer, president of the Board of Health of the same place, and their assistants, were there to work against the bill being reported out of the committee's hands and brought before the house of representatives. The bill was reported out and was strongly opposed by the Detroit people when before the house, and finally defeated.

What Should Dairymen Do?

Instead of sitting down and being discouraged because they were defeated at the first onset, they ought to rally their forces by thorough organization, demand and secure their just rights in the various phases of the milk business. They should not only have something to say as to the character and qualifications of the men who are to inspect their premises and equipment, but they should have something to say as to what the prices received for the milk shall be. They produce the milk and ought to know what it is to be sold for before it leaves their hands. Under conditions of the recent past when the dealers have been getting about twice as much for distributing the milk as the farmers have for producing it, they seem to accept the situation as serfs laboring under the domination of the task masters, the dealers, waiting for an expression of pity from some source, but they don't get it.

What has been accomplished by the milk producers around Milwaukee is an example worthy of consideration. The results obtained by the milk producers around the city of Chicago is another example. It is well worth the efforts of milk producers around and near the city of Detroit to study the means and results obtained in those two contests to secure not only just recognition of the rights of producers, but prices which more nearly represent the farmer's share of what is paid by the consumer.

The strike carried to a successful termination by dairymen selling milk in Chicago, was the most gigantic of anything of the kind ever undertaken by milk producers anywhere in this or any other country. The dairymen were scattered over territory reaching out eighty miles north, south and west. They hung together, asking for \$1.55 per hundred for their milk, while the dealers offered them \$1.33½ and were determined to not pay any more. The farmers acted in a humane manner, sending enough milk to the city to meet the needs of the babies and sick people, and won the sympathy and plaudits of the masses who were not only onlookers but consumers of milk. It is my belief that the level that pressed the hardest on the milk dealers was the fact that the farmers were preparing to distribute the milk to consumers. There is no prospects of milk producers around Detroit securing what rightly belongs to them until they adopt the same or similar means.

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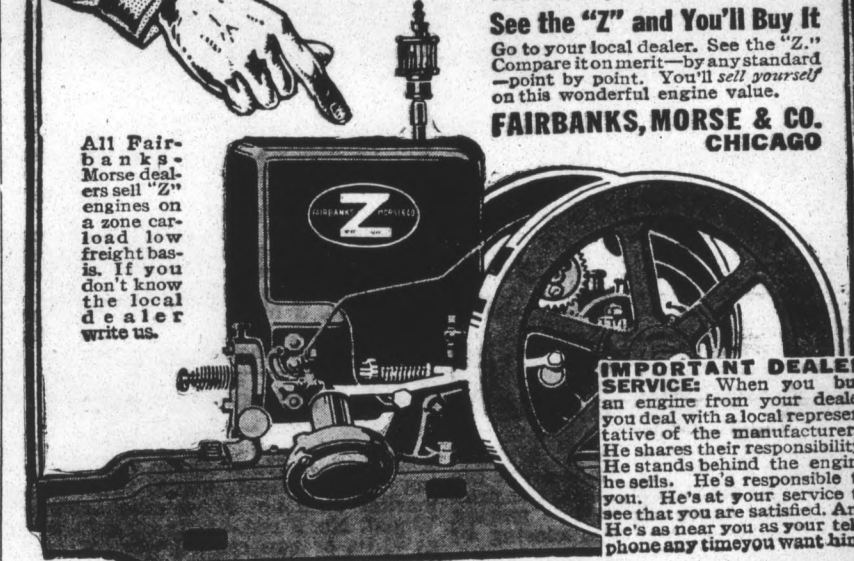
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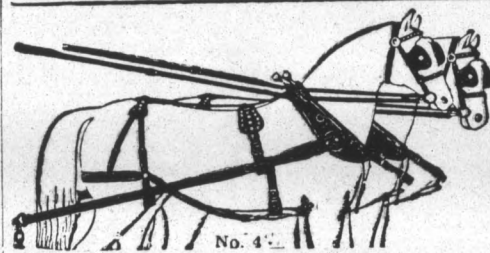
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Markets.

GRAINS AND SEEDS.

April 25, 1916.

Wheat.—Grain prices were affected last week through disturbed international relations with Germany, and Mexico. At this writing there seems to be less reason, however, for bearishness from this source. With few exceptions, the growing crop has the same unfavorable outlook as was formerly noted. In a few of the eastern states the grain has improved but the heavy producing sections are sending out bullish reports. The Hessian fly is adding to the growers' troubles. Seeding in the spring wheat sections is being put off still more by excessive moisture which further reduces prospects for the 1916 crop. Although foreign agents have reported some re-sales of grain purchased for export, it is known that new contracts with European buyers have aggregated a considerable volume of grain. The visible supply decreased last week 2,264,000 bushels. One year ago No. 2 red wheat was quoted at \$1.61 per bushel. Last week's Detroit prices were:

	No. 2	No. 1	May
Wednesday	1.18	1.13	1.18½
Thursday	1.19	1.14	1.19½
Friday			
Saturday	1.17	1.12	1.17½
Monday	1.17	1.12	1.17½
Tuesday	1.18	1.13	1.18½

Chicago.—May wheat \$1.13½; July \$1.14½; Sept., 1.13½.

Corn.—Fluctuations in wheat prices were an important factor in governing corn transactions. There is, however, an active demand from seaboard points. Delayed spring work also promises to be a feature in this market during the coming months and extended feeding periods offer the trade added support. The visible supply decreased the past week 2,601,000 bushels. One year ago No. 3 corn was quoted at 79c per bushel. Last week's Detroit prices were:

	No. 3	No. 3
	Mixed.	Yellow.
Wednesday	75½	78
Thursday	75½	78
Friday		
Saturday	75	77½
Monday	75	77½
Tuesday	75½	78

Chicago.—May corn 75½c per bu; July 76½c; Sept. 76c.

Oats.—Oat values have declined with those of wheat. Aside from the influence of the other grains, the principal factor operating in this market early this week was the closing of fairly large contracts with foreign agents. The visible supply decreased 2,208,000 bushels. Last week's Detroit quotations were:

	Standard.	No. 3
		White.
Wednesday	47¾	46¾
Thursday	47¾	46¾
Friday		
Saturday	47	46
Monday	47½	46½
Tuesday	46½	45½

Chicago.—May oats 44½c per bu; July 42½c; Sept. 39½c.

Rye.—Price steady at 94½c for cash No. 2.

Barley.—At Milwaukee prices ranged from 70¢ to 77¢ for malting grades, and at Chicago 62¢ to 76¢.

Beans.—Contracts are limited by the meagre holdings in dealers' hands, and prices advanced 5c on Monday. Immediate and prompt shipments are quoted in Detroit at \$3.70; May \$3.75. At Greenville farmers are getting from \$3.30 to \$3.35 per bushel.

Clover Seed.—Values are off with prime red clover at \$9.25 and prime alsike at \$9.25. At Toledo values are \$8.90 and \$9.05 respectively.

Timothy Seed.—Lower on the local market with prime at \$3.35, and the same grade is \$3.25 at Toledo.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$6.50; seconds \$6.20; straight \$5.90; spring patent \$6.80; rye flour \$6.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$24; standard middlings \$25; fine middlings \$30; cracked corn \$31.50; corn and oat chop \$28 per ton.

Hay.—No. 1 timothy, \$20.50 to \$21; standard timothy \$19.50 to \$20; light mixed \$19.50 to \$20; No. 2 timothy \$17 to \$18; No. 1 mixed \$15.50 to \$16.50; No. 1 ver \$12 to \$13.

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

DAIRY AND POULTRY PRODUCTS.

Butter.—The best grades are lower

but dairy and packing stock continue firm at prevailing prices. Extra creamery 33c; firsts 31½c; dairy 25c; packing stock 23c.

Elgin.—Although receipts have not increased to any extent, the feeling is easier and prices are 1c lower. Price for the week, based on sales, is 33c, which is one cent higher than last week.

Chicago.—The market is firm at last week's prices. Extra creamery 34c; extra firsts 33½c; firsts 31 to 33c.

Eggs.—The market is firm and the demand active. Prices are unchanged. Current receipts are quoted at 20½c; firsts 21c.

Chicago.—The feeling continues firm at last week's prices. Firsts 20½ to 20¾c; ordinary firsts 19½ to 20c; miscellaneous lots, cases included 18 to 20½c per dozen.

Poultry.—The market is firm and quiet. Fowls 19 to 22c according to the quality; spring chickens 19 to 20c per lb; ducks 21 to 22c; geese 16 to 17c.

FRUITS AND VEGETABLES.

Apples.—Apples are easy and active. The demand is good. Greenings \$3 to 3.75; Spys \$3.50 to 4; Baldwins \$3 to 3.50; Steele Reds \$4 to 4.50. At Chicago the market is active at unchanged prices. No. 1 Greenings are quoted at \$2.50 to \$3.50 per bbl; Jonathans, No. 1, \$3.50 to 4; Baldwins \$3 to 3.25; Spys \$3.50 to 4.50.

Potatoes.—Potatoes are a little firmer and slightly advanced in price. At Chicago no Michigan stock is quoted but others sell from 80 to 97c per bu. At Greenville potatoes are selling for 70c a bushel.

WOOL AND HIDES.

Wool.—Buying from growers has increased in volume the past week. In Michigan farmers have thus far received around 35c for medium wools, and occasional higher offers have been made for select lots. Farmers believe that by holding, even better values will be secured. The hopeful feature of the situation is that dealers are fast coming around to the farmers' ideas of price levels.

Hides.—No. 1 cured 17c; do. green 15c; No. 1 cured bulls 13c; do. green 10c; No. 1 cured calf 25c; do. green 24c; No. 1 horsehides \$4.50; No. 2 \$3.50; No. 2 hides 1c lower than the No. 1; sheepskins 50c to \$2, according to amount of wool.

GRAND RAPIDS.

The potato market has been off, with price at 75c or lower, but is showing improvement again. The bean market does not show much change. Wheat, No. 2 red, starts off this week at \$1.10, or two cents lower. Corn is quoted at 75c; rye 75c; oats 45c. Hay loose in loads, is bringing \$14 to \$17 on the city market.

DETROIT EASTERN MARKET.

Only a small business is being done at the market. Apples were retailing at 50c to \$1.50 per bushel; potatoes 80c to \$1; carrots 85c; parsnips 40 to 55c; cabbage 50 to 65c; eggs 23 to 25c. There was no loose hay offered.

LIVE STOCK MARKETS.

Buffalo.

April 24, 1916.

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

Receipts here today: Cattle 130 cars; hogs 100 d. d.; sheep and lambs 67 d. d.; calves 1900 head.

With 130 cars of cattle today there were around 25 to 30 cars of shipping cattle and the trade on that class was very slow and the bulk of them sold 10 to 15c lower, but there was a strong demand for the butchering steers, cows and heifers and they sold strong. We look for a liberal run of cattle next Monday and if they do not have a heavy run in Chicago on Wednesday and break the market, we should have a better trade here, as Lent and the Jewish holidays are out of the way.

Our receipts of hogs were fairly liberal, about 100 double decks, and while prices were somewhat higher than the close of last Saturday, trade was dull and several loads of late arrivals are going over unsold. A few selected loads of hogs carrying considerable weight sold at \$10.20 to \$10.25, with the bulk of the best around \$10.15; pigs and lights \$9.25 to \$9.50; roughs \$9 to \$9.10; stags \$6.50 to \$7.50. Our prices look quite reasonable compared with other points and in our opinion market will be no lower the balance of the week.

Market was active on choice sheep and lambs, but slow on heavy and coarse, with prices 15c lower than the close of last week. About all sold and

we look for steady to possible shade higher prices for the week.

We quote: Clipped lambs \$10.15 to 10.25; heavy lambs \$8.75 to 9; cull to fair \$6 to 10; bucks \$4.50 to 6.50; handy ewes \$7.25 to 7.50; heavy ewes \$6.50 to 7; wethers \$7.75 to 8; cull sheep \$4 to 5.50; veals, good to choice, \$9.75 to 10; common to fair \$8 to 9.50; heavy \$6 to 9.

Chicago.

April 24, 1916.

Cattle. Hogs. Sheep.
Receipts today 14,000 32,000 17,000
Same day 1915 20,139 39,194 8,285
Last week 41,982 151,184 71,116
Same wk 1915 42,940 105,781 61,693

Only 19,551 hogs were shipped from here last week, comparing with 28,933 a week earlier. Hogs marketed last week averaged 220 lbs. Hogs were a dime higher today, with sales at \$9.30 to \$9.95. Cattle were active and largely 10 to 15c higher today, but sheep and lambs were late in opening, and promised to sell largely lower.

Cattle were in good demand during the greater part of last week. Bulk of steers received during the week sold at \$8.75 to 9.75, with sales of the choicer class of weighty steers at a range of \$9.50 to 10, while inferior to pretty fair steers of light weight brought \$7.75 to 8.75. Medium grade steers sold at \$8.80 to 9; good steers \$9.10 to 9.45. Desirable little yearling steers \$9 to 9.90; less attractive lots \$8 to 8.50. Butcher stuff that graded well sold more readily than steers, cows bringing \$5.50 to 8.50 and heifers \$5.50 to 9.40, with the prime yearling heifers especially wanted. Cutters sold at \$4.80 to 5.45, canners \$3.60 to 4.75 and bulls \$5.25 to 8.25. Calves were marketed freely from the near-by dairying districts, and they sold on the whole very well, prices extending from \$5 to 10 per cwt. for the coarse heavy to prime light vealers. The stocker and feeder traffic was animated, although most purchasers refused to pay the recent highest prices, stockers selling at \$5.40 to 8.50 for inferior to the best lots, while feeders brought \$7.25 to 8.60 and stock and feed-in heifers \$6 to 6.90. Prime veal calves sold at the close at \$9.50. Choice beefs showed little quotable change, but other kinds closed largely 10 to 15c lower than a week ago.

Hogs were marketed freely most of the week, and there was an active local and shipping demand. Larger receipts of hogs for the week brought about price breaks, with hogs selling at the close at \$9.15 to 9.85, the prime "singeing" light hogs selling at top. Heavy packing hogs brought \$9.25 to 9.62½; light bacon hogs \$9.15 to 9.60; heavy shipping hogs \$9.65 to 9.75, while pigs brought \$7.10 to 9, 135-lb. pigs going highest.

Sheep, yearlings and lambs continued for still another week to be marketed very sparingly as compared with normal times, and extremely high prices prevailed, although prime lambs sold off sharply from their recent \$12 per cwt. top. Heavy lambs of all descriptions were discriminated against severely by killers. Feeding lambs continue scarce and much sought after. Prices for woolled offerings closed as follows: Lambs \$9.25 to 11.65; yearlings \$9 to 10.50; wethers \$8.25 to 9.25; ewes \$7.50 to 9.15; bucks \$6.50 to 7.75. Feeding lambs sold nearly as high as prime killers, the range of prices being \$10.25 to 11.50. Spring lambs were in limited supply at \$9 to 17 per cwt.

Horses were marketed less freely last week, and prices ruled steady, with a good local shipping demand and a particularly good call for army horses of different types. A few big horses sold at \$250 to \$315, while light horses for southern shipment brought \$50 to 100, farm workers \$75 to 155 and farm mares \$150 to 200. Commercial chunks brought \$165 to 225.

LIVE STOCK NEWS.

James Hulett & Son, Ingham county, recently marketed 14 head of Short-horn steers in Chicago that brought \$1,824.31, or an average of \$130.31 each. They are successful feeders who not only believe, but demonstrate, that there is money in feeding cattle to good market finish under Michigan conditions.

The State Live Stock Sanitary Commission is now completing preparations to combat any hog cholera outbreaks that may occur in Michigan during the coming season. The commission will co-operate with the various county agricultural agents in those counties where agents have been appointed.

R. R. Newman, of Nebraska, sold on the Chicago market a consignment of 71 head of strictly prime Hereford and Shorthorn steers which averaged 1646 lbs. and brought \$9.95 per cwt. Mr. Newman started them on snapped corn, then fed shelled corn with alfalfa hay.

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Professor I. W. Dickerson of the Farm Mechanics Department, University of Illinois, says: "By all means purchase engines for general purpose work in future, of such design as to work properly on grain or corn binders, manure spreaders, potato diggers, etc., in season."

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and meets every requirement. It is free from cumbersome water cooling system and equipped with high tension magneto, floor feed carburetor, multiple disc clutch pulley and features not found on ordinary engines.

Fits 5, 6, 7 and 8 ft. binders and sells at the low price of \$150.00 F. O. B. Factory.

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Brood mares, fillies and young stallions priced to sell. Inspection invited.

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DORR D. BUELL, Elmira, Michigan.

FOR SALE—Registered Percheron Stallion Mare and Fillies at reasonable prices. Inspection invited. F. L. KING & SON, Charlotte, Mich.

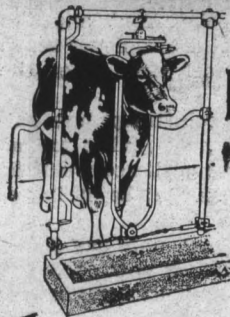
For Sale: Registered Percheron Stud colt foaled in June 1915.
E. J. Aldrich, Tekonsha, Mich., R. No. 1, Bell Phone.

Grey Registered Percheron Stallion sold. Have the best one yet, \$400 takes him.
T. H. LOVE, R. 3, Howell, Michigan.

1914 Seed Corn. Yellow Dent, home grown, guaranteed folded in June 1915. anteed 95% germination. \$1.00 per crate. New grain bags 25c extra.
Julius Steffen, Six Lakes, Mich., R. R. 1.

Wanted Cheese and Butter Maker to organize a factory in our town that would be willing to finance part. Cows guaranteed. Address CHAS. P. GOODENOW, Berlin, Mich.

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Finderne Pride Johanna Rue holds a wonderful record as a milk producer—the result of blue blood, good care and scientific feeding.



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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.
Cattle.

April 27, 1916.
Receipts 2203. The market opened at the local stock yards with another good fair supply of everything but sheep and lambs on sale. On Wednesday several cars off the main line of the Michigan Central and Pere Marquette arrived too late to be sold and had to hold for Thursday's market.

In the cattle department the trade noon Thursday. The quality was good and quite a few buyers were on hand from the country looking for stockers and feeders, among them being Chas. Prescott, of Prescott, Mich., who took quite a bunch back home for his ranch.

Common grades of milch cows still remain dull and good prime cows were scarce. Care should be taken by the drover in buying old common canners as Meat Inspector Waltz is marking them all and when his mark appears on them they must go to the tank and are a loss to the shipper as they are not allowed to be shipped out.

The close will be 10¢ lower. Best heavy steers \$8.75; best handy weight butcher steers \$8@8.50; mixed steers and heifers \$7.75@8.50; handy light butchers \$7.25@7.75; light butchers \$6.75@7.25; best cows \$6.50@6.75; butcher cows \$5.50@6.25; common cows \$4.50@5.25; canners \$3@4.25; best heavy bulls \$6.50@7; bologna bulls \$6@6.75; stock bulls \$5@5.50; feeders \$7.25@7.75; stockers \$6@7.50; milkers and springers \$4@7.50.

Reason & S. sold Mich. B. Co. 13 cows and bulls av 1005 at \$6.35, 11 steers av 807 at \$8 4 cows av 1092 at \$6.75, 2 do av 805 at \$5, 1 bull wgh 1470 at \$7, 17 steers av \$33 at \$8; to Sullivan P. Co. 1 cow wgh 1150 at \$5.50, 1 do wgh 940 at \$4.50, 9 do av 930 at \$6.50, 7 steers av 1103 at \$8.50, 2 bulls av 1095 at \$6.50, 3 heifers av 943 at \$7.50, 2 cows av 915 at \$6.50, 3 do av 1007 at \$5, 2 steers av 850 at \$7.25, 8 cows av 1060 at \$6.30; to Golden 6 do av 973 at \$6.35.

Roe Com. Co. sold Prescott 4 cows av 767 at \$5.75; to Kamman B. Co. 12 steers av 943 at \$8.25; to Mason B. Co. 1 bull wgh 1390 at \$6.50, 3 heifers av 710 at \$7.50; to Barlage 1 bull wgh 750 at \$5.50; to Bresnahan & Bray 1 do wgh 1060 at \$5.50, 2 do av 1235 at \$6.50, 1 do wgh 940 at \$6; to Prescott 2 cows av 910 at \$5.25, 2 do av 950 at \$5.25, 2 heifers av 480 at \$5.50; to Stevenson 2 cows av 910 at \$5.50; to Martin 7 steers av 954 at \$8.20, 2 do av 765 at \$7.50, 1 cow wgh 1130 at \$6.40; to Newton B. Co. 3 do av 1127 at \$5.75, 26 steers av 813 at \$7.90; to Hammond, S. & Co. 1 bull wgh 1710 at \$6.65.

Veal Calves.

Receipts 1146. The veal calf trade was dull and 50¢ lower than they were a week ago and 25¢ lower than on Wednesday, and common and higher grades even lower. Big coarse thin calves are being marketed and condemned by the meat inspector and it is next to impossible to dispose of them. We quote a few extra fancy at \$10; bulk of good \$9.50@9.75; medium and common \$6@9.

Sandel, S., B. & G. sold Mich. B. Co. 12 av 140 at \$10.25, 13 av 130 at \$10, 2 av 155 at \$9.50, 2 av 140 at \$10; to Kull 7 av 125 at \$10.50, 2 av 155 at \$10; to Burnstine 1 wgh 190 at \$8; to Parker, W. & Co. 6 av 145 at \$10, 20 av 130 at \$9.75, 15 av 135 at \$9.75.

Roe Com. Co. sold Parker, W. & Co. 15 av 130 at \$10, 2 av 150 at \$8; to Rattkowsky 6 av 130 at \$9.50; to Sullivan P. Co. 3 av 170 at \$7.

Sheep and Lambs.

Receipts 2168. The sheep and lamb trade was dull and on Thursday prices were 25¢ lower than on Wednesday or last week, selling as follows: Best lambs \$9@9.25; fair do \$7@8; light to lambs \$9@9.25; fair do \$7@8; light to \$8.25; fair to good sheep \$6.50@7; culls and common \$4.25@5.

Bishop, B. & H. sold Parker, W. & Co. 42 lambs av 65 at \$9.25, 3 wool lambs av 105 at \$10.50, 2 yearlings av 140 at \$8.50, 10 lambs av 85 at \$7, 9 do av 67 at \$8.20, 309 do av 75 at \$9.15; to Mich. B. Co. 28 do av 90 at \$9.25, 101 do av 75 at \$9.50; to Young 52 do av 56 at \$7.50, 25 do av 90 at \$9.50, 20 do av 60 at \$7.50, 9 spg lambs av 50 at \$10; to Thompson Bros. 60 lambs av 75 at \$9.50, 7 do av 60 at \$7; to Newton B. Co. 29 do av 50 at \$6; to Mich. B. Co. 208 do av 75 at \$9, 50 do av 78 at \$9.25.

Hogs.

Receipts 8754. The hog trade opened and closed steady with Wednesday, pigs selling at \$8.75 and yorkers and heavy at \$9.60@9.70.

A SPLENDID OPPORTUNITY FOR YOUNG MEN

Study Veterinary Medicine.

Have a profession of your own, be independent. It is one profession that is not crowded.

Its future looks brighter than ever before.

No one doubts the future of our Livestock Industry.

The prosperity of the Veterinarian goes hand in hand with the livestock industry.

The U. S. Government needs Veterinarians as Meat Inspectors, Serum Inspectors, etc.

Become a qualified Veterinarian and a good opening is practically waiting for you.

The Grand Rapids Veterinary College

offers every opportunity for studying Veterinary Science.

Three fully equipped laboratories, a Veterinary Hospital, exceptional clinical facilities, a faculty of 12 members, three good lecture rooms, a large dissecting room, 1800 free clinics in 1 year, 500 alumni all making good. Organized and operated under state law. Governed by Board of Trustees.

A Four Years' Course of Six Months Each Year

School year opens in September, ends in April. Nearly six months each year to earn money to pay expenses. Grand Rapids offers remarkable opportunity to earn money while at college.

Entrance qualifications, one year at high school or its equivalent.

We have 135 students, we want 250. Have organized foot-ball team. Athletic Association. Lecture Course. Four years at Grand Rapids Veterinary College will give you an efficient knowledge of Veterinary Medicine. Write for catalog and information.

Dr. H. L. Schuh,
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Market the Milk

Raise your calves and get the bigger money to which you are entitled. But do not feed the calf whole milk, with butter fat worth \$800 a ton.

You can sell all the mother cow's milk or butter and make your calf pay you a big profit on its feed, by raising it on

Blatchford's Calf Meal

The Recognized Milk Equal. You get 100 gallons of rich milk feed from 100 pounds of Blatchford's Calf Meal, and it costs you only one-fourth as much. It will make your calf grow fast and well.

Blatchford's Calf Meal is composed of the elements the young calf needs in the most trying period of its life; is thoroughly steam cooked—prevents bowel troubles and other ills due to improper milk substitutes.

Blatchford's Pig Meal insures quick, sturdy growth of young pigs at weaning time, without setback or falling off. Write us for our Free Book on "How to Raise Calves Cheaply and Successfully Without Milk."

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L. C. Beard, Hagerstown, Md., writes: "I can say Blatchford's Calf Meal will pay anyone 100¢ that has calves to raise."

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Glazed tile or four kinds wood stave. Haul and easily erect Kalamazoo Silos when farm labor is most plentiful and cheap. Freight paid to your home town—Red wood doors, continuous opening door frame. Tile silos anchored by weight. Fire and frost proof. Superior to cement. Save money, too, by early-in-year shipments direct from nearest kiln, on factory to farm co-operation sales plan. Ask for booklet and details. Silo users make best local agents. Write today—Dept. 621.

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Glazed tile or four kinds wood stave. Haul and easily erect Kalamazoo Silos when farm labor is most plentiful and cheap. Freight paid to your home town—Red wood doors, continuous opening door frame. Tile silos anchored by weight. Fire and frost proof. Superior to cement. Save money, too, by early-in-year shipments direct from nearest kiln, on factory to farm co-operation sales plan. Ask for booklet and details. Silo users make best local agents. Write today—Dept. 621.

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JOHN'S Big, beautiful, hen-hatched (Barred Rocks, Eggs, 30, \$2.50; 100, \$7.00. Select matings 15, \$4.30; 30, \$7.00, all postpaid. Photos, Circulars, John Northon, Clare, Mich.

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30,000 for 1916 from Standard Bred S. C. White Leghorns, \$9.00 per 100, \$85.00 per 1,000; S. C. Brown Leghorns \$9.00 per 100, \$85.00 per 1,000. Our strains are heavy layers and are sure to please you. We guarantee their safe arrival. Catalog on request. Wolverine Hatchery, Zeeland, Mich., Box 2221

CHICKS. We ship thousands each season. Ten varieties, Ancona's \$11 a hundred, free booklet. Freeport Hatchery, Box 12, Freeport, Mich.

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LILLIE Farmstead Poultry, B. P. Rocks; R. I. Reds; W. Leghorns. 15 eggs \$1; 25 eggs \$1.50; 50 eggs \$2.50. P. P. delivery free. Colon C. Lillie, Coopersville, Mich.

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RHODE ISLAND REDS and PLYMOUTH ROCKS. Males 5 to 12 lbs. according to age \$2 to \$5; P. R. hens weight 5 to 10 lbs. eggs 15 for \$1.00; 100, \$5; 120, \$6. Mammoth Bronze Tom Turkeys, 8 to 30 lbs. according to age \$6 to \$25, 10 eggs \$3. A. E. Cramton, Vassar, Mich.

R. I. Reds, Both Combs, Most Popular strain in Eggs for hatching. Baby Chicks. Write for catalog. INTERLAKES FARM, Box 39, Lawrence, Michigan.

Rose Comb Brown Leghorn & Mammoth Pekin Duck Eggs \$1 per setting, \$5 per 100. W. China Geese 25 cents each. **CLAUDIA BETTS, Hillsdale, Mich.**

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RHODE ISLAND WHITES win at the National Egg Laying contest. Cold weather don't stop them. Eggs \$1.50, 2 settings, \$2.50. H. H. Jump, Jackson, Mich.

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RED Breeders Attention. Ten Years exclusive breeding Rose Comb Reds. Special, dark cherry red mating \$2.00. Range stock, \$1.25 prepaid. Ridgman Red Farms, Vassar, Mich.

Farris Leghorns—200 Egg Strain—Eggs, chicks, 8 week-old pullets from hens with records up to 264 eggs. Prize winners at largest shows. Prompt shipment, prices low, quality guaranteed. White Leghorns are best for eggs. We raise thousands. Free catalog and price list gives particulars. Write for it now. **FERRIS LEGHORN FARM, 934 Union, Grand Rapids, Mich.**

Heavy Winter Layers:—Long, large bodies. S. C. W. Leghorns, Wyckoff strain. Eggs, \$1.00 per 15; \$3, per 50; \$5, per 100. H. A. Magoon, R. 5, Ann Arbor, Mich.

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S. C. White Leghorns, vigorous bred to lay stock. Eggs, \$5.00 hundred—75c for 15, a few day old chicks, safe delivery and fertility guaranteed. **M. MALONEY, R. No. 1, Kalamazoo, Michigan.**

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SILVER, Golden and White Wyandottes. Eggs from 6 Ionis and Lansing prize colonies, \$3 per 15, \$5 per 30. All farm stocks, \$1.50 per 15, \$2.50-30. C. W. Browning, Portland, Mich

White Holland Turkeys—Toms all sold. Some mated Turkey Hens for sale at \$5.00 each. Eggs from choice matings, Turkeys 50 cents each. Toulouse Geese Eggs, 25 cents each. Columbian Wyandotte chicken eggs, 13 for \$1.00. White African Guinea Eggs, 13 for \$1.00. Alden Whitcomb, Byron Center, Mich.

WHITE Wyandotte Eggs from heavy winter layers, \$2.00 per 15, \$3.75 per 30, \$8.00 per 100. Superb stock. Eggday Poultry Ranch, Marshall, Mich.

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WHITE WYANDOTTES, Eggs \$1.50 per 15, \$2.50 per 30, \$7.00 per 100. From choice stock. **A. FRANKLIN SMITH, Ann Arbor, Michigan.**

"PREMIER" PARTRIDGE WYANDOTTES 80% winter layers. Eggs \$2. per 15. **W. H. BACON, Petersburg, Mich.**

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The Best on Earth at Reasonable Prices.
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Fox, Coon and Rabbit Hound Pups
From the best of blood and broke hounds. \$5.00 each. Broke hounds at all times, stamp photos. **H. C. LITTLE, Fredericksburg, O.**

HOUNDS FOR HUNTING—Fox, Coon and Rabbits, all ages. Send 2 cent stamp. **W. E. LECKY, Holmesville, Ohio**

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"This is our experience in raising chicks last spring. We never hatched out more than a few chicks by the old hen method before, so never considered it any great loss if we should lose a few, but last spring we bought a 144-egg incubator. The first hatch brought about 100 chicks. I was delighted, but in a few days one after another became afflicted with White Diarrhoea, till about half of them had died in ten days. I was discouraged. Sometime later, I came across an ad in a farm paper about Chictone. We sent to The Wight Company, Dept. 257, Lamoni, Iowa, (note the address carefully, Lamoni, Iowa) for some and it came before I got my second hatch, which brought me 111 chicks. I began giving Chictone right away and never lost one of them. At three weeks, some of them were as big as those from the previous hatch, and I never saw a livelier bunch of chicks. I would no sooner think of raising chicks without Chictone than I would try to raise them without food." Mrs. Clare Rust, Grantsburg, Wis.

Chictone gets results! Resolve TODAY that you will save YOUR chicks from White Diarrhoea. Chictone is guaranteed to save 90%. Your money back if not satisfied. There are lots of substitutes—but there's only one Chictone. Beware of imitations. Chictone is NOT a poison. Made only at Lamoni, Iowa, by The Wight Co. Do not confuse Chictone with other remedies referring to our address. Sold in 50c boxes—in tablet form only. Get the one and only Chictone—a positive preventive of White Diarrhoea. Save all your chicks—delay is dangerous. Order today from

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Split Hickory Buggies
and up is my new direct-from-factory price on a genuine Split-Hickory—famous the world over for beauty, style, comfort and long service. Don't buy a vehicle of any kind until you get my big free catalog. See for yourself what a saving you can make. 150 snappy styles to choose from—all guaranteed two years. Pick out the one you want and I will give you

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to prove the quality and convince you that a genuine Split-Hickory is the best buggy you can buy at any price. **FREE MY BIG 1916 CATALOG** Write for this free book today. Also ask for my special Harness and Farm Wagon Catalogs. Sent free on request. **H. C. Phelps, Pres.** **The Ohio Carriage Mfg. Co.** Station 59 Columbus, Ohio

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Now is the time to make your layers produce—while the price of eggs is soaring

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By Experts

Just out. Tells how to feed for eggs—how to develop poultry for market and show. Your name on postal brings it. Get the book. Then go to dealer or near you who handles Red Comb. Ask for Red Comb Meat Mash—the great egg-maker. **Edwards & Loomis Co., 344-G No. Elizabeth St., Chicago, Ill.** Also Manufacturers of the Famous Red Horn Dairy Feeds.

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BEEES, BEE SUPPLIES, BERRY BOXES AND SEEDS.

Send for free catalog and save freight. **S. J. GRIGGS & COMPANY, Dept. A, Toledo, Ohio**

BARRED PLYMOUTH ROCK EGGS from full blood stock, \$1.50 per 15. Have won at leading shows for years. **J. A. BARNUM, Union City, Michigan.**

YOU ARE LOOKING FOR BABY CHICKS. We give you good quality for your money in both chicks and hatching eggs from a standard-bred strain of winter-layers. Winners at Kalamazoo, Battle Creek and Jackson. S. C. R. I. Reds—Bred for business and for beauty. (Send for price list.) **Babcock & Son, R. No. 4, Box 180, Battle Creek, Michigan.**

Baby Chicks from our own Bred-to-Lay Ringlet Barred Rocks \$10 per 100, S. C. White Leghorns \$10 per 100 and S. C. Buff Orpingtons \$12 per 100. Hatching Eggs carefully packed \$4 per 100. For further information write for our Chick Folder. **RUSSELL POULTRY RANCH, PETERSBURG, MICH.**

BARRED Rocks Parks 200 Egg Strain with records to 290 eggs a year—\$1.50 per 15. Delivered. By Parcel post. **Fred Astling, Constantine, Mich.**

BARRED ROCK EGGS and Baby Chicks. Four pullets laid 850 eggs in 12 months. Average 237 eggs each. **W. C. Coffman, R. 3, Benton Harbor, Mich.**

RINGLET BARRED ROCKS direct from Thompson's A limited amount of eggs for hatching from vigorous stock. \$1.50 per 15. G. Gardner, Petersburg, Mich.

BARRED Rock Eggs for hatching of Bradley Bros. strain, \$1.50 per setting 15, \$5.50 per setting 50 eggs. **A. A. PATTULLO, R. 4, Deckerville Mich.**

BARRED ROCK EGGS Prize pen bred-to-lay, \$3.00-15. Choice Utility. \$1.00 per 15. **PINE KNOLL, Box 391, Shelby, Mich.**

Buff Wyandotte and Barred Rock Cockerels \$2.00 each, eggs for hatching \$1.00 per 15. **Mrs. H. W. BLACK, Caro, Michigan**

Cousins Northern King Strain Barred Plymouth Rocks. Have won many prizes. Eggs \$2 for 15. Both matings. Satisfaction guaranteed. **David W. Cousins, North Port, Mich.**

Chicks that Live \$15 per 100. Silver, White and Partridge Wyandottes. White Leghorn Chicks \$12 per 100. Pekin and Rouen Ducklings 25 cents each. **ALDHAM POULTRY FARM, R. No. 37, Phoenixville, Pa.**

The Old Shed as a Poultry House

HAVING long desired a chicken house that would give my hens a chance to show the man of the house that they were a good investment instead of a nuisance, I at last gained his consent to tear down an old shed and have the best of the old lumber to use in siding up another old shed, 20x22 feet, that had nothing in its favor except a good frame.

The year before I had purchased eight rolls of fifteen-year-old guaranteed roofing that I had planned to use to cover a new coop, long and narrow like most of the coops in general use today. I also had on hand five rolls of cheap roofing that I had intended to use to roof an old coop.

The Scratching Floor.

The best roofing was used for the front, back and roof of coop, using the cheaper grade to cover the sides, and a scratch floor, 12x20 feet, that is overhead in front of coop. On the level with this floor are three six-light windows hung on hinges at the top so they will swing out at the bottom, thereby keeping the rain and snow out of coop where they are open.

A sand-box, two and one-half feet wide and eight inches deep, runs the entire length of these windows. As the scratch floor is covered with the roofing the hens are not bothered by draughts. A foot-wide board at edge of scratch floor keeps them from scratching the litter off.

Just below this strip a one and one-half foot strip of muslin admits fresh air at all times. Below this cloth strip, five six-light windows, hung the same as the ones at the top of coop, let in plenty of light all over the coop, as they are just 32 inches, or the width of a strip of roofing, from the floor.

The drop-boards are seven feet-long with a six-inch drop toward the front, making them easy to clean. They are at a height so that the person cleaning them can stand erect, and the roosts are 18 inches above the drop-boards, all on the level so there is no crowding to get to the top.

A board with cleats nailed on quite closely, runs from the floor up to the drop-boards on right hand side of the coop. Another just above it runs from roosts up to the scratch floor above.

The nests are simply boards nailed to the bottom sills, nearly all the way around the coop. This makes a foot-wide trough, without partitions, and when filled with straw Biddy makes her nest where it pleases her. This prevents crowding and the consequent breaking of eggs and reduces the labor of cleaning to a minimum. About ten feet of this trough is used for a wood-ashes dust-bath, which the hens seem to enjoy very much.

A sand floor completes the coop and the hens certainly enjoy it as the egg basket daily testifies. A stairway for my own convenience, runs to the floor above and has six-inch wide, flat steps.

When I broached the subject to the carpenter he said he could build a 12x30 new coop cheaper than he could fix this one over, but as the shed was nearer my idea of the shape a good chicken house should be, I had him fix it over anyway, and at the end of the eighth day he was done, also had admitted that he had been mistaken. The total cost of coop was as follows:

Eight rolls of heavy roofing at \$2.10 per roll.....\$16.80
Five rolls of cheap roofing at \$1.05 per roll.....5.25
Nails, hooks and hinges.....2.75
Old windows bought.....3.84
Work, eight days at \$2.50 per day.....20.00

Total.....\$48.64
We did not build a foundation wall, but banked the coop solid with dirt between boards, as we intend to move the coop to a better location in the spring.

The back and sides of coop are tight as they can be made with all the fresh

air coming from the front and the coop is so deep that drafts never reach the hens on the roost, even when the windows are open.

The hens are proclaiming their satisfaction each day, by giving me as many eggs as I ever gathered from the same number of hens in the spring of the year.

As for myself, I can only say that I intend to build another new coop just like this one, as soon as my finances will permit.

At the poultry show a veteran poultryman told me: "Fresh air houses are all right, only the majority of people build them too narrow. They should never be less than twenty feet deep," and I heartily agree with him. **Van Buren Co. MRS. M. KENNEDY.**

GROUND GRAIN FOR CHICKS.

The people of New York state got to wondering whether it was more profitable to feed whole or ground grain to their chickens. This caused the state station to hold experiments to determine which grain was best for poultry.

The first experiments were begun with two lots of 22 chickens each, one lot being fed all its grain finely ground, the basis of the ration being a mixture of two parts by weight of corn meal, two parts wheat bran, and one part each of wheat middlings, old process linseed meal, and ground oats. This was supplemented by skim-milk, dried blood, and additional amounts daily of corn meal and ground oats. The grain fed to the other lot of chickens was either whole or cracked and consisted of oats, wheat, corn and barley. Skim-milk, fresh-cut bone, and dried blood were also fed in addition.

At the end of twelve weeks the cockerels among these chickens were caponized and fed the contrasted rations during the winter, twelve capons in each lot being fed for four months and eight more continued nearly seven months. Two other lots of capons from chicks raised by hens and treated alike until caponized were fed the contrasted rations for about five months.

The ground grain ration proved by far the most satisfactory and profitable than did the whole grain ration with the growing chickens; and the same was found true of capons of equal weight from these flocks and aged fed alike before caponizing. No difference was noted in health and vigor of chicks or capons fed either ration, but all made desirable gains and returned a fair margin of profit at the ordinary market prices.

New York. **EARL W. GAGE.**

A PRIMITIVE INCUBATOR.

Downy chicks and ducklings are just beginning to make their appearance, but the Chinese method of hatching as many as 500 duck and chicken eggs in one sitting has not yet been adopted in this country. Unhusked rice is used for the purpose, and when this has been roasted it is either cooled by a fanning process or the wind is allowed to blow through it until it is lukewarm. The breeder then sprinkles a three-inch layer of rice in the bottom of a wooden tub, and on this surface places about 100 eggs. Another layer of rice about two inches thick is spread over them, and on this layer eggs are also placed, and the tub is filled in this way until there are six layers of rice and five layers of eggs, making 500 eggs in all in tub.

Every 24 hours the rice has to be heated, and for this purpose the eggs have to be removed, the bottom layer this time being placed on top, and the other layers one row lower down, the eggs that occupied the central position in the tub now being placed at the edges. There is some difficulty in gauging the exact time at which the eggs will hatch, and unless care is taken, some of the young ones are likely to be smothered. This is, of course, the point at which the ability of the expert is shown.

Grange.

Our Motto:—"The farmer is of more consequence than the farm, and should be first improved."

STATE GRANGE OFFICERS.

Master—John C. Ketcham, Hastings.
Overseer—C. H. Bramble, Tecumseh.
Lecturer—Dora H. Stockman, Lansing.
Secretary—Jennie Buell, Ann Arbor.
Treasurer—Frank Coward, Bronson.
Executive Committee—C. S. Bartlett, Pontiac; Geo. B. Horton, Fruit Ridge; J. W. Hutchins, Hanover; W. F. Taylor, Shelby; Wm. H. Welsh, Sault Ste. Marie; N. P. Hull, Dimondale; Burr Lincoln, Harbor Beach.

TRAVERSE GRANGE DISCUSSES SOCIAL CENTERS.

The topic of "Rural Social Centers" was discussed with vim at the meeting of Grand Traverse Grange Saturday, April 15. The principle speaker was G. L. Burnham who has been experimenting in a social way in one of the communities on the Grand Traverse Peninsula. He argued that the social center should be built up with the church as a core, because of the up-lift atmosphere about the church and because the pastor can most readily be turned into a leader for the proposed new activities. He related how the people in the Ogdensburg neighborhood were planning upon making an addition to their church for the express purpose of providing a hall for the young folks. The grounds about the hall are to be cleared that they may be used for athletic contests. The pastor is to direct the amusements, or rather is to lead them, and upon him will devolve the duty of seeing that they are productive of good results.

Mr. Burnham told what had been accomplished in an intellectual way the past winter in his own neighborhood. Among other things, instructive illustrated lectures had been given which had resulted in giving the people a hint of some of the great things of the country in which they live. The formal talk was followed by questions and remarks. One of the other speakers pointed out that as soon as the farmers could get away from the bread and butter problem they would gladly give time and money to the advancement of social and intellectual enterprises, but he insisted that the ever present question just now was better prices for that which they produced. R. H. ELSWORTH.

FENTON GRANGE ANNIVERSARY.

Fenton Grange celebrated its anniversary on March 22. John C. Ketcham, Master of the State Grange, was present, and delivered an address on the topic, "Balanced Rations for a Community," in which he compared the treatment given to a dairy cow with that accorded a community, to the detriment of the latter.

He said there is as much reason to feed poison to a dairy cow as to allow a saloon and allied institutions in a community, and expressed the hope that we shall soon show as much sense in running a community as we do in feeding a dairy cow to induce her to perform at maximum efficiency. This idea of a balanced ration for a community, is that it should be on a sound financial basis, have good educational institutions, that it should be social, and that all the people should mix freely, and not separate into cliques, and last, but not least, the moral and spiritual life should be developed. He emphasized the thought that the Grange is an ideal educational and social institution, and that it can lead in economics, and ought to boost the church, and other uplifting institutions. There were a number of visitors from neighboring Granges. A rising vote of thanks was given Mr. Ketcham for his inspiring and instructive address.—G. C. Dibble, Secy.

Farmers' Clubs

Address all communications relative to the organization of new Clubs to Mrs. J. S. Brown, Howell, Mich.

THAT SUMMER RALLY.

At the last annual meeting of the State Association of Farmers' Clubs, the delegates from the Clubs of central Michigan desirous of a summer rally, held a conference and appointed a secretary to ascertain the feelings in such a project. Correspondence has been held with 32 Clubs and a sufficient number of answers have been received to guarantee holding such a rally at the M. A. C. on Wednesday, August 16, 1916. Members of any Club in the state will be welcome.

Let us have a real Farmers' Club meeting. A large crowd will show the great interest there is in the Farmers' Club movement.

Watch this column for further particulars.—W. L. Cheney, Sec.

PATRIOTISM.

(Continued from last week.)

Since 1780 more than 25,000,000 of the older countries' inhabitants have arrived on these shores as immigrants, and have found a warm welcome and unfettered opportunity. Here the Englishman finds a greater England. Here the Irishman finds the home rule for which he craves, and the Scotchman has a better chance to exercise the splendid qualities of his race than in his own sterile land. The German finds in this new fatherland all and more than his own country could supply, and on the glory roll of Columbia's history Teutonic names shining with resplendent lustre. The Frenchman always striving after an ideal liberty, finds it here. We might catalog the nations of the earth, and, standing on the highest pinnacle of the Rocky Mountains call the long roll in tones of thunder, and from some corner of this great land some voice would cry, "Here," as the name of each nation was called. Here God has called them together and under the sacred flag of Liberty, made them one. We have reached the Gulf, we have crossed the Mississippi, we have built up two and twenty commonwealths on the plains beyond. We have made our Constitution sure and given Europe such an object lesson in government of the people, by the people, for the people, as will not be in vain. Whatever abridges distance, whatever annihilates time, whatever alleviates human pain, has nowhere been so fostered as in these United States. As we have grown more intelligent, so we have grown more liberal, more tolerant, more humane. No other name has such electric power in every true heart, from Maine to Mexico, as the name of Lincoln. If Washington is the most revered, Lincoln is the best loved man that ever trod this continent.

Lincoln.

Through the dim pageant of the years, A wondrous tracery appears;
A cabin of the western wild,
Shelters in sleep a new-born child.

Nor nurse, nor parent, dear, can know
The way those infant feet must go;
And yet a nation's help and hope
Are sealed within that horoscope.

Beyond is toil for daily bread,
And thought to noble issues led,
And courage, arming for the morn
For whose behest this man was born.

A man of homely rustic ways,
Yet he achieves the forum's praise
And soon earth's highest meed has won,
The seat and sway of Washington.

No throne of honors and delights;
Distrustful days and sleepless nights,
To struggle, suffer and aspire,
Like Israel, led by cloud and fire.

A treacherous shot, a sob of rest,
A martyr's palm upon his breast,
A welcome from the glorious seat
Where blameless souls of heroes meet.

And thrilling through unmeasured days,
A song of gratitude and praise;
A cry that all the earth shall heed,
To God, who gave him for our need.
—Julia Ward Howe.

Use One of My Famous Bohon Buggies 60 Days

FREE

Order a Bohon Buggy on my 60 days' approval test. Drive it back of your own mare on the roughest roads you can find. Note the extreme riding comfort, the spring action, the extra strength that is built into the wheels, chassis and throughout the entire vehicle.

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And backs everything I say. I have aimed to give you the biggest and best buggy proposition ever put on the market. I will save you \$25 to \$50 on your buggy this year. But write me now for the Free Books. Tell me to send the Money-Saving Merchandise Book if you want it. I will save you money on farm tools, farm equipment, etc. Finest quality—quick shipments. D. T. Bohon, Pres.

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Kalamazoo Carriage & Harness Co.

Dept. A. Kalamazoo, Mich.

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FOR HOMES, BARNS and IMPLEMENTS

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A TRIAL WILL PLEASE YOU SEND FOR CIRCULAR AND COLOR CARD.

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PONTIAC, MICH.

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All standard varieties at \$1.50 to \$2.50 per 1000. EVER BEARING at \$1.50 per 100. POSTPAID Asparagus at \$2.50 per 1000. Grapes, raspberries, etc Catalogue free. Large stock. Try us.

THE ALLEGAN PLANT CO. Allegan, Mich.

Senator Dunlap Strawberry Plants
\$2.50 per thousand.
W. M. Yarger, St. Johns, Mich.

The "Berlin Quart"

The White Basket

That secures highest prices for your fruit. Write for 1916 catalog showing our complete line and secure your baskets and crates at WINTER DISCOUNTS.

The Berlin Fruit Box Co.
Berlin Heights, Ohio.

Seed Potatoes Russet Rurals

Free from Late Blight. Orders filled as received. Shipment on or after May 15. Price \$1.50 per bu. pit run, f. o. b., Kendall, Mich.

THE CAHILL FARMS
KALAMAZOO, MICH.

SEED POTATOES

Late Petoskey. The best late potato for yield, market and freedom from blight and scab. Medium size, graded potatoes, 2 to 10 bu., \$1.25 per bu.; more than 10 bu. \$1.20 per bu. Bags free. Special prices on large orders.

WALLACE BROS. Bayshore, Mich.

SEED POTATOES For Sale. 500 bu. Sir Walter Raleigh. Free from disease and blight. Pure as to variety. Winners of 1st premium at Mich. Potato show, 1915. Satisfaction guaranteed. **LESTER WILCOX**, Fremont, Mich.

CHOICE SEED Potatoes—1000 bus. Russet Rurals, free from rot \$1.00 F. O. B. in 10 bu. lots or more. Near Seed Potato Co., Shelby, Mich.

WHITE SWEET CLOVER
Specially treated for quick germination. ALSO FANCY MEDIUM MAMMOTH ALSIKE AND ALFAFA CLOVERS. TIMOTHY SEED, WINTER VETCH, etc. Ask for samples and special price list. **YOUNG-RANDOLPH SEED CO., OWOSO, MICH.**

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\$1.50 per 1000, etc. Best Michigan Stock. 100 varieties including Everbearing, also Grapes, Raspberries and other small fruits. Send today for FREE Catalog. **ALLEGAN NURSERY, BOX 20 ALLEGAN, MICH.**

White Bonanza Seed Oats
One of the best varieties grown in Michigan. **Young-Randolph Seed Co. Owosso, Michigan**

SWEET CLOVER Builds Worn Out Soil. Has higher protein content than alfalfa. Write for prices and information. **Everett Barton, B. 129, Falmouth, Ky.**

For Sale White Cap Dent Seed Corn, 1914 crop. A limited supply, \$3.25 per bu. shelled corn. **GEO. HARRISON, Clayton, Mich.**

TIMOTHY ALSYKE \$4.50
Per bu.
Bags extra at 20c each. Send us your order. **Young-Randolph Seed Co. Owosso, Michigan**

Do You Need Farm Help? We have many able-bodied and experienced young men, experienced and inexperienced, who want farm work. Ours being a philanthropic organization, our service is free to employer and employee. If you need good steady, sober, man, write to **JEWISH AGRICULTURAL SOCIETY, 712 W. 12th St., Chicago, Ill.**

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Muncy Cartage Co., shippers of horse manure and tobacco stems, 450 Grand River Avenue, Detroit Mich. Tel. Grand 821 and 4287.

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ABERDEEN-ANGUS

HERD ESTABLISHED IN 1900.
TROJAN-ERICAS and BLACKBIRDS only.
Also breeders of Percheron, Hackney and Saddle
Horses.
WOODCOTE STOCK FARM, Ionia, Mich.

Aberdeen Angus Four young bulls also young
cows and heifers. Extra good.
Priced reasonable. Inquire F. J. Wilber, Clio, Mich.

FOR SALE—14 Angus bulls 9 months and older,
including our herd bull. Also a few cows and heifers.
Geo. Hathaway & Son, Ovid, Mich.

AYRSHIRES—One of the foremost dairy breeds. The
most economical milk producers. Calves
for sale. White Leghorn cockerels; Duroc Jersey
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is as good as can be found and we guarantee
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BULL CALVES
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bull calves left. Avondale Stock Farm, Wayne, Mich.

Guernsey Bulls of service age and calves from
choice. Adv. reg. breeding.
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FOR SALE Reg. Guernsey bull calves, dams running
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JOHN EBELS, HOLLAND, MICH. R. No. 10.

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GUERNSEYS—still they go, just one bull calf left—out of
Pauline Spotswood (746 lb. fat), you never saw a better calf.
J. M. WILLIAMS, North Adams, Mich.

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We offer a choice lot of high grade Guernsey cows and
heifers, bred to registered bulls La Tertre of Maple
Lane, No. 23192 and Sir Dena No. 36173. Prices reason-
able. THE JENNING'S FARMS, R. 1, Bailey, Mich.

Registered Guernseys Bull calves for sale at reasonable
prices. If interested write for
particulars B. S. KNAPP, Monroe, Mich.

Herefords—3 Bull Calves

ALLEN BROS. PAW PAW, MICH

HOLSTEIN BULLS FOR SALE

Four of them from 12 to 17 months old by 31 lb.
sire dam's A. R. O. Price \$100.00 to \$150.00. Younger
bull calves from \$50.00 up.
BLISSVELDT FARMS, Jenison, Michigan

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% 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.

Reg. Holstein Females—Pontiac
Breeding 1 to 5 years. John A. Rinke, Warren, Mich

Announcement
Extraordinary

The "Espanore Herd" of Registered Holsteins
will be offered the public at a great Dispersion
Sale May 9th. Watch this paper for particulars.

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

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SOME VERY FINE YOUNG BULLS
Whose sires have as high as 31 lbs. of butter behind
them. As they are young, will make a low price on
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A Breeders' Sale of 90 Head of High-Class Registered Holstein Cattle
From Breeders' Own Herds.

Everything over six months of age carefully Tuberculin Tested by Government Veterinarians
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A sale where you get healthy cattle of quality, and where buyers come back the second time.
Granddaughters and grandsons of Pontiac Korndyke, Hengerveld de Kol, Colantha Johanna
Lad, Traverse Princess Weg, and King Segis Pontiac. Daughters of Prince Segis Korndyke, and the
30-lb. bulls Colantha Sir Korndyke Clothilde, Traverse Dutch Weg, and King Pieterje Pet Canary.

Choice young A. R. O. cows and heifers, bred to 30 lb. bulls.

A chance to buy foundation stock for establishing high-class Holstein herds.

Sale catalogs will be out about April 15, 1916. If you are interested write for sale catalog.

W. R. HARPER, Sale Manager, Middleville, Michigan.

LIVINGSTON COUNTY HOLSTEIN BREEDERS' SALE COMPANY

SECOND ANNUAL SALE OF
100 Head of Registered Holsteins

at the Sale Pavilion on the Fair Grounds at Howell Michigan
on Wednesday, May 17, 1916, at 10:30 a.m.

This is not a lot of cull stuff. 75% of our offerings are under 4 years old
and include 5 granddaughters of the \$50,000.00 bull, 6 of Colantha Johanna Lad
and 2 of Pontiac Korndyke, 4 daughters of King of the Hengervelds, 10 from a
30 lb. bull and 11 from a grandson of Pontiac Korndyke.

Our reference sires are a superior lot and include a son of Mabel Segis
Korndyke, 40.32 lbs at 4 yrs. old and sons of cows with records from 29 to 35 lbs.,
from well known sires. A fine chance to get good young foundation stock.
Remember the date. Catalogs, May 7th.

F. J. Fishbeck, Sec'y., Howell, Michigan.

PERRY and MACK, Auctioneers.

Public Holstein Sale

The Wayne County Holstein Consignment Sale Company, of Belleville, Mich., will hold their
first annual sale of Pure Bred Holstein-Friesian Cattle, on

MAY 16th, 1916, at Belleville, Mich.

This consignment of 85 head consists mostly of young cows, heifers, and heifer calves, of pop-
ular breeding. COL. D. L. PERRY, Columbus, Ohio, Auctioneer. J. FORREST LINDSAY, Romulus,
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Duroc Jersey Herd Boars

Special Offering of High Class Fall Boar Pigs. Breeding and Individuality good
enough for breeders who appreciate the best.

Also some good farmer's boars. This is the best lot of fall pigs we have ever had to offer. A cor-
dial invitation is extended to visit the farm and inspect the stock. If you wish one of the best
young Jersey bulls in Michigan we have him for sale. For further particulars, address,

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

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

HOLSTEIN-FRIESIAN CATTLE

Herd headed by grandson of King Segis Pontiac,
and tuberculin tested annually. A few choice
young bulls from dams having official records.

PEACELAND STOCK FARM, Three Rivers, Mich.
Chas. Peters, Herdsman. C. L. Brody, Owner, Port Huron, Mich.

For Sale: Big Holstein Bull 2 yr. old. Good breeding.
Reg. bulls and heifers 10 mos. old.
Ferd. J. Lange, Sebewaing, Mich.

75 gets Hazel-let grandson of Maplecrest De Kol
30 Parthena and Pontiac Maid 30 1/2 lb. Born
March 28. Traces to De Kol 2d 17 times. Dam Pontiac
Hesperia 2d, a Pontiac Korndyke, Pontiac Cornucopia and Pon-
tiac Burke combination. M. L. McLaughlin, Redford, Mich.

"TOPNOTCH" Holsteins

By careful retention, for many years, of largest pro-
ducing 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
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Buy Your Holstein Bulls

When They Are Calves.
Here are seven to select from, all from A. R. O. cows;
3 of the dams are granddaughters of Pontiac Korndyke.
The sire of two of these dams carry 75% the same
breeding as the \$25000 bull Rag Apple Korndyke
8th. Write for description and prices. ITHLEA
STOCK FARM, Herbert L. Smith, Prop., Ionia Co.,
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I Have Holstein Bulls, Bull Calves and Cows
I can show breeding, records, individuality and attrac-
tive prices. L. E. CONNELL, Fayette, Ohio.

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

REG. Holstein-Friesian cows and heifers, some fresh
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Frank Staffen, R. 3, Box 33, Howard City, Mich.

REGISTERED Holstein Bull 6 months old. Two
nearest dams average 23 lbs. of butter and 650 lbs.
of milk in 7 days. Mostly white, good individual. \$100
delivered with all papers, safe arrival guaranteed.
Write for pedigree and photo.
HOBART W. FAY, Mason, Michigan.

Reg. Holstein Bull, 5 mos. old. Dam made 546 lbs. milk,
18.46 lbs. butter 7 days. Nicely
marked and well grown. E. R. Cornell, Howell, Mich.

YEARLING REGISTERED HOLSTEIN Bull ready for
active service. Show type.
Price \$100.00. Chas. S. Riley, Metamora, Mich., R. D. 1.

Only \$40 Delivered: Handsome reg. Holstein Hol.
stein bull calf. Sire 25 lb.
butter bull, Dam A. R. O. 17.62 lbs. butter. All papers.
Rougemont Farms, Detroit, Mich.

WANTED

Six good men to buy pure bred HOLSTEIN BULL
CALVES. Good notes on a year's time accepted in pay-
ment. GEO. D. CLARKE, VASSAR, MICH.

For Sale My entire herd of high grade Holstein
Cows and heifers. Also one Reg. 3-yr. old
Percheron stud colt or will trade for Reg. Holstein
cows. Arthur N. Birkholz, New Buffalo, Mich.

FOR SALE Holstein bull calf, 7 months old, a show
bull. 7 nearest dams average better than 21 lbs. Price
\$75.00 S. M. RICE & SONS, Galesburg, Mich.

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

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 inter-
esting tests and facts. It proves
conclusively that for pure dairy type, econ-
omy 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

Hope Farm Jerseys FOR SALE—3 yearling
bulls, 2 bull calves.
GEORGE C. BORCK, Grand Haven, Mich.

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

Grade Jersey Herd For Sale
FORTY COWS

The result of twenty years careful breeding and
selection, are now offered for sale. Individual milk
records have always been kept and are open for in-
spection. If interested write for particulars and if
possible visit and examine the herd and their record.
Delivery will be made at any time desired during the
spring or early summer. A few registered Jerseys also
for sale. Address Geo. A. True, Armada, Mich.

The Wildwood Jersey Herd Majesty Breeding
40 head, tuberculin tested,
herd now on R. of M. test. No females for sale. Choice
young bulls for sale from Dams that are on test for
Register of Merit. Write your wants or come and see
them before buying.
ALVIN BALDEN, Capac, Mich.

Hillside Farm Jerseys A 10 mos. old, solid color bull now
offered for sale. Dam is a R. of M.
cow with record of 546 lbs. of butter as a 3 yr. old. He is a
fine individual. Price right. C. & O. Deake, Ypsilanti, Mich.

Registered JERSEY BULLS and Heifers, Duroc
Jersey Boars and bred sows for sale.
NOTTEN FARM, Grass Lake, Mich.

Maple Lane R. of M. JERSEY HERD offers for sale,
tuberculin tested cows, heifers, bulls,
and bull calves backed by several generations of R.
of M. breeding. IRVIN FOX, Allegan, Michigan.

JERSEY BULL CALF FOR SALE
Ready for service. Majesty—Raleigh breeding.
Meadowland Farm, Waterman & Waterman, Ann Arbor, Mich.

BIDWELL SHORTHORNS

For "Beef and Milk"
Registered bulls,
Scotch-topped roans,
reds and white for sale.
Farm at N. Y. C. Depot;
also D. T. & L. R. Y.

Address G. R. Schroder Mgr.
BIDWELL STOCK FARM
Box B, Tecumseh, Mich.

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

DAIRY Bred Shorthorns of best Bates strains. No
more females for sale at any price.
J. B. Hummel, Mason, Michigan.

FOR Sale—12 Reg. Short Horn Bulls by Maxwellton
Monarch 2nd, a son of Avondale, from 6 to 9 mos. old
John Schmidt, Reed City, R. No. 5., Michigan

Shorthorn Cattle. Five cows, Ten heifers, Five bull
calves; also herd bull for sale.
Write. Wm. J. Bell, Rose City, Mich.

Shorthorn Cows and Bulls For Sale
R. R. Station, Elletts. H. B. PETERS, Carland, Mich.

For Sale Shorthorn Herd Bull at beef price.
Write for description. W. F. BARR, Aloha, Michigan.

Shorthorn AND POLLED DURHAMS FOR SALE.
Have red roan and white. Have over 100
head in herd. C. Carlson, Leroy, Mich.

Shorthorn Bulls for sale from a good
milkling herd.
M. A. BRAY, Okemos, (Ingham Co.) Michigan

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

2 Loads feeders and two load yearling steers. Also
can show you any number 1, 2 and 3 years old from
600 to 1200 lbs. Isaac Shanstun, Fairfield, Iowa. R-8

FOR SALE One yearling bull, one 8 mos. old,
one heifer 9 mos. old, all reg-
istered. Will crate and ship, satisfaction guaranteed
or money refunded. Wm. D. McMullen, Adrian, Mich.

HOGS.

TAKEN FROM LIFE
Raise Chester White Hogs
Like This
(CALLED BY SOME O. I. C. SWINE)
"Hog" "Hog" "Hog"

I have started thousands of breeders on the road
to success. I have a very large and fine herd. Ev-
ery one an early developer, ready for market at six
months old. I want to place one hog in each com-
munity to advertise my herd.

G. S. BENJAMIN R. No. 10, Portland, Michigan

Royalton Bred Berkshires. Six weeks old pigs, both
sexes, registered with
papers \$7.00 each. Order quick.
D. F. VALENTINE, Supt., Temperance, Michigan.

BERKSHIRES, Bred gilts and sows due to farrow
in April and May. Priced to move quick as crowded
or room. Chase's Stock Farm, Marlette, Michigan R. 1.

Berkshire Hogs Sows bred to farrow in April. Best
of breeding. Maple Place Farm
C. S. BARTLETT, Prop., Pontiac, Michigan

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

BERKSHIRE

Sows bred for August and September farrow. Send
for sale list of fall boars. W. A. and R. E. Freehoff,
Waukesha, Wis.

SWIGARTDALE FARM

BREEDERS OF

HOLSTEINS AND BERKSHIRES

Stock for sale at all times. Berkshires of unsurpassed
quality and breeding, at reasonable prices. A choice
bull calf, nicely marked, five months old, sire's dam
with record of over 27 pounds. Dam of calf a grand
daughter of Hengerveld De Kol. Price \$50.00.

Swigartdale Farm, Petersburg, Mich.

Chester Whites: Long type prolific kind. Orders
booked for spring pigs. Write your
wants. Meadow View Stock Farm, R. 5, Holland, Mich.

Chester Whites Spring pigs from the best blood lines
for sale. Pairs not akin.
F. W. ALEXANDER, Vassar, Mich.

Boars for Sale One yearling; two 10 mos; two 6
mos; first class specimens.
J. H. BANGHART, East Lansing, 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. C. STAHLMAN,
CHERRY LAWN FARM, Shepherd, Michigan.

DUROC JERSEY Bred sows and gilts
all sold. Booking
orders for spring pigs. E. D. Heydenberk, Wayland, Mich.

DUROC JERSEYS—Fall boars of the large heavy
boned type. Sired by Champion winners. Open
gilts ready for breeding. Holstein bull calf, a fine individual.
3 months old, nicely marked. F. J. Drott, Monroe, R. 1, Mich.

DUROC Jerseys—Fancy fall pigs (either sex). Buff
Rock eggs \$1.25 per lb; S. C. W. Leghorn eggs \$1 per
lb. John McNeill, R. 4, Station A, Bay City, Mich.

Duroc Jersey gilts and sows bred for Aug. and
Sept. E. H. MORRIS, MONROE, MICH.

Duroc Jerseys Two good fall gilts, also two fall
boars. Will book orders for spring
pigs. Wm. W. Kennedy, R. 3, Grass Lake, Mich.

DUROC JERSEYS A few bred
gilts for sale.
Carey U. Edmonds, Hastings, Michigan.

Duroc Jerseys I have some good last September
Boars and gilts. Gilts will be
bred for September farrow.
H. G. Keesler, R. No. 5, Cassopolis, Michigan

DOBSON'S DUROCS Combine size, quality, breed-
ing. Boars for sale. Pigs at weaning time. Reg-
istered Jersey bull. Orlo L. Dobson, Quincy, Mich.

O. I. C. BRED GILTS, Also young boars
shipped C. O. D.
J. CARL JEWETT, Mason, Mich.

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

Brightside Farm
Grand Lodge, Mich.

O. I. C. SPRING BOARS of good type and
Red Polled bull calves.
John Berner and Son, Grand Lodge, Mich.

O. I. C. Choice serviceable boars. Choice gilts all
sold. Fall pigs, either sex, not akin. Write for low
prices and description. A. V. HATT, Grass Lake, Mich.

Breeders' Directory—Continued on page 591.

Veterinary.

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

Acute Congestion.—My sow had ten pigs and two of them died right away after they were born and all the rest within 24 hours. The sow had a badly caked udder and very little milk. I applied hot vinegar and greased the udder with vaseline and she is doing fine. The weather was very cold when she farrowed, almost zero. Would you advise me to breed her again? E. J. O., Beaverton, Mich.—Breed your sow again and if she farrows in the winter, heat her pen artificially in order that her pigs will not die from the effects of cold; also milk her.

Dehorning.—Is it advisable to apply treatment to the wounds after dehorning cattle with clippers, and if so tell me what to use. R. W., Dexter, Mich.—Apply one part iodoform and nine parts boric acid, covering wound with oakum and a bandage. There are many other healing preparations that are equally as good, but it is poor surgery to make large open wounds on animals, then neglect to take care of them.

Heaves.—Is there any real cure for heaves? I have a very valuable horse that is wind-broken. E. R. S., Port Hope, Mich.—Chronic heaves is very often incurable; however, you will obtain fairly good results by giving your horse any of the commercial heave remedies that are repeatedly advertised in this paper. Furthermore, I would suggest that you feed no clover or dusty, musty, badly cured fodder, and only a limited quantity of bulky food. Grain and roots and a small quantity of well cured timothy is the best food for winter, and grain and grass the best summer feed. A broken-winded horse should be kept in a clean well ventilated stable that is well supplied with fresh air; besides, they should have daily exercise.

Chronic Soreness.—I have been treating my brood mare for chronic soreness for several months and she is no better. She is due to foal in the early part of June. C. R., Mt. Clemens, Mich.—Good care, proper shoeing, light work or no work, is perhaps all that can be done for her. Not much danger of her colt inheriting her soreness, unless it be navicular disease.

Water Farcy.—I have a seven-year-old mare that has water farcy and her leg opens in several places, discharging watery pus. E. H., Marion, Mich.—Give her 1 dr. of powdered sulphate iron and 1 dr. of acetate of potash at a dose in feed three times a day. Dissolve ¼ lb. of sugar of lead in a gallon of water and wet leg three times a day. Unless your name is signed to your next communication, it will not receive attention. This department is conducted solely for the benefit of our subscribers, but how are we to know them, unless their name and address accompany their letter?

Distemper.—Some time ago one of our mares had distemper, leaving the glands of throat swollen; now she occasionally coughs, has a rattling sound in either throat or nose when exerted. She is due to foal May 19. J. A. S., Hillsdale, Mich.—Apply one part iodine and 14 parts fresh lard to the swollen glands of throat two or three times a week. Feed her well, let in plenty of fresh air into stable; also exercise her daily.

Hip Lameness.—I wish you would tell me what to do for a cow that is lame in right hind quarter, which we are inclined to believe was caused by stepping over a log. Mrs. I. W., Olympia, Wash.—Mix together equal parts of turpentine, aqua ammonia and raw linseed oil and apply to hip or any other part that you believe is strained or sore, three times a week.

Injured Stifle.—One of my young horses got kicked on the stifle some time ago, causing lameness. She walks almost sound, but shows considerable lameness when trotting. She seems to have trouble in stepping over door sill. There is no swelling of the joint, but during the winter while driving her to a sleigh, I imagined she dragged this leg and had trouble in bringing it forward. A. N. D., Montague, Mich.—Apply equal parts tincture cantharides, turpentine and olive oil to stifle once or twice a week.

Navicular Disease.—My nine-year-old horse is lame in right hind foot. When standing the foot is usually placed some little distance in front of body and I would like to know if you believe work will prevent a recovery. F. B. G., Howard City, Mich.—Clip hair off coronet and apply equal parts of aqua ammonia, turpentine and raw linseed oil two or three times a day and if you work him, avoid driving faster than a walk.

HOLSTEINS

DISPERSAL AUCTION

Of a Leading Michigan Herd Espanore Farm, Lansing, Mich., May 9th

72 animals in the herd and 68 of them females. Two score-twice a day, year 'round producers in milk.

DESIRABLE AGES—One 9-yr.-old; one 8-yr.-old; four 7-yr.-olds and 38 others above two years old. Two dozen splendidly bred young things not yet in milk.

OFFICIAL RECORDS—Although no especial attention has been given to record making, twenty matrons have very creditable productions.

	Lbs. Butter 7 Days	Lbs. Milk
Dichter Vadora Mercedes	28.14	471.6
McDonel Pontiac Korndyke Susie, 3½ years	21.03	490.5
Miriam DeKol 3d, 4 years	20.39	449.5
Northern Fobes Clio Pietertje, 4 years	19.88	365.9
Hengerveld Pauline Burke, 4½ years	19.79	443.9
Pearl Inka DeKol	19.14	376.5
Kate Inka Pietertje	18.42	476.0
Livonia Mercedes DeKol Wayne	17.80	369.1

ETC.

A SAFE PLACE TO BUY—The herd has been regularly tuberculin tested and better still they will be sold subject to a retest in your own barn. The details covering this special 60-day guaranty are given in the catalog. Barring one, all females are unblemished and guaranteed breeders.

HERD SIRE—Pledge Spofford Calamity Paul has been at the head of this herd for three years and will now be sold with the rest. He ranks among the greatest transmitting sires of the breed, three of his daughters have made seven day butter records of 30, 32 and 35 lbs.; 15 have records above 20 lbs. Most of the females are in calf to this sire and a dozen of his young daughters will be offered.

FOUR OF HIS SONS—and all from A. R. O. dams go to the highest bidder.

For illustrated catalog, address

E. M. HASTINGS COMPANY, Sale Managers, MONONA AVENUE, MADISON, WISCONSIN
Auctioneers: D. L. Perry and B. B. Allen.

CATTLE

DISPERSAL SALE Thoroughbred HOLSTEIN COWS

10 CHOICE FEMALES

Eight have A. R. O. records, one 26.79 lbs.

One daughter of King Segis, grand-daughters of Hengerveld DeKol, all bred to our World record Sire Long Beach DeKol, Korndyke, \$100 to \$500.

Also 10 Choice Bulls, 5 ready for Service—all handsome fellows—all sons of Korndyke, prices \$75 to \$500. Stables over-run, come see them, don't write.

**Long Beach Farm,
Gull Lake, (Kalamazoo) Mich.**

Trolley Car from Battle Creek, Kalamazoo or Grand Rapids and boat to our dock.



Purebred Registered
**HOLSTEIN
CATTLE**

Holsteins, the best dual purpose breed.

If you are not ready to buy purebred registered Holstein cows for foundation stock, why not grade up your common cows by using a purebred Registered Holstein bull? The Dairy Department of the Illinois Agricultural College has figured that \$150 invested in a good purebred bull earns in six years nearly 1000 per cent. profit in the increased production alone, not taking into account the increased value of the herd. Can you invest \$100 or \$200 so that it will pay you more profit? 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.

Bargain in Guernsey Bulls of May Rose blood, up to 7 months of age.
Write Meadow-Gold Guernsey Farm, St. Johns, Mich.

CHOICE HOLSTEIN BULLS—all from A. R. O. dams. Entire herd on Semi of test for yearly work. Jr. 2-yr.-old just finished year's record of over 15,000 lbs. milk, over 1000 lbs. butter record in mature class. Cherry Creek Stock Farm, M. E. Farnelle, Prop., Billards, Mich.

Reg. Holstein Heifer calf, \$50 when 6 wks. old, worth \$100. Out of Pontiac Plymouth Korndyke and good dam. Mostly white. Jay J. Nefcy, Plymouth, Mich.

For Sale Registered Jersey bull calves \$10 to \$25. Bronze Turkey Gobbler. Peter H. Douma, Holland, Mich., R. 10.

HOGS

O. I. C. October boars weighing 200 lbs. at \$25 each for April shipment.
C. J. THOMPSON, Rockford, Michigan.

Way Brothers Stock Farm. The home of the big bone O. I. C. Hogs. Stock for sale. Registered free. J. R. Way, Three Rivers, Mich.

O. I. C. Boars for service. Glts bred for May and June farrow. I prepay express. G. P. ANDREWS, Dansville, Mich.

O. I. C. Serviceable boars, glts bred for June farrow. Booking orders for Spring pigs, no akin. H. W. MANN, Dansville, Michigan.

BIG TYPE O. I. C.'s and Chester Whites. Special prices on all boars and fall pigs either sex. These are sired by Abo 2nd, this boar sired our unbeaten breeders young herd at every state fair we showed this year, other sires are Wonder Boy, White Hall and Allen, this boar was junior champion at Wis. State Fair last year. Now Mr. Buyer our pigs are all sired from champions, our price is no higher than other breeders and the Express Co. charges just the same for a poor pig as it does for a good one. Get our catalog and see where the good ones are. We are booking for Spring pigs sired by Scholmaster, the highest priced boar of the breed and five times G. Champion. We Reg. Free and ship C. O. D. Rolling View Stock Farms, Cass City, Mich.

O. I. C. Swine. I am booking orders for Spring pigs, strictly O. I. C. type bred to farrow the forepart of May. Elmer E. Smith, Redford, Mich.

O. I. C. bred glts all sold, am offering Sept. boars and glts, large growthy ones, and booking orders for spring pigs. A. J. Barker, R. 1, Belmont, Mich.

O. I. C.'s. A few bred sows to farrow in April, May and June. I have 20 last fall boars to offer, also glts. Have them not akin. All good stock. Otto B. Schulze, Nashville, Mich. ¼ mile west of depot.

O. I. C. SWINE I am offering choice glts strictly O. I. C. type bred to farrow the forepart of May. Also fall pigs price right. Stock registered in pur. chaser's name free of charge. A. J. Gordon, R. 2, Dor, Mich.

O. I. C. SWINE. Oct. boars and glts. 3 Registered Holstein Bulls sired by 27 lb. bull.
Cloverleaf Stock Farm, Monroe, Mich. No. 1.

O. I. C.'s Some 2-year-old sows bred. Fall pigs, either sex.
A. R. GRAHAM, Flint, Michigan.

O. I. C. Spring pigs, both sex, \$10.00 each at weaning time. Booking orders now. Recorded free. Satisfaction guaranteed. Julian P. Claxton, Flint, Mich. R. 2.

O. I. C.'s Strictly Big Type

Four last September boars, large enough for service, right good ones. One 1914 Sept. Sow raised nine pigs last fall. Due to farrow May, 10th. Will sell cheap if taken soon.

NEWMAN'S STOCK FARM, Mariette, Mich., R. F. D. 1.

O. I. C. Pigs either sex \$10 each at weaning time. Registered in buyer's name. Best of breeding. JAY J. NEFCY, Plymouth, Mich.

O. I. C. September plgs, both sex. Bred E. B. MILETT, Fowlerville, Michigan.

Boars at Half Price We still have a few big boned, big type Poland China boars ready for service, weighing up to 250 lbs. not fat at \$20 & \$25 each. Registered in buyer's name. Also registered black Percheron Stallion 2 years old \$250.00. J. C. BUTLER, Portland, Mich., Bell Phone.

MY, OH MY!

What an Opportunity

Starting May 1st, we are going to give to the farmers and breeders an opportunity to get started right in the breeding industry. We are going to give you a chance to get hold of foundation stock that will give you a nucleus for one of the finest and best herds in your community. We are going to show you, as we have others, that you will have greater success with our big type.

POLAND CHINAS

than with any other breed. Write for spring pig prices.

Hillcrest Farm, Kalamazoo, Mich.

Big Type Poland China Pairs and trio not akin out of large litters. G. W. HOLTON, Route 11, Kalamazoo, Michigan.

Big Type Poland Chinas—Boars of August farrow, booking orders for spring pigs. A. A. WOOD & SON, Saline, Michigan.

Large Strain P. C. 4 choice boars ready for service. Glts left, some to farrow the last of April and first of May. At Farmers Prices. H. O. SWARTZ, Schoolcraft, Michigan.

Large Type P. C. Glts and sows. Bred for Mar. and April farrow. Sired by Big Des Moines, Big Knox Jr. and Giant Defender. Bred to Big Knox Jr. Smooth Wonder 3 and Big Jumbo, four greatest boars in state. Come or write. W. E. Livingston, Farms, Mich.

For Sale Poland Chinas either sex, all ages. Something good at a low price. P. D. Long, R. F. D. No. 8, Grand Rapids, Mich.

Heavy Boned Poland Chinas. Fall and Summer Pigs. Sows Bred. Eggs from big Barred Rocks \$1.00 for 15. ROBERT NEVE, Piersen, Michigan.

REGISTERED Poland China Spring Boars and Sows Rat \$15 each. Making this special price to make room for others. A. G. Meade, Stanton, Mich., Colby's Ranch.

Large Type P. C. Sows & Glts all sold. Have 3 extra good spring boars. Sired by Big Defender. W. J. HAGELSHAW, Augusta, Michigan.

(Additional Stock Ads. on Page 587).



**This Man Had No Cyclone Insurance.
Are You Going to Be Protected?**

The State Mutual Cyclone Insurance Company Lapeer, Michigan

This Company was organized 18 years ago with Ex-Governor John T. Rich as President and under the careful management of its wise and prudent officers this Company has grown to be second to none.



John T. Rich, President

We give the most liberal policy of any Mutual Company doing business in the State, for instance, a stated amount on produce is operative in any building insurable.

The last few years has demonstrated to us that Old Michigan has become a Cyclone State, and a policy in the State Mutual Cyclone Insurance Company of Lapeer is a safeguard against windstorms.

The most prudent farmers realize that it is careless and reckless in the extreme to leave from \$2000.00 to \$4000.00 worth of buildings unprotected from windstorms and cyclones when it only costs 15 cents on each \$100.00 insured after the survey and policy fee of \$1.50 is paid.

If you are going to join with the prudent farmer, see our local agent or write:

At the end of the year 1897 we had 180 members with \$235,525 at risk. On March 31, 1916, we had 40,000 members with \$86,000,000.00 at risk. This shows our rapid growth.

During our 18 years of rapid growth we have made six assessments, amounting in all to \$1.10 on \$100.00, or \$11.00 per \$1000.00.

Can you afford to be without one of our policies when you consider how little they cost and how much good one will do you, if a Twister comes your way?

Our 40,000 members with \$86,000,000.00 at risk and \$80,000.00 surplus in Savings Banks drawing interest with which to pay future losses looks to us like a good investment.



C. H. Rood, Secretary

We Have Paid the Following Losses During the Last Five Years

Year	No. of Losses	Am't Paid
1911	1010	\$ 67,945
1912	634	\$ 22,795
1913	6750	\$272,784
1914	778	\$ 50,243
1915	367	\$ 21,591

From the above list you will see that we have paid for 9,539 losses which amount to \$435,358.

Charles H. Rood, Secretary,
The State Mutual Cyclone Insurance Company,
Lapeer, Michigan.



AUTOMOBILE INSURANCE AT COST

The Company was organized at the right time of the year, August 30th, 1915, after the heavy losses of the summer months had passed, and has now obtained about 4,000 members by April 29th. The Company passed through the winter months and experimental stage in safety, and is now starting on its second season with everything in its favor.

Policy covers fire and theft in excess of \$25 up to \$1,000, and liability insurance in excess of \$25 up to \$5,000. By liability we mean damage cases brought against the owner of a car either for personal injury or property damaged.

Comparison of Rates

Stock companies charge \$2.25 for each hundred dollars insured against fire and theft on new cars costing over \$700. They charge \$2.75 a hundred dollars on new cars costing less than \$700. They charge for liability insurance, first, for personal injury cases \$1.00 per H. P., plus \$4.00; for property damaged the cost is one-quarter of the personal injury protection, which makes a total cost of about \$50 in stock companies on the average car, and our rate is only \$1.00 for policy fee and 25 cents per H. P., making a total of \$6.50 on a Ford, \$7.25 on a Dodge, Maxwell, Studebaker "4," Oakland Light "6," Buick, and Paige Light "6."

We are soliciting preferred risks, careful and temperate drivers in cities not exceeding 60,000 population, and the country districts. We do not accept cars let generally for hire or those whose drivers become intoxicated.

All losses covered by the policy will be promptly adjusted and paid, based upon the value of the car at the date of the loss, in case of fire or theft, and upon the basis of mutual settlement or judgment rendered in liability cases.

The policy protects your car when driving anywhere in the United States (proper), or Canada, and for this privilege there is a deductible clause of \$25, which cuts out the petty claims, thereby saving money for the serious losses.

The money received from new members forms a fund out of which losses are paid. The surplus from this fund for the first seven months was about \$6,000. We feel that the growth this season will furnish a good fund to pay losses, and that future assessments will be reasonable.

Quantity production has cut the cost of an automobile to \$440; likewise, a large membership in one company, with one overhead expense and one office force will greatly reduce the cost of automobile insurance; in fact, the two big cyclone companies of the state ran many years without making an assessment. The officers of this Company obtained the legislation and have organized along careful lines so as to give you the best protection possible with low cost.

Tomorrow May Be Too Late—Insure Today

The garage at Montague burned on February 25th including six cars. The garage at Albion burned the middle of March with seven cars. About 1,500 cars stolen, and over 2,000 accidents occurred in Michigan last year.

The prudent farmer should insure at once and not leave to chance the protection which he can get for a little money.

Watch the papers, and you will see the report of farmers' cars stolen, and lawsuits started for damages. You may have accidents

which will cost you \$5,000. Our insurance appeals to the leading farmers. Our membership is now increasing about 2,000 per month.

Our membership includes Ex-Gov. Rich, Congressman Cramton, Speaker C. W. Smith, of Lapeer, Lawyers Persons, Lansing, Cavanaugh, of Paw Paw, McCormick, of Bay City, Colwell, of Coldwater; Merchants like Mack of Ann Arbor, Brogan, of Lansing, and D. R. Jones, of Kalamazoo.

If you wish insurance in the only Mutual with a state license and covering liability up to \$5,000, write. Send the name of your car and list price.



William E. Robb, Sec'y,
Howell, Mich.