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Sweet Clover a Boon to Farming on Poor Soils

EIGHT years ago when Samuel Willis began his work with sweet clover in Benzie county he was threatened with arrest by the highway commissioner for growing noxious weeds upon his fields. A delegation of neighboring farmers also called upon him, insisting that he destroy the sweet clover plants because they already had sufficient weeds with which to contend.

Since then things have changed. On the nineteenth of July a large number of farmers gathered at Mr. Willis' farm and observed the benefits he had obtained through growing this particular plant. During the time since his neighbors objected to his methods of farming, they have come to consider his work as the beginning of a new era in the handling of the lighter types of soils in this state.

Mr. Willis' work has been on a comparatively large scale; he has fields of ten, twenty and even forty acres that have been brought to a very profitable state of production largely through the judicious use of the legume plant that was once considered a noxious weed. The railroad cuts, blowing sand on adjacent fields and a careful examination of the character of the soil on the lands where the crops were growing showed without question that great things had been accomplished on a soil that is universally considered to be useless for anything except grazing purposes.

Early in his experience Mr. Willis found a number of problems peculiar to the handling of light soils. One is the persistent growth of June grass. He was obliged to devise some scheme whereby this grass would be prevented from occupying the land to the detriment of other crops. A second problem is to conserve moisture in the soil. There is generally a sufficient amount of rain falling upon the lands in that region, but the rapidity with which it sinks into the soil and away from the reach of the roots of plants, makes most of this water useless for the growth of agricultural crops. A third problem is the prevention of the rapid waste of humus through leaching. Still another vital question to the practical farmer is how to prevent the blowing sand from cutting off or damaging the tender young plants.

In the work with sweet clover on the

If you have light sandy soils or fields that are worn out through one cause or another, the following article may suggest to you a way to redeem that land while you are securing a revenue from it.

land around Thompsonville, Mr. Willis has discovered that most of the problems suggested above can be wholly or partly solved through the proper use of this plant. In the course of a few years he increased the amount of vegetable matter in the soil to a point where he produces maximum crops. This accumulation of vegetable matter or humus aids in the control of soil

moisture in that it absorbs the water as it falls and retards leaching and evaporating. The plant being biennial permits of a type of farming that enables one to keep down June grass to a point where it is not detrimental to other crops. The humus accompanied by proper packing of the soil insures the rapid and even germination of seeds and assists in the prevention of

damage to the young plants through the blowing of sand across the surface of the field.

Different Plans of Starting Crops.

The white sweet clover, the kind employed in the work by Mr. Willis, is a biennial. Most of the fields shown were seeded in July. Some of them were drilled during the last cultivation of a corn crop with a one-horse drill which runs between the corn rows. Other fields were sown without a nurse crop. For this an ordinary field drill was used after being arranged to drill different seeds in alternate rows. In one row would be sown sweet clover, and in the next row a combination of sand vetch and buckwheat. The subject in mixing these seeds is to cover the ground quickly and completely and thus prevent the blowing of sand and the waste of moisture through evaporation.

Aside from the regular practices in working land, Mr. Willis has found that the liberal use of a heavy corrugated roller is essential on this type of land. The roller he uses requires from two to four horses and packs the ground so thoroughly that the surface offers a very firm resistance to the pressure of the foot. It also leaves the surface in a rough condition which prevents the fine grains of sand from gaining any momentum on windy days and thereby damaging the plants as suggested above. Mr. Willis emphasized over and over again the importance of this tool and its proper use and declared that he believed no one would be successful in farming the lighter land without such an implement.

Financial Returns while Soil is Improving.

The reason why sweet clover is so well adapted to the building up of this light soil is that farmers are not obliged to abandon their fields or farms as an income producer during the time that the soil is being improved. Mr. Willis has made his fields pay during the time that he was getting them into their present fertile state. In the first place, sweet clover will grow a very profitable crop of seed. The yield generally ranges from five to eight or ten bushels per acre, and at the present time the seed can be sold at from \$10 to \$15 per bushel. The sweet clover plant also makes splendid pasture, and

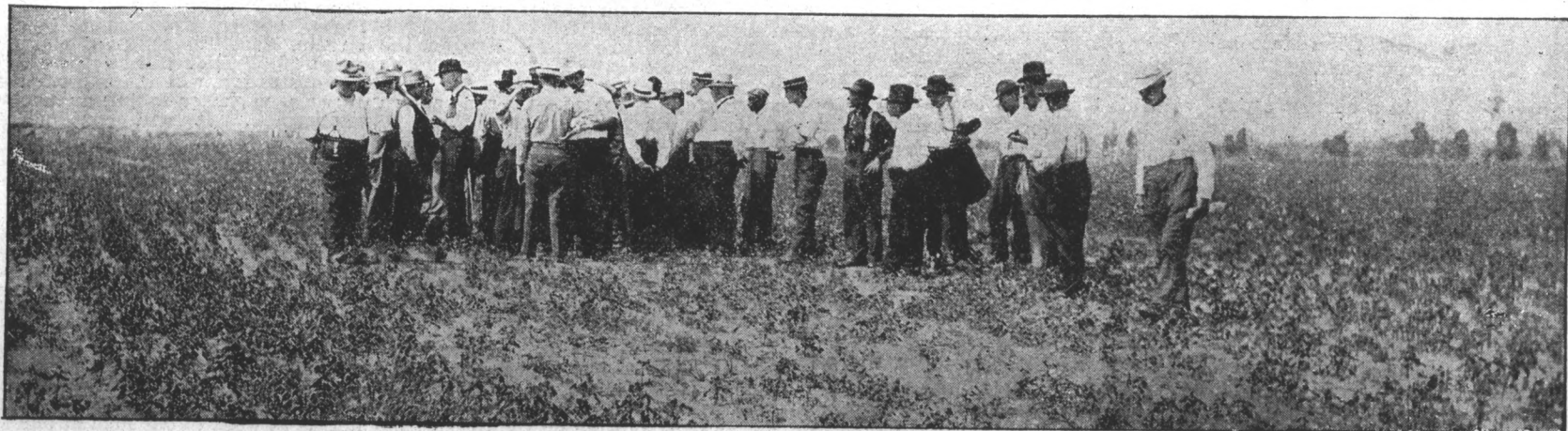
(Continued on page 108).



Excellent Crop of Rye on Left and Sweet Clover on Right. Mr. Willis Leads the Group.



This Field was Seeded to Sweet Clover During the Last Cultivation of Corn.



A Ten-acre Field where Sweet Clover has been Alternated in Drills with Vetch and buckwheat. The stand is Even and the Plants have a Good Start.

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DETROIT, AUGUST 5, 1916

CURRENT COMMENT.

Federal Aid for Good Roads. In a recent issue we commented on the provisions of the law extending federal aid

for good roads to the several states, the same to be apportioned to the states one-third in the ratio of area, one-third in the ratio of population and one-third in the ratio of mileage of rural delivery and star routes.

Of the \$75,000,000 appropriated under the act to be apportioned within a period of five years, \$5,000,000 is available for apportionment among the several states for the fiscal year of 1916. After the deduction of three per cent, or \$150,000, which is estimated as necessary for the administration of the law, there remains for actual distribution among the states \$4,850,000, of which Michigan will receive under the plan of distribution a total of \$145,783.72 during the present fiscal year. For succeeding years the appropriation increases by \$5,000,000 each year until in 1921 there will become available \$25,000,000 for distribution among the states. These figures do not take into consideration an additional amount of \$1,000,000 per year which is appropriated in the same bill for the improvement of roads in national forests where same are needed to serve dependent communities.

Federal aid in road building will be particularly welcome in this state at the present time when there remain considerable stretches of poor road which require permanent improvement to give the state a network of permanent highways along the lines of greatest travel. The educational value of government co-operation will also be of material advantage, since all roads receiving federal aid in the matter of construction must be maintained in a manner satisfactory to the government inspectors, in order to make future appropriations available. More permanent roads are now being built in Michigan than ever before, and with the impetus which will be given the movement through federal aid, good roads will be the rule rather than the exception in all parts of the state before the lapse of many years.

The Rural Credit Law. In a comment published in the last issue of the Michigan Farmer, the provisions of the new national rural credit law were briefly summarized. A study of these provisions will be profitable for every farmer in the state, since the success or failure of this plan will depend very largely upon the attitude of the farmers of the country.

In this connection it is important that general and early interest be taken in the first plan offered for the securing of credit under this new law.

It will be noted that the law provides for the formation of local farm loan associations, but also contains the provision that after one year the federal land banks are empowered to appoint agents for the loaning of money in any locality where no such local farm loan association has been organized. These banks will be the banks and trust companies already doing business within that territory, which financial institutions will be paid a commission on the business placed.

This law, like any law introducing a new system or principle in our plan of government, is quite certain to develop weak points and require amendment before it reaches a maximum of efficiency. The plan of loaning money through the local banker who may become the duly authorized agent of the federal land banks, is a very different one from loaning funds through the medium of a local farm loan association, and it is important that the opportunity be afforded for a comparison of the success of these two methods.

The limitation of the purposes for which loans can be made under this law is a provision which may not appeal to many, but which upon analysis appears to be one of the strong points of the law. Increased facilities for borrowing money are dangerous to many people who lack discriminating financial judgment in the making of investments.

It appears probable that under this plan the interest rates will not be much reduced at least for some time. This should not be regarded as a misfortune, since a rapid cheapening of interest rates would also tend to stimulate borrowing to an undesirable degree. At least this law will prove of great educational value, and afford a foundation upon which an adequate rural credit system will ultimately be built up in a manner which will make land credit a liquid asset to the farmers of the country for the making of loans for development purposes.

The Agricultural Fairs. With the opening date of the Michigan State Fair only one month in the future, this is a timely subject for consideration by every farmer in the state.

While the educational value of any fair is dependent in some considerable degree upon the manner in which it is managed, there is little cause for complaint with Michigan fairs on that score. The indifference of the farmers who have products which might be displayed at the fairs to advantage, or of others who could gain valuable and needed knowledge by attending the fairs is the principal limiting factor of their educational value. The local agricultural fair is bound to be something of a neighborhood event at which the object is entertainment rather than education. With the larger fairs the situation is and should be different. While there is properly an abundance of clean entertainment at these fairs, yet the educational features predominate and should be given the greatest degree of consideration by the fair patrons.

In many fields of agricultural knowledge the state or large district fair is in a field by itself from an educational standpoint. Here as at no other place are opportunities for comparison afforded in a manner which makes possible the judicious selection of farm equipment. Here at the ringside are valuable lessons to be learned regarding the superiority of individual animals of the different improved breeds of live stock. Here can be seen in the most creditable specimens of the many and varied products of our farms in competition with the best that other communities afford. Here also, are good clean entertainment features which serve as a welcome diversion for the tired sightseer.

Space will not permit further comment upon the educational value of our agricultural fairs, nor should such comment be necessary to convince the

reader that it would profit him not a little to make any reasonable sacrifice to attend his state, district or county fair from an educational standpoint alone.

The School and the Farm. In times past there has been far too little connection between the school and

the farm. With the introduction of agriculture into the school system an opportunity is offered to bring the school and the farm together in a manner which will be beneficial to both, and peculiarly beneficial to the farm boy who is the medium for such co-operation.

In some sections of the country where agriculture has been generally introduced into the public schools, a plan has been adopted by which the school children are given credit for the accomplishment of farm tasks which are carried out under the direction of the teacher. So great has been public interest in this proposition that the United States Department of Agriculture has issued a bulletin on the subject (No. 385), for distribution among educators. This bulletin devotes a number of pages to examples showing the nature of the school projects and the amount of credit granted for the accomplishment of different tasks.

It is, of course, necessary to have real co-operation on the part of the parent if the school and the farm are to be brought into closer relationship to the advantage of all concerned. The parent must furnish the pupil with the land, the animals or the equipment for the carrying out of the projects selected. He must also grant the pupil the time needed for the work, and should verify and vouch for the time record of the pupil. He should also, so far as may be practical, give the pupil the benefit of his own experience in the accomplishment of similar projects, and to give the work a maximum of educational value he should allow the pupil the benefit derived from his own labor and management. This, however, may not be always easy of accomplishment where the pupil takes up one of the phases of the regular business of the farm as his task.

On the other hand, if the services of the pupil are needed in the accomplishment of the necessary work of the farm, it is economy and adds to the feasibility of the scheme to make his task a part of the regular routine work of the farm. The scheme is well worthy of the attention of parents who would interest their boys and girls in the business of agriculture and gain for them a maximum of knowledge during the period of their school attendance.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—Fighting rages on both the eastern and western fronts with the results for the past week encouraging for the Allies. On the western front along the Somme river the British and French are continuing their tremendous assault on a battle line eight miles in length. Both these armies have advanced to new commanding positions in spite of the terrific counter-attacks of the Germans. Canadian troops made further gains south of Ypres while Irish forces carried out a successful raid near Loos.—On the Verdun front the Germans have developed a very strong offensive on the eastern bank of the Meuse river. Paris reports that these efforts have been successfully repulsed.—On the eastern front the Russians are now threatening Stanislaw in southern Galicia where five strategic railroads converge. The right wing of this great Russian army 150 miles to the north, is advancing upon Kovel, another great railway center, while the body of the army is slowly forcing the Teutons back in the direction of Lemberg, the capitol of Galicia. Last Friday the Russians captured the town of Brody 58 miles to the northeast of Lemberg. During the past eight days this Russian army has taken nearly 40,000 prisoners.—The Czar's forces are also active in the Riga district.—The Serbians and Bulgarians are fighting on the Greek frontier.

In a battle on July 30 the Serbs were victorious.

Mexican Affairs.—Gen. Carranza is to retire as first chief of the de facto government of Mexico at an early date, and will be succeeded by Gen. Gonzales, according to recent information. Gen. Carranza will enter the field as a presidential candidate at the forthcoming general elections. A conference of Mexican generals with Carranza will soon be held in Mexico City to arrange for the call for a general election.—The conference between representatives of Mexico and the United States to settle the controversies between the two governments will be held at a time and place to be decided upon early in August.

The official figures of the German government relating to the conquests at the end of the second year of the war shows that the central powers have occupied 431,000 square kilometers of territory as against 180,000 during the first year. The enemy, on the other hand, has occupied 22,000 square kilometers as against 11,000 for the previous year. Germany, Bulgaria and Turkey have captured 2,658,000 enemy soldiers this past year, against 1,695,000 during the first year of the war. According to the list of statistics of German wounded soldiers 90.2 per cent returned to the front, while 1.4 per cent have died. The remainder were rendered unfit for service and will be released.

National.

The number of deaths and new cases in the infantile paralysis epidemic in New York City, shows a decided decrease for the 24 hours ending 10 a. m. Sunday. The Michigan State Board of Health has sent out a call to all physicians who have handled cases since the epidemic started in the east, to furnish as much documentary reports of their cases as possible.

President Wilson has appointed the following members of the Farm Loan Board, created under the Rural Credits Bill which recently became a law: Judge Charles E. Lobbell, of Kansas; Capt. W. S. A. Smith, of Iowa; George W. Norris, of Pennsylvania, and Herbert Quick.

A terrific explosion of ammunition awaiting shipment to the entente Allies on Black Tom Island in New York Bay, resulted in a property loss estimated at \$25,000,000. Three persons are dead, five more missing and scores of others were injured. New York City was shaken and many of the streets in Gotham were strewn with glass and other debris blown down by the impact. There is suspicion that enemies of the Allies were responsible for the explosion. It is stated that the United States government was warned of the plot three days ago. What precautions were taken is not known.

The number of victims of heat continue to grow. On Sunday the toll, particularly in the large cities, was about the heaviest of any day since the present warm weather set in early in July. In Detroit 14 persons succumbed on that day, when the official thermometer registered 98 degrees, while the temperature on the street reached 108 degrees.

Five buildings were burned at Rives Junction ten miles north of Jackson Sunday from a fire thought to have started from spontaneous combustion.

According to the Detroit city water board census, the number of people now living within the city limits is around 725,000. This total does not include Highland Park, Hamtramck, Ecorse or Greenfield, which have a joint population of about 75,000.

TRI-STATE TRACTOR DEMONSTRATION.

The Tri-State Tractor Demonstration, which will be held at Toledo on Tuesday, August 8, gives promise of being the largest demonstration ever held in the east, not only for the tractors entered, but for the attendance. At least 5,000 visitors are expected and arrangements are being made to park several hundred automobiles. The demonstration will be held at Holbrook Farm, corner Front and Dearborn streets, East Toledo, on a plot of 32 acres, 20 of which will be plowed. The demonstration will start promptly at 10:00 a. m., after taking an unofficial photograph. It will continue until noon, when an intermission of one hour will be allowed. When the plowing is completed, harrows and discs will be used to put the ground in shape. All of the tractors entered will pull either two or three plows. These being the sizes which are proving popular in this section. The demonstration is in no way competitive, except as to quality of work done, and each visitor will be called on to decide for himself as to his favorite machine. The demonstration will be the best opportunity that has yet been given in the east to observe several of the modern steel horses at work in one field at one time.

Work Proves Value of Tractors

TRACTORS are now being used in practically every important agricultural district of the state. Farmers have been purchasing these machines in large numbers during the past year. The success attending the use of the pioneer machines has induced others to avail themselves of this form of power on the farm.

The experience of farmers last fall and this spring has convinced them that this new force upon the farm has peculiar advantages, despite the fact that no two seasons in many years were worse for the use of traction power than the two mentioned on account of the large amount of rainfall. The accumulated experience that farmers are getting in handling these machines, first as to securing the greatest efficiency from the engine and second as to the different kinds of work upon the farm for which these tractors may be employed, and also the improvements that manufacturers are making, are doing much to popularize tractors in rural districts.

Tractors Are Dependable.

The tractor, like the automobile, is having a better chance today than it did two or three years ago, because there are more experienced operators to handle them. Lack of men qualified to run these machines was responsible for some of the failures to get good service from them. But the situation is already improving. Farmers and farmers' boys are rehearsing the different features of the different makes of tractors, the best methods of operation and the ability of their respective machines for accomplishing work, quite as naturally as they formerly did the merits of their favorite teams of horses. While this interchange of experiences is already familiarizing the farmers with tractor requirements and needs it is going to mean more in the future, for it will develop a large school of operators so that farmers will not be handicapped in securing capable tractor engineers.

The increased reliability of tractors is a matter now being generally commented upon by owners. It is easy to find parties who have gone through an entire season without having been put out a day because their engine was not in working condition. A year ago the federal government made an investigation of farms where tractors were operated and found that of two hundred tractor owners in Illinois 57 per cent of the owners reported that their outfits were not out of commission a single day when needed during the season. In many cases where there has been trouble it is afterwards revealed that the difficulty lies not with the machine but with the operator. With the coming of a time when there will be sufficient men qualified to handle these machines, and with the added improvements that have been and are being made in the machines themselves, it is certain that the day is near at hand when tractors will be even more reliable as a source of power than the faithful horse himself.

Doing the Work on Time.

One of the leading advantages of the tractor is that a farmer is able to do a large amount of heavy work in a comparatively short period of time. This advantage is being appreciated more and more as the farmers consider more thoroughly the relation of the tractor to their farm practices. Here is the proposition in a nutshell: A farmer has a certain amount of work that ought to be performed by a given time; he has a team of horses to do this work, and if they should be employed full time for a week they could accomplish the task. However, it rains which makes it impossible for the horse team to finish the work in the appointed time. The tractor, however, can plow the field or harrow it, or whatever the work might be, in one-third of the time required by the team. While the rain would delay the time

put any greater burden upon his team than is absolutely necessary. With the tractor, however, this sentiment and feeling does not enter in, and he can set the plows as deeply as he cares, throw the discs in at whatever angle he chooses and pulverize the soil regardless of his motive power. While this advantage may not appeal to all as strongly as the two former advantages do, it is a matter that should be weighed by those contemplating the purchase of tractor power.

The Farm Help Problem.

Another advantage emphasized by owners is that the tractor saves farm help. This, too, is a very important matter under our present social conditions. Help is scarce in all our rural districts and wherever farmers can overcome the handicap through the purchase of labor-saving devices, they are doing so. With a small tractor one man will plow from five to eight acres per day, whereas with a team this same man could plow not much over two acres. Other work could be accomplished in about the same proportion. Thus for doing the regular field work it would be found that the tractor would cut down the man days required, perhaps from 50 to 75 per cent.

Another advantage is that better work is accomplished in most instances where the tractor is used. This is particularly true in hot weather. During extremely warm days one is loath to

Belt Power Needed.

Progressive farmers everywhere have learned that it is impossible to perform the various types of work upon the farm without some kind of belt power. This fact is testified to by finding upon every up-to-date farm a gas engine. Among the duties performed by the gas engine will be found the pumping of water, grinding feed, filling the silo, cutting wood, shelling corn, and many other tasks too numerous to mention. Where one has a tractor for doing field work it can be employed for these other tasks as well. When the farmer multiplies the number of days he is able to use the tractor in the year he increases the profits from his investment in the machine. Farmers therefore find that the greatest advantage comes to them when they can make their tractor do the largest number of jobs that it is fitted for accomplishing.

Michigan's 1916 Crops are Large

THE present outlook for crops in the state of Michigan is very encouraging. The evidence at hand indicates that despite the last two years of prosperity among our farmers, due to good crops and high prices, the total 1916 production will more than likely equal, if not exceed, that of other years.

We have at hand the federal and state crop reports and numerous letters from our crop correspondents in the different counties of the state, and during the latter part of July we made a crop-inspection tour through twenty-four counties of the lower peninsula, going diagonally across the state from Wayne county to Benzie, then down the western shore as far south as Kalamazoo, thence across the southern counties to the eastern side of the state.

Almost every district showed crops in a flourishing condition, and farmers had fully recovered from the discouragements that had developed during the weeks of cold, wet weather of April, May and June. Remarkable growth has attended the coming of the warm days since the first of July, and crops that were backward on account of late planting and sowing have regained much, if not all, of their handicap, and now promise to mature well within the range of time for the average season.

Corn.—The acreage of this leading cereal for 1916 establishes a new record for Michigan. It is probably 225,000 acres greater than was put in a year ago. Much of this acreage was planted later than usual, but hot weather has developed the plant rapidly, and by the twentieth of July we saw a large

number of fields that were tasseling out. This was particularly true along the western side of the state. Farmers in the northern part of Michigan are promised a splendid crop if the counties traveled through are any index of the crop throughout the northern section. A few limited districts in the southeastern part of the state exhibited the poorest prospects of any places visited. Should the fall be a normal one, we are confident that Michigan's corn crop for the present year will run very close to that of a year ago when a bumper crop was harvested, and possibly establish a new state record for this important cereal.

Wheat.—Wet weather last fall was responsible for cutting down the acreage of wheat sown in Michigan as well as in other winter wheat states; however, the acreage is well above the average of the past five years. It was a peculiar situation to find that harvesting had begun in the northern counties earlier than in the southern part of the state. We also found that the crop had ripened earlier along the Lake Michigan shore than on the eastern side. In some localities threshing had started. Threshermen are confident that there are many surprises in store, as they believed that the yield of wheat is going to be larger than estimates have placed it. On our trip we observed many excellent stands of the grain. There were very few fields that had any lodged grain, and while in several places we observed red rust, and in two instances small quantities of black rust, the damage from these diseases will not be of importance. Although the production will not equal

last year's record crop, it will undoubtedly run far ahead of the average for the past ten years.

Oats.—Much of the ground intended for wheat last fall was sown to oats this spring, and while a considerable area of land did not get seeded to this crop because of the continuous wet weather, the present acreage probably establishes a new record for the state. The crop has developed remarkably well, and one sees more first-class fields of this grain in passing through the state than he would during the average years of the past. The recent dry weather has also favored the development of stiff straw, which is preventing the lodgment of the grain, as large areas would certainly have gone down had much moisture fallen during the past three weeks. While the federal report on this crop for the first of July places the estimate at 47,000,000 bushels, we are confident that the final figures will be far above this estimate, as at that time things looked discouragingly because of cold wet weather and much of the rapid growth of the crop has taken place since correspondents reported to the federal government. Farmers everywhere seem delighted over the splendid prospects for a good oat crop. In one or two localities we observed heads that were not filling quite as they should, and having some "blasted" kernels. Smut also shows to some extent. These detriments, however, are no worse than in a normal season.

Rye.—The amount of rye sown last fall was limited to a smaller acreage than for previous years for the same reason that the sowing of other fall crops was restricted. We found many excellent fields of the grain, and believe that the federal forecast of 5,600,000 bushels for the state—which is 1,400,000 bushels less than the bumper crop of 1915—is a figure fairly representative of the probable production for this year.

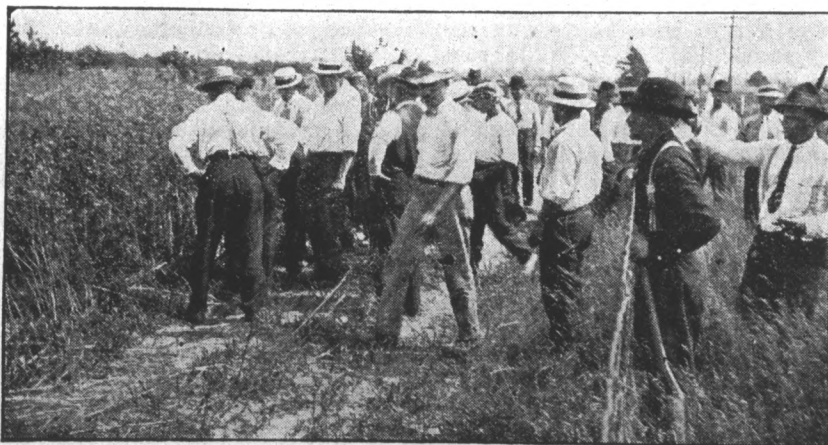
Buckwheat.—The delayed sowing and planting of other crops encouraged the sowing of a larger acreage of buckwheat than is usually put in on Michigan farms. Everywhere this crop appeared to be doing nicely and if normal weather prevails the total yield will be large.

Barley.—According to the state estimates, a normal acreage of barley has been sown. Farmers report an excellent stand, and we saw many splendid fields of this crop. It is standing up well, and there should be little loss in harvesting, as the crop is already turning and will soon be out of danger of inclement weather.

Beans.—The amount of beans sown this year probably equals, if not exceeds, the record acreage of 1915. Despite the fact that farmers were obliged to pay high prices for clean seed, they are satisfied that this cash crop is one of their leading products in securing quick ready money. Many of the fields were planted late, nevertheless the warm weather has brought them on rapidly, and at no time has the writer ever observed so many even stands as in the recent trip through the important bean sections of the state.

Potatoes.—The large amount of moisture falling upon the soil in the early months of the spring made possible ideal conditions for starting the commercial potato crop of Michigan. In the largest producing counties we found that farmers had planted unusually large acreages, and that the stands were probably equal to the best they have had in a number of years. The federal government estimates a yield 13,000,000 bushels larger than the production for 1915. While many things can happen to this crop before the tubers are harvested, under normal conditions the potato growers of Michigan ought to fare well from the 1916 crop.

Hay and Forage.—Not only was the acreage of hay large, but the heavy yield in practically all the leading hay counties of the state is a matter of



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FEED Store for sale on west side of city (Detroit). We buy hay, straw, oats and chicken feed in car lots. Have a large retail and wholesale cash trade. About \$2500 will handle. We have other interests and must sell. Box W-85, In care Michigan Farmer, Detroit, Mich.

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much comment. It is probable that when final figures are obtained they will show that the current year's crop will be as large, if not larger, than former record crops. Clover, timothy and alfalfa hay have all shared in the splendid yields. In some localities lack of labor handicapped the farmers and the quality of the hay was damaged somewhat by delay in cutting. However, the weather was generally fine throughout the haying season, and for this reason the average quality of the product will run comparatively high.

Sugar Beets.—While the area planted to sugar beets in Michigan is slightly below that of 1915, when a record crop was planted, the total acreage as given by the federal government is equal to or above the average for previous years. On our trip through the beet producing counties we observed many excellent stands. There were some uneven fields due to lack of under drainage and the planting of the crop previous to the cessation of rains early in the summer. In most instances, however, the growth of tops was large for the season.

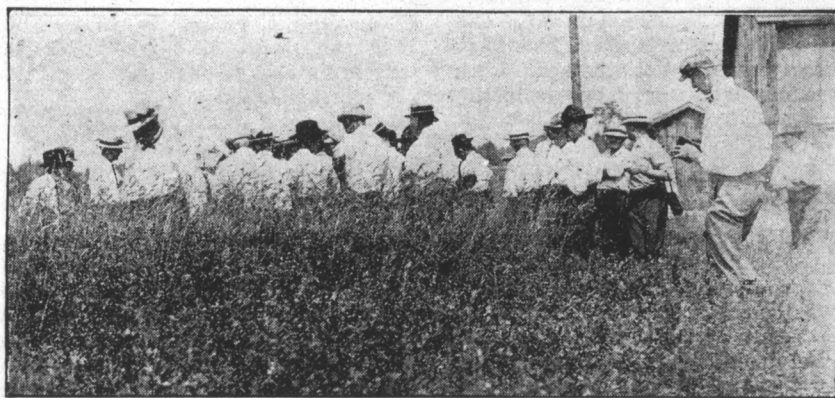
Apples.—While the prospects are not for a mammoth crop of apples this year, observations would lead us to

to one who has been over the ground to be none too high. With the country in a flourishing condition industrially, and the people able to buy liberally of the products of the soil, there is every reason to believe that farmers are going to realize compensatory prices for their 1916 crops which, if true, should bring an income to Michigan farmers considerably above the average.

SWEET CLOVER A BOON TO FARMING ON POOR SOILS.

(Continued from page 105).

a hay with a high protein content can be made from it. The Ohio Experiment Station reports that good results have been obtained from feeding sweet clover to horses and cattle. In South Dakota sweet clover hay proved satisfactory for lambs. In Iowa the station obtained good results with sweet clover as a hog pasture. The fact that the crown of sweet clover is below the surface of the ground instead of on a level with it, as is the case with alfalfa, makes pasturing less injurious than it is to the alfalfa plant. The best authorities recommend that sweet clover be grazed closely, as the stems



Heavy Stand of Alfalfa and Orchard Grass on Mr. Willis' Farm.

believe that there will be a fair crop harvested, providing conditions are normal for the next three months. The federal crop report indicates a yield for the United States at 72,500,000 barrels as compared with 76,670,000 barrels for 1915, while the same authorities forecast a crop of 4,880,000 barrels for Michigan as against a crop last year of 3,150,000 barrels. These conditions ought to give the apple growers of Michigan an opportunity to make a wider margin of profit on their apple crop than they have done during the past two years.

Peaches.—Most of the leading peach producing counties have prospects for a good crop. The outlook in Kent county was probably the poorest of any of the counties visited. Growers believe, however, that the year will be a profitable one. The yield of peaches in the United States for 1915 was over 63,000,000 bushels. The federal estimate for the whole country for the present year was 42,000,000 bushels. Michigan's crop, on the other hand, is forecasted at 2,260,000 bushels for this year, compared with 2,360,000 bushels for 1915. These conditions are certainly encouraging to the peach grower, and ought to bring prices that will enable him to market the crop to his financial advantage.

Grapes.—The condition of the grape crop is fair to good in most of the heavy producing sections. While growers were unable to do the careful spraying that is usually possible, because of the heavy rains of spring and early summer, the crop does not seem to be suffering badly from diseases and insects. Recent continuous warm weather and sunshine has probably made up in part for failure to apply chemicals carefully during the early weeks of the growing season.

In all, the outlook for Michigan agriculture in general is most promising for 1916. The recent estimate placed on the crops of the state by the federal department of agriculture which shows the crops for 1916 to be 5.2 per cent above a normal or average, seems

are likely to become woody if allowed to grow too large. In some instances animals refuse to eat the plant, but they can usually be persuaded to do so, and after they once acquire a taste for it, they appear to even prefer it to other legumes or grasses.

Sweet Clover the Key Crop.

Having these dual values the sweet clover plant becomes the key crop to the system of rotation as practiced by Mr. Willis. The first crop he usually allows to grow to seed. He harvests this with a binder, cutting the stubble high in order to leave as much vegetable matter on the ground as he can. The seed is threshed out and the chaff is returned to the soil and plowed under with the high stubbles and roots. This furnishes a liberal supply of vegetable material for the formation of humus. Since this plant is one of the best of our legumes for accumulating nitrogen into the soil from the atmosphere, it will be found that a field will be put in tolerably fair producing condition after the first good crop of stubble and roots have been turned under and have partly decayed.

On some of the fields the sweet clover crop was followed by a seeding of orchard grass and alfalfa. Where it was apparently impossible to start the alfalfa plant previous to the growth of sweet clover it became an easy matter to get a good stand afterwards. Mr. Willis harvested alfalfa and orchard grass this year which he estimates went better than three tons to the acre for the first cutting. The stubble as seen by those present at the meeting suggested that a very large crop had been taken from the field. On another field was an excellent stand of rye and sand vetch waiting for the binder. This was the best field of rye that we had seen anywhere in a journey of eight hundred miles through different sections of Michigan. The field contained fully forty acres and was even throughout. In some places the growth was so rank that the grain had lodged. The vetch had grown luxuriantly, and a considerable seed will

undoubtedly be threshed out. One of the pictures herewith shows a road running by this excellent field of grain.

Those present were cautioned against the temptation to revert to the old type of agriculture after they have once gotten their soil in a fertile condition. This reversion would soon reduce the fields to their former state. The proper thing to do is to make sweet clover and other legumes the key crops in a rotation that is to be followed indefinitely. If one combines these legumes with other crops so that the humus content of the soil can be maintained to where the maximum crops will be produced then he is certain, judging from the experiences of Mr. Willis, to find that these lighter soils will prove profitable for agricultural purposes.

An Authority Encourages the Work.

Prof. Shoesmith, of the Michigan Agricultural College, was present and addressed the visitors along the line of work conducted by Mr. Willis. Prof. Shoesmith believes that the hope of agriculture on this lighter type of soil will be found in following a system of farming similar to the one so well exhibited by the host of the day. Prof. Shoesmith has great confidence in the plan because farmers can make a living on the land while they are improving it. This places the scheme within the possibilities of every farmer.

He then dwelt upon the importance of firming the soil when planting or sowing seeds in sandy land. He advised the use of the corrugated roller for the same reasons given by Mr. Willis. The necessity of inoculation was also dwelt upon. Prof. Shoesmith also believes that results might even be improved if a proper application of lime is made to the soil, especially when it shows an acid condition. He declared, however, that by adding a large amount of humus to the soil it is possible to grow sweet clover, even though tests show the soil to be sour.

His next point was that a different type of farming is needed; old methods have proven a failure on this kind of soil. There is little use in trying them.

A Need that Farmers Could Profitably Supply.

Prof. Shoesmith emphasized the great demand that is now developing for sweet clover, vetch and alfalfa seed. He also pointed out the superior qualities of seed grown in northern latitudes. The hardness of those seeds grown in northern Michigan makes them peculiarly fitted for the demands of farmers throughout the states of the lake region. This encouraging outlet for seeds that could be grown to advantage over the broad acres of our northern counties ought to give to the farmers of the state an ambition to supply the need, especially because in doing this they can at once engage in a profitable business and at the same time get their soil into a productive condition.

If it is possible to take care of the June grass he believes that one could keep a field into sweet clover for a few years by allowing it to re-seed itself and take off a crop of seed each season. This would materially cut down the cost of production, thus increasing the net profits. It was the opinion of the speaker that as large a profit could be made on investment in this lighter soil if properly handled as on money put into the heavier land of the state.

We believe that the work of Mr. Willis will be a great factor in the development of large areas of land in Michigan, and that much credit is due him for working out problems in the face of much criticism from the ordinary farmer as well as from students of agriculture. We trust that the splendid beginning he has made will be followed up by careful work in different sections of the state and that publicity will be given the matter until every farmer who owns soil of this character will know how to handle it in order to obtain maximum results.

Cover Crops for the Orchard

FARMERS and fruit growers are getting to realize more every day the value of humus in the soil. With light sandy soils being made productive by the addition of vegetable matter, we have demonstrated that the decomposition of this vegetable matter, or humus, is what gives life to the soil. Plain earth entirely devoid of humus is dead and unproductive, but one which has plenty of decomposing vegetable matter is full of life.

Often fruit growers do not realize this essential of soil fertility as much as the general farmer. His trees and bushes are in the same ground for a number of years and if he has a crop failure he lays the blame on the frost or some insect or fungous disease.

Orchard observations however, show that many of our fungous and bacterial diseases are more prevalent on trees which are not properly nourished, and that crop failures can be traced to soil management as well as to pests.

Value of Cover Crop Recognized.

To the thorough and successful orchardist there is no doubt as to the

tivation should cease in late July or early in August the seed is ripe and it was scattered by cultivating across these strips.

Sweet Clover as a Cover Crop.

A Kent county farmer was successful in using sweet clover as a cover crop. Clover that was sown July 15 was two feet high on October 10. The stand of this cover crop, however, was better on newly turned over sod ground than on that which had been in cultivation for several years back. Sweet clover has been used very successfully to bring fertility to barren sandy soils and it will undoubtedly prove valuable on some of the poorer orchard soils.

For the heavier soils any clover in combination with oats is good. The combination cover crop is better than either oats or clover alone. The oats furnishes covering for fall and clover green matter for turning over in the spring.

Where one is sure of sufficient humus in the soil some catch crop, which dies down with the frost, is good. An Allegan county fruit grower has been



Sweet Clover Used as a Cover Crop.

value of a cover crop, but to some the necessity of having a cover crop does not appeal as strong as it should and consequently many orchards are given a fair cultivation for part of the season and then left uncared for for the remainder of the growing season.

Half-hearted cultivation with no cover crop is almost as bad as no cultivation at all, and thorough cultivation without cover crops is much worse. It is like putting a forced draft on a fire without putting any coal on it; the fire would burn out. Cultivation hastens the decomposition of the vegetable matter and thus makes available plant food for they growing plant. If no green material is supplied the supply of humus will become low. It is true that weeds and grass which come up after the cultivation stops will furnish humus but it is uncertain, unsatisfactory and unbusinesslike to rely upon such a source of humus-making material.

The Kind of Cover Crop to Raise.

The kind of cover crop to use depends greatly upon the soil. For sandy soils there is nothing which will do better than vetch and oats. The oats will make a good cover in the fall and the vetch will be at its prime for turning under in the spring. Furthermore, vetch is one of the best nitrogen-gatherers of the legume crops and is one of the best to enrich light soils.

Crimson clover has also been used with success, especially in the southern part of the state. In the northern part of the state it is likely to winter-kill. It is also a little more difficult to get a good stand the first time it is sown on light soils, but after the soil gets thoroughly inoculated it does very well.

One grower in the western part of the state has a method of growing crimson clover which is labor-saving and also economical as far as the cost of seed is concerned. In spring he plows all of the orchard except a strip about two feet wide in the middle of each space between rows. When cul-

very successful with Canadian field peas and oats. It was his custom to disk his orchard in spring. The non-hardy crops made disking easy and he claimed that the turning under of dead vegetable material was sufficient to maintain the humus content of the soil.

The cover crop should be given due consideration by all orchardists as it is one of the essentials of the now almost universally accepted and approved method of orchard soil management, the cultivation and cover crop system. It is fully as important as cultivation and should be so considered.

SUMMER PRUNE CUTBACK PEACH TREES.

As a result of severe heading back and good growing weather, the peach trees make an unusually vigorous dense growth of new branches. In order to secure the best form of tree this dense growth of new limbs should now be thinned out. If all these branches are left crowding each other, they will fill the center of the tree which will result in their being shaded and weakened.

Enough thinning of the dense branches in cutback peach trees should be done to open up the center of the trees to admit sunlight and air. Space the branches so each one will have room to make full development and mature its fruit buds for the coming season. Pruning should be most abundant in the center of the tree in order to form rather an open center and to encourage the formation of a low, wide-spreading head. The tendency of much of this new growth is directly upwards. In many cases strong inner branches growing straight up may be tipped back to outward growing side branches to secure lateral spreading form of the tree.

Give this strong new growth plenty of room and light and a fine crop of fruit buds will result next year, but if they are too densely shaded, the fruit buds cannot develop properly.

John Deere Implements

John Deere Inside Cup Elevator

THE grain elevator that is always protected from bad weather. With ordinary care will last as long as the crib.

Always ready for either ear corn or small grains.

Simple, and easily operated. Roller bearings in both head and boot sections.

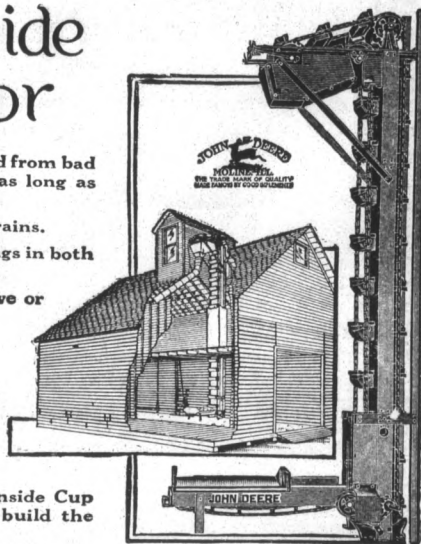
Receiving hopper can be placed either above or below floor of driveway.

Furnished in any length desired.

Elevator can be driven from either side.

Double chains have a carrying capacity of over three and one-half tons.

Write us for our free book of "Suggested Plans on the Way to Build a Corn Crib and Granary in One." It shows how this can be built and equipped with a John Deere Inside Cup Elevator, and for less money than you can build the ordinary style of crib.



John Deere Van Brunt Grain Drills

One Horse, Five Disc Fertilizer Drills

ESPECIALLY suitable for seeding between corn rows or in limited space. They do not destroy hills of corn planted out of line. When discs come in contact with corn hills they spring in, dodge them and return to their place.

Plant any small seed, alfalfa to bearded oats, peas and beans in rows 6, 7 or 8 inches apart, and distribute any standard fertilizer. Plant seed only, distribute fertilizer only, or handle both at the same time.

Amount per acre regulated merely by shifting feed gauge levers.

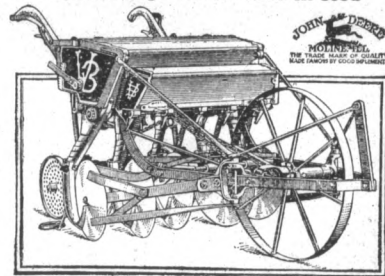
No choking of seed or fertilizer in the hoppers. Adjustable gate force feed in seed hopper, finger type plates in fertilizer hopper prevent it. All the ground sown.

An even stand of grain certain because pressure springs compel discs to cut furrows of uniform depth and seed is protected until it reaches bottom of furrows.

Van Brunt Drills do not clog up—scrapers keep discs absolutely clean.

Fenders and braces are so constructed as to prevent cornstalks or trash from lodging in the machine, clogging it or dragging along.

Grass seeder attachment can be furnished which will drill or sow broadcast, as desired.



John Deere Spreader

The Spreader With The Beater On The Axle

BEATER drive works on the principle of a horse power. No clutches, no chains, no trouble. Mounting the beater on the axle (a patented feature) does away with half the types of castings.

Only hip-high to the top—but has big drive wheels. Wheels out of way when loading.

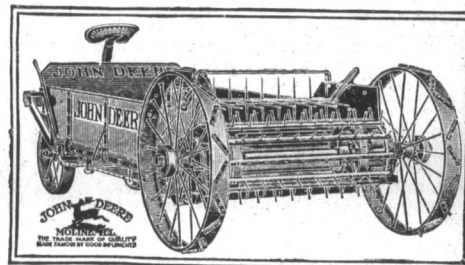
Here are three exclusive John Deere Spreader features—read them over and then be sure to see them on the spreader itself:

1. Beater on the axle—nothing else like it.

2. Revolving Rake—load moving back to beater revolves the rake. Draft actually less. Even spread certain—no bunching.

3. Ball Bearing Eccentric Apron Drive—requires no attention.

If you want to distribute manure seven feet wide, use the John Deere Wide Spread Attachment. Write for free booklet.



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A Big One—168 Pages

Tells all about a complete line of farm implements and how to adjust and use many of them. A practical encyclopedia of farm implements. Worth dollars. This book sent free to every one who states what special implements he is interested in and asks for package No. X-5.

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Warranted to Give Satisfaction.

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Caustic Balsam****Has Imitators But No Competitors.**

A Safe, Speedy and Positive Cure for
Curb, Splint, Sweeney, Capped Hock,
Strained Tendons, Founder, Wind
Fuffs, and all lameness from Spavin,
Ringbone, and other bony tumors.
Cures all skin diseases or Parasites,
Thrush, Diphtheria. Removes all
Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism,
Sprains, Sore Throat, etc., it is invaluable.
Every bottle of Caustic Balsam sold is
warranted to give satisfaction. Price \$1.50
per bottle. Sold by druggists, or sent by ex-
press, charges paid, with full directions for
its use. Send for descriptive circulars,
testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

**A Wonderful
FEED****THAT'S GUARANTEED**

—to produce more milk than any other ration
either home mixed or purchased and do it
without giving your cows constipation or
udder trouble. Ready to use right out of the
sack without any mixing.

Larro-feed

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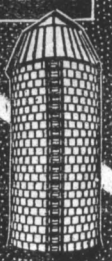
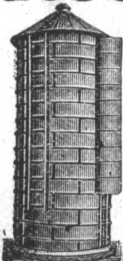
Absolutely free from adulterants and fillers, just
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combination of choice cottonseed meal, dried beet
pulp, gluten feed, corn distillers' grains, wheat bran,
wheat middlings and a little salt, that's all; each in-
gredient weighed by automatic scales and all
thoroughly mixed in huge power driven mixers, so
that it is always absolutely uniform, and always
good. An extra quart or two of milk daily from each
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stronger, more durable silo wall.

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defies snow, winter frosts
and hot summer heat. Reinforced
twisted steel. First cost, only
cost. Write for catalog.

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Get our offer on Climax Silage Cutters
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**ROSS In-de-str-uct-o
Metal SILO**

Keeps all your ensilage sweet,
fresh and clean. Unavoidable
loss reduced to about 1% due to
no leakage or evaporation.

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can't blow down, buckle, twist
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Better Swine for Our Farms

I HAVE chosen this subject for a
little hog talk this morning, be-
cause the general lack of interest
in the matter of swine improvement is
very evident. Just now "Pigs are Pigs"
and we may not wonder when we see
people driving, or hear them telephon-
ing, around in search of pigs, and ask-
ing no questions concerning race, col-
or or any other attribute except the
price, and sometimes even that does
not seem to be seriously considered.
Let us forget the subject of our talk
for a minute and wonder why people
will pay three or four dollars each for
little pigs in June when they can hard-
ly expect to put them on the market
before the latter part of November at
the earliest, and perhaps not before
Christmas. Suppose our pigs weigh
at marketing time from 150 to 175 lbs.
and we can not get them ready until
the market has fallen off a cent and a
half a pound. We have lost from \$2.25
to \$2.62 per head on our hogs by not
being able to put them on the market
before the price went down. This il-
lustrates the advantage of feeding the
early pigs.

Improvement Comes with Interest.

The improvement of any live stock
begins with increased interest on the
part of the owner. In talking with a
dairyman the other day, he told me
that the year in which he tested ten of
his cows for the Register of Merit
class, he was sure that the expense of
testing was compensated for by better
work on the part of the cows. This
improvement came from the fact that
the testing increased his interest in
the herd. He was watching every cow
every day, constantly looking for ways
to make her produce more butter-fat,
and marked improvement resulted
from such efforts. It is just as possi-
ble to improve our swine as to better
our dairy cows and there is also as
much need of it.

In passing over the state, we find a
marked difference in the general con-
dition of the swine. In some localities
good hogs are the rule, and there are
few exceptions. In other places one
may discover a few really fine speci-
mens but in the main the hogs are
neglected. But now and then we come
to a community where almost no at-
tention is paid to this matter, and
what hogs there are might as well not
have been.

This entire matter depends mostly
upon the interest which the owner
takes in the work of improvement.
While we blunder into a degree of suc-
cess now and then, the rule is that our
success in any line of endeavor de-
pends upon our application to the work
chosen.

The Ability to do One Thing Well.

I imagine that the trouble with most
of us is that there are certain limits
within which we can act, and it is
pretty hard for us to get beyond them.
A friend of mine, a Jersey breeder,
called one day upon a lady who had a
few really fine Jersey cows. Right
across the road from where she lived
was one of the finest orchards in that
part of the state. It had been pruned
and sprayed and otherwise cared for
until it was a delight to walk through
it and see some of the things we won-
der at when we behold them in pic-
tures designed by hustling advertisers.
But the orchard on the farm where the
lady lived, was sadly neglected. "Why
don't you spray your orchard?" in-
quired my friend. "Never mind the or-
chard," she said. "Come and see my
Jerseys. Say, did you see that man's
cow? He has but one and she is not
worth keeping. Perhaps she would be
if she were cared for. I keep cows
and my neighbor grows apples; but it
seems that neither of us can do more
than one thing well." So it is the world
over. Some thing is sure to be ne-
glected.

But we can hardly afford to neglect
the hogs. The dairyman who sells
cream finds them useful in the way of

furnishing a market for his skim-milk,
the cattle feeder wants hogs in the
yard behind his cattle, and the large
grower of alfalfa finds in hogs a splen-
did opportunity to market this excel-
lent crop.

I believe that swine might play an
important part in the reclamation of
some of the light lands of northern
Michigan. One of the very necessary
things, if these lands are to prove
worth cultivation, is more organic
matter. Continual cropping exhausts
the humus, and so it is a question of
but a little time before the sand begins
to blow, and from that time on the
difficulty increases. I am very sure
that hogs might be used to quite an ex-
tent on these sandy farms, in harvest-
ing rye. A man told me last winter
of a very successful experiment in har-
vesting a crop of rye and vetch by
turning the hogs into it and trusting
them to do the rest.

Let Hogs Harvest Crops.

Vetch is worth enough money just
now to make it seem like costly feed,
but it is bound to be cheaper in the
near future, and I see no reason why
much of the sandy land might not be
improved by the use of hogs in harvest-
ing at least a part of the grain grown
upon them. The dairyman will use his
straw for bedding and ultimately it will
get back to the land, but the man who
keeps no cows, or at best only two or
three, and sells his straw will be sure
to get into trouble shortly, on a very
sandy farm. The hogging down of corn
looks like slovenly practice to some
men, but it has this advantage—that it
conserves to the soil a large part of
the organic matter of the crop.

But if we are to find such good use
for the hog, we want just as good hogs
as we can get. It is not the matter of
the name of the breed that is of great-
est concern to us. All of the principal
breeds are good. The matter of chief
concern is the individual. If we are to
have better individual hogs we must
give more attention to our breeding an-
imals. Too little care is given to the
sire. I have watched this matter quite
closely and am sure that now and then
we find a boar that should be kept
alive just as long as he can be used
profitably, and I am quite as certain
that very many of these animals that
are used as sires are responsible for a
lot of hogs that can not make econom-
ical gains when fed.

**Use Care in Selecting Breeding
Animals.**

The selection of the sows is another
important matter, which often receives
but little attention. We pay dearly for
our neglect in this matter, too, for a
sow that will produce a small litter of
poor pigs year after year, is but a poor
acquisition for any man.

In many parts of the state, breeders'
associations have been formed to aid
in the improvement of the dairy cows
in the community. Why should it not
be practical to include the swine in the
program of live stock betterment in
these organizations? Dairyman who
market their milk have less use for
swine, but those who sell their cream
and are forced to find on the farm a
market for large quantities of skim-
milk find hogs well nigh indispensable.
Why might not these people unite in a
community effort to better the breed-
ing of their swine?

It is not necessary to have pure-bred
hogs to which to feed skim-milk at a
profit, providing these animals are to
be slaughtered as soon as they are
ready. But it is necessary to have
pure-bred sires and not only pure-bred
sires but as good individuals as can be
found, if we are to produce pigs that
will return the highest percentage of
profit when fed.

Many Hogs Fed at a Loss.

Thousands of hogs are fed at a loss
every year. The results of work at the
different experiment stations demon-
strate that there is no money in feed-
(Continued on Page 121)

**Silverize
Your Silage****for Better Fat Stock
and Dairy Profits**

CORN cut by Silver's
"Ohio" Silo Filler makes
better silage according to
the records of "Ohio" users.

There's a difference in silage just as
there is a difference in the machines
that cut it. Some silage goes into the
silo with long shreds and leaves
which form air pockets and spoil the
silage. Other silage is cut in uneven
lengths—the sugar does not get out to
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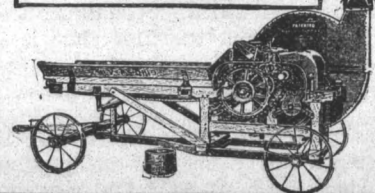
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Variations In Milk and Cream Tests

By W. F. TAYLOR

NOT long ago a very estimable lady wrote to one of the principal daily papers in the state, reciting the conditions under which the test of the milk delivered at the creamery had gone down, and invited anyone who could, to enlighten her as to the cause. I shall not try to repeat what she wrote, nor even to give a history of this little herd. It would not be worth while to do so, because the conditions under which tests of cows change, are so many and so different that the reader would derive no benefit from the story of any one herd.

Period of Lactation and Butter-fat.

The idea that when a cow freshens, she tests comparatively low, and that as she advances in the period of lactation, her milk contains more butter-fat, is quite general, and is correct as a general rule. Perhaps I should say that it is as correct as any rule we can lay down with regard to this matter. In a general way it may be said that the test begins to increase about the fifth month of lactation, and that there may be a difference of one or even two per cent between the average tests when taken by months, comparing the month in which the cow tests the lowest with that in which she produces the richest milk. But while we may look for the test to begin to increase about the fifth month, there may be a month or more during the remainder of the year, in which her test will be very low.

As a rule, the average test of a cow for a whole year, does not vary greatly. If there be a month in which her test runs very high, we may look for a period in which her milk will be thin enough to compensate for the unusual amount of fat she has given us, so that at the end of the year we shall find her about as we have found her in the past.

Feeding Butter-fat Into Milk.

But there are exceptions to this rule and they are very important. The question is often asked, "Can we feed butter-fat into milk?" Well, we can not as a general rule, but under some circumstances we can. When a cow freshens in unusually good flesh, she may be expected to test much higher than she would if she were in bad condition. I used to be in the habit of observing a few herds kept under different managements back in the days when we delivered our milk to the creamery where it was tested and separated. Then the most of our cows freshened in the spring, and some of them were not as well cared for as they are now. I remember one herd in particular that always tested low, yes, very low when the cows began their year's work. But as the season advanced, and the cows put on flesh the test went up. August usually found this herd testing nearly two per cent more than they did in the spring when they freshened.

The amount of butter-fat that a cow can produce in a year is varied by a number of conditions, but I know of no single limitation outside of a lack of good food in liberal quantities, that is more telling than for her to freshen when her energy is impaired and flesh wanting.

If a cow is to make a good year's record, she should be liberally fed for some time previous to freshening and should carry plenty of flesh. True, such a cow is more liable to have milk fever, but with the present knowledge of that disease and its treatment, it is hardly wise to feed the cow sparingly and put up with limited production all through the fore part of the period, just to avoid milk fever.

Some Variations in Tests.

But I am hardly sticking to my subject, for I started with the determination to discuss variations in the test. The other day I was talking with the owner of some of the best Jerseys in this part of Michigan, and he told me of one of his cows that entered "The Register of Merit Class" a few years

ago. At that time her average test was above six per cent, but last month she tested 4.2.

Years ago when I tested but seldom, I found two of my heifers testing 3.4. I at once resolved to sell them, but they were not fat enough to attract the butcher and I could not sell them to my neighbors and feel right about it, so they stayed with me. After a while I tested them again and one of them tested 5.2.

Sudden changes may be produced in the test by bad handling of the animals. Thus it is often said that harassing the cows with dogs will lessen the amount of butter-fat in the milk. But I am inclined to think that by far the greater number of changes in the test of milk result from causes that are not understood by any of us, and probably not by the old cow herself. About the only way one can tell what a cow tests is to test her. Often at an auction where cows are to be sold, I have heard the owner say, "This cow tests 4.2, or 5.4, or perhaps six per cent." The fact in most instances is, that he knows practically nothing about the matter, for he has made but one or two tests, and regular and continued testing are necessary to arrive at any accurate knowledge of what a cow tests.

Variations in Cream Tests.

And now a word about the testing of cream. Tests of cream may vary as often, or even oftener, than tests of milk. If milk is properly sampled we must look to the cow to find causes of changes in tests, but in the case of the cream, we may look farther. However, the test of the milk separated does greatly influence the richness of the cream. The separator is but a machine. Its work is purely mechanical. If we were to put water through it, a part of it would come out of the cream spout and the rest would flow through the spout which carries off the skim-milk. If we were to put very thin milk through, the result would be the same, except that the fat being lighter than the remainder of the volume, would flow through the cream spout, diluted by as much milk as the condition of the cream screw would permit. If the milk is very rich, the division would not be any different, save that there would be more butter-fat to be discharged through the cream-spout and the volume being the same in each case, the cream would be relatively richer. So the richer the milk, the more butter-fat in the cream, other conditions being the same. Or to make it a little clearer, if the machine discharges one-tenth of the volume through the cream-spout at a given rate of speed, then four per cent milk should give us 40 per cent cream. But if for any reason the amount of butter-fat in the milk should be only three per cent, then our cream would test but 30 per cent, providing the separator was turned at the same rate of speed.

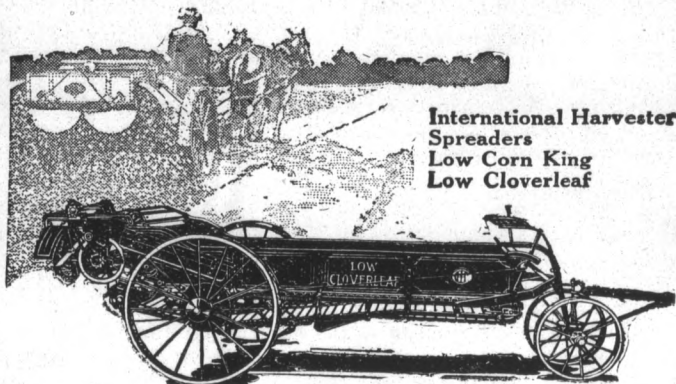
The speed of the separator is a matter which occasions much variation often times in the test of cream, and in too many cases the true cause is not suspected. A very few revolutions of the crank faster or slower in a minute, will make a marked difference in the test.

(Continued next week.)

Bacteria cause the souring of milk. Bacteria usually get into milk in dirt and the bacteria develop fast when the milk is warm. To keep the bacteria out, keep dirt out of the milk. This means care in milking and care to have the milk utensils clean. Keeping the milk cool will retard the development of the bacteria, that do get into the milk. Cans or vessels that have had milk in them should be rinsed in cool water first as hot water hardens the albumen of the milk and makes it hard to remove.



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Judging Milk in the Laboratory

By FLOYD W. ROBISON

IN the inspection of milk and its products we have maintained that the proper way of determining its fitness for food should be upon laboratory examination. By this we do not mean that other factors should be ignored because it is known that certain conditions which are noticeable to the naked eye promote the very conditions which laboratory examination later on finds as a basis for condemnation for food.

At present we are experiencing an exceedingly trying time, due to the excessive heat and dry weather which we are having. At the same time the city consumer of milk is more frantic than ever in her demand for a pure article, because the troubles which appear to the dairyman come at a time when the city consumer of milk has her greatest difficulty in preserving the health of the little ones in the family.

We have maintained that for purposes of general fitness the dairyman should keep constantly before him two factors. These two factors, if kept constantly in mind, will establish for the dairyman a safe control of his milk. They are, first, extreme cleanliness; second, cold.

Cleanliness and Cold a Slogan Worth While.

Around these two weapons of the dairyman hinges his ability to produce satisfactory milk, safe for consumption and these weapons are likewise the city consumer's protection.

We are very glad to note that the new chief milk inspector for the city of Detroit, Mr. Chilson, has adopted as his maxim for guidance in the control of the city milk, the slogan, "Cleanliness and Cold." We wish to show just exactly why these two factors, cleanliness and cold, are weapons of defense for the dairyman and likewise the weapons of safety for the consumer, and consequently why the Detroit city milk inspector has been wise in the selection of these two weapons for his guidance.

Bacteria Should be Considered Friend.

Bacteria in themselves can scarcely be considered non-friendly agents. They have caused a great deal of consternation among dairymen, but principally because their actions and purposes have not been understood by the dairyman. In milk especially do we consider bacteria to be in general friendly agents, and the conditions under which they work or thrive in milk are so easily explainable, so natural, that we feel they should be considered by the dairyman as his friends and not his enemies.

In the first place, bacteria do not exist in any large quantities in the air. The air following a rain is almost entirely devoid of bacteria. It is only during a prolonged drought, when dust particles get into the air, or under conditions where the air is being constantly stirred, that bacteria will in any quantities at all get into the air. It is very nearly safe to ignore air as a source of bacterial contamination.

Even in stable air if allowed to become quiet for a short time, probably within an hour nearly all of the bacteria will have subsided and settled to the floor, and the air will be quite free from germs.

Microscopic as these organisms are they nevertheless have an appreciable gravity and quite freely settle out when they are given an opportunity to do so. Consequently it is almost safe to even ignore stable air as a source of contamination for milk. It can be made entirely safe in this respect by spraying the air and the floor before milking so that no dust particles will arise and be circulated in the stable air.

It is Not Air but Dirt which is Loaded with Germs.

But any particles of dirt or dust which get into the milk pail are themselves fruitful sources for bacterial

contamination because adhering to every particle in the stable are large quantities of germs. Why, then is it when germs are so plentiful that we can consider them friends? The answer to this question must be the same as when we look with satisfaction upon a long row of red lanterns strung out over an open sewer or ditch, warning us that the street is not in a safe condition for traffic. They constitute our danger signals, not because they themselves are necessarily antagonistic or that the bacteria themselves will cause any great disturbance, but because they indicate that unclean conditions exist in that product.

We have therefore learned to classify milk according to the number of bacteria it contains. The more bacteria a milk contains the less wholesome it is, not because, as we have explained before, it contains a large quantity of bacteria, but because the germs indicate that there must be a large quantity of foreign matter in the milk.

The Bacteria Standard.

So certified milk, which is supposed to be our highest grade of commercial milk, must contain not over 10,000 bacteria per cubic centimeter. As a matter of fact, when such care is taken with milk that it will not contain over 10,000 bacteria, it is found possible also to generally keep it much below this content. So that we frequently find certified milk with no more than 1,000, 2,000 or 3,000 bacteria per cubic centimeter.

Now, 1,000 bacteria, or 10,000 bacteria, is exceedingly low, and indicates that a minimum amount of foreign matter is present in the milk. In fact, milk containing between 10,000 and 50,000 bacteria would be considered very satisfactory milk indeed. Little of the milk which is sold at retail in our cities under present weather conditions contains less than 100,000 bacteria unless it is pasteurized milk, or a high-grade milk such as certified milk or Class A, and we feel that milk which contains in excess of 100,000 bacteria cannot be considered safe milk for general consumption.

Much milk which is delivered, however, by the dairyman contains far in excess of 100,000 bacteria, and we find it frequently in excess of 1,000,000. Any milk which contains a sufficient amount of foreign matter to account for the presence of 100,000 or 1,000,000 bacteria cannot be considered a wholesome article of food.

The Influence of Cold.

Of course, the temperature conditions have much to do with the quantity of bacteria present in milk. If we introduce an exceedingly limited number of germs into the milk and allow the temperature to run high, as it will at the present time, unless the product is thoroughly iced, the bacteria are then not a proper indicator of the original degree of contamination of the milk.

Milk is an excellent food material for bacteria, and when kept at a temperature favorable for bacterial growth they speedily multiply and the milk which at the time of production was a good milk as far as containing matter foreign to milk is concerned may without any increase in foreign material become heavily laden with germs, due to a rapid growth.

So, then, if cleanliness is a weapon of defense against undesirable conditions in milk, and the low bacteria count indicates a minimum amount of foreign matter, then to preserve its original purity the next step necessary is the employment of as much cold as the dairyman can bring to his command.

(Continued next week.)

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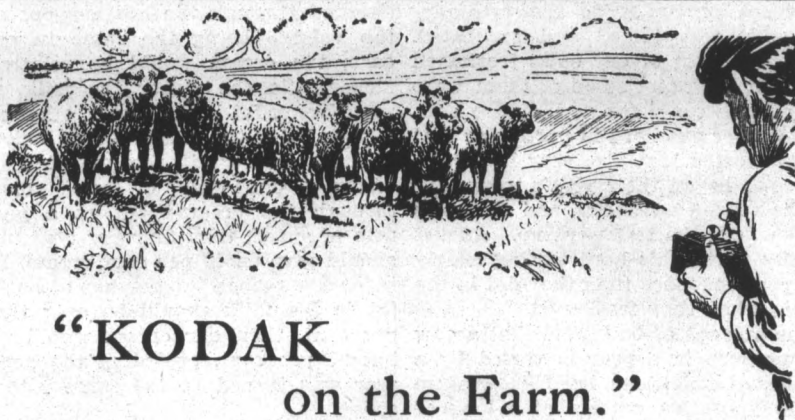
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This Magazine Section forms a part of our paper every week. Every article is written especially for it, and does not appear elsewhere

HE was a dog, and they called him Joe. He had no godfather, but was named after Chip Moseby's one rich relative whom the brute resembled physically—and it wasn't a compliment, either.

Joe's ancestry was a matter to pass over politely and forget. He was a large animal, with the unmistakable build of the wolf-hound, yet his blood was mixed with many another hardy breed. His hair, of a dirty yellowish brown, grew in every possible way, except that designed by a beauty-loving Creator, while his undershot jaw hinted at the possibility of a bull-terrier

The Cur and the Coyote

By EDWARD PEPLE

figuring as co-respondent in some long-forgotten scandal. Therefore, Joe had little claim to beauty; but, rather, as Frisco Jim expressed it, "was the dern-edges' orn-ries'-looking beas' wes' of the Mississipp."

Chip Moseby thought of his rich relative, and smiled. The criticism, harsh but just, fitted the dog in all respects with the one exception of his eyes. There spoke the Scotch Collie breed.

They were beautiful, pathetic, dreamy, yet marred—from a poetical standpoint—by a dash of impishness found only in that cordially despised, but weirdly intelligent, race of canine outcasts—the cur-dog.

In the beginning Chip Moseby found him on the prairie. How he had ever wandered into the center of this trackless plain was indeed a mystery; but there he was, and commanded pity, ev-

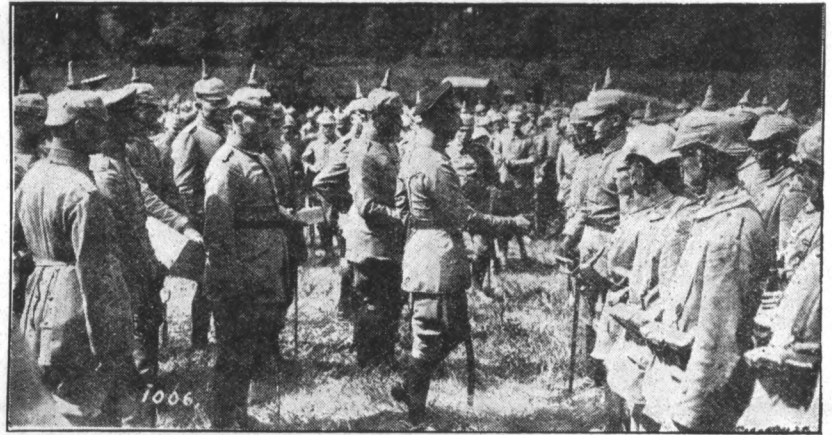
en from a cow-puncher. Lost and leg-sore, he waited dumbly for the three black buzzards that wheeled in lazy circles above his head. Chip dismounted and surveyed his find in wonder, striving to decide whether to take the cur into camp or put him out of misery for once and all by a merciful shot. Wisdom called aloud for the shot, but something—a half-remembered something deep down in the inside of the man—whispered and made him hesitate.

No, he could not decide; but, being a gambler by birth, taste, and education, he shifted the burden of responsi-

WORLD EVENTS IN PICTURES



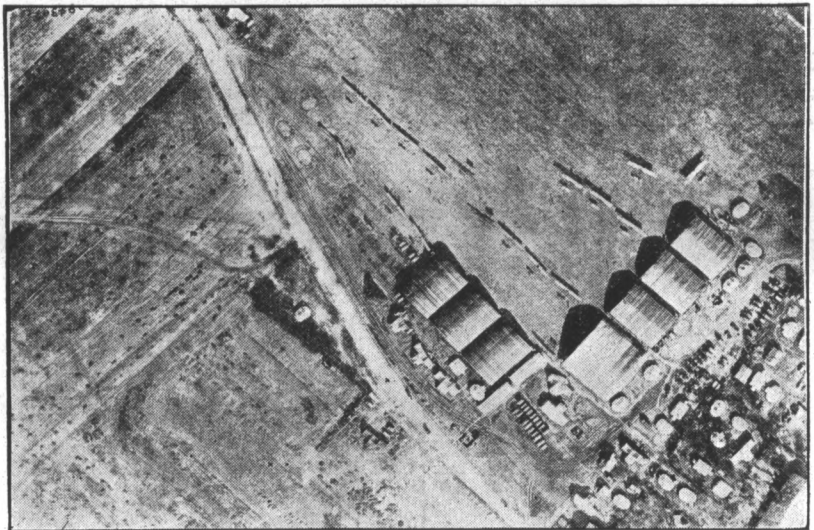
German Marine Infantry Unloading Machine Guns for use in Flanders.



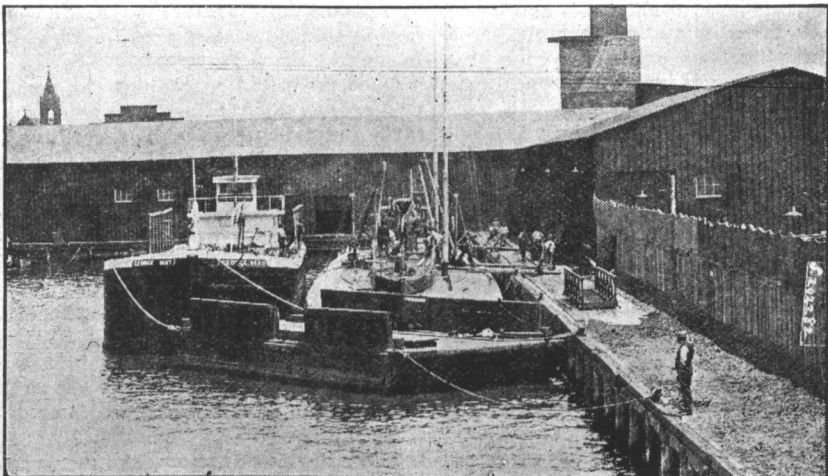
German Crown Prince Distributes Iron Crosses Among Valorous Troops.



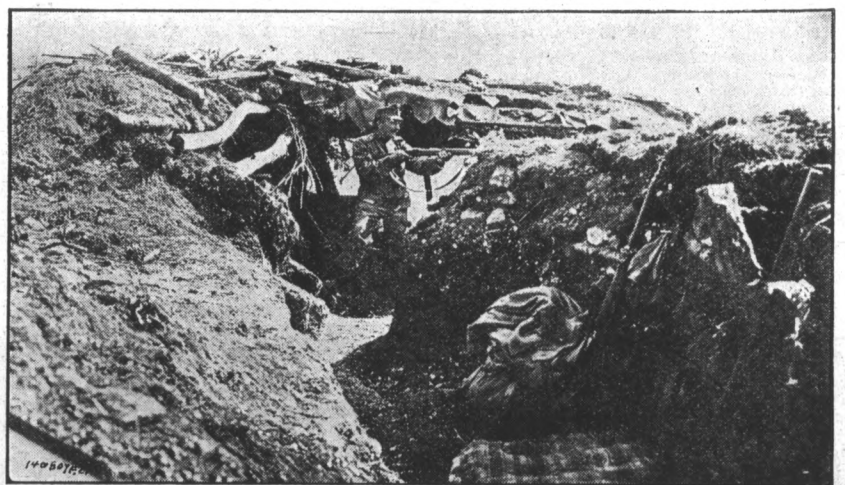
Commander of the Russian Forces now Fighting in France.



Picture of a Verdun Aviation Camp Taken from an Aeroplane.



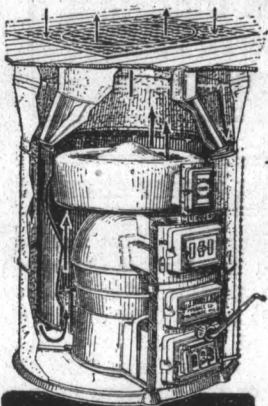
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bility to the back of Chance. The process was simple. He reached for the heavy gun which lay upon his hip, and poised a silver dollar between the thumb and finger of his other hand.

"Now, stranger," he observed cheerfully. "You're goin' to be the stakes of a show-down. Heads, you go to camp. Tails, you go to the canine happy-hunting grounds. You couldn't ask fer anything fairer'n that, could you?"

He spun the coin and caught it in his open palm. The dog cocked his ears, and the Texan cocked his forty-four. Tails lay uppermost.

"Yo luck ain't changed much puppy," sighed the man, shifting his position for a cleaner shot at the back of the sick dog's head. "You've been elected this time, sure, an'—"

Chip paused suddenly, wondering why, but pausing. His victim whined faintly, raised a pair of gentle, fever-touched collie eyes, and waited. The cow-puncher eased the hammer of his gun and slid the weapon into its holster.

"Hang the dawg!" he muttered beneath his breath. "It's jus' like some po' li'l' helpless, moon-eyed gal what's—what's calling me a sneak."

Chip Moseby did not know he was muttering sentiment; but, alone on a wide green prairie with his pony and a dog, where none of his fellow rangers could see and laugh at him—well, it made no difference, anyway. From his saddle-tail he untied his water-flask, pouring its contents into his wide felt hat; then he added a bit of liquid from another and more precious flask, and made an offering to a new-found friend. The dog lapped it eagerly, and after a time, sat up on his haunches, to devour the last crumb and fiber of Chip's last ration of corn bread and bacon, while the cow-man looked on and cursed him—horribly—but with a smile.

Slipping, sliding, in the dip of his master's saddle, yet wagging a mangy tail to show that he understood, Joe was christened and rode twenty miles to camp. It was just an ordinary camp of twenty cow men in charge of eighteen hundred long-horns "on the graze." An idle existence at this season, moving as the big "bunch" listed, and dealing greasy cards at all times save when in the saddle or snoring beneath the cold white stars. The cow-men lived, drank bad whiskey, gambled—and died—sometimes from delirium tremens or snake-bite; at other times from purely natural causes, such as being trampled by a steer. A remnant they were of a long-departed hero type, still picturesque, yet lacking in certain vital attributes.

CHAPTER II.

The camp accepted Joe for two reasons; firstly, because they did not care one way or the other; secondly, because Chip Moseby had, on various occasions, thrashed three of the cow-men in brutal, bare-knuckle fights—and the rest had seen him do it. Therefore, nineteen more or less valuable criticisms were politely withheld.

For four sweet days, Joe ate, drank and slumbered, recovering both in body and in nerve; then he rose up and began to take notice. The first thing he noticed was a lean-flanked, powerful dog that had dwelt in camp for the space of seven months and felt at home. The "homer's" name was Tonque. He belonged to a gentleman who was known familiarly as Greaser Sam, a gentleman whose breeds were as badly mixed as Joe's—a fact to which pointed reference was made by jovial friends with frequency and impunity.

Tonque was the only member in the camp who openly resented Joe's advent. He first made pantomimic overtures, then displayed a sullenish disappointment at the stranger's gender and disposition. He bullied the new dog shamefully, took away the juiciest bones, nipped him in his tenderest spots, and cursed him in Mexican dog-language, a thing conceded by all linguists to be—with the exception of coy-

ote talk—the vilest of obscene vituperation. Joe bore in silence for many days. He was a guest of Mr. Moseby, virtually a tenderfoot, and uncertain of the etiquette required in his delicate position. The master gave no orders, and what was a dog to do? True, a bite or two was nothing much, but an insult sinks far deeper than a tooth, and when the cattle-camp lay slumbering through the night, Joe's dog heart ached and troubled him. It is a hopeless sort of thing to stand a bullying for the sake of etiquette, but somewhere through the mongrel's many breeds ran the blood of a gentleman dog; so Joe gave up his bones and took his bites without a growl.

"Him dern coward!" tittered Greaser Sam, pointing at the cur contemptuously with his soup-spoon. "Tha's fony. Big dog—no fight."

"How much dy'e think so?" inquired Chip Moseby, puffing at his corn-cob leisurely.

"Fi' dollar!" chirped the Mexican cook, his little rat eyes twinkling.

"Mak eit ten," said Chip, with a careless shrug, "and Joe'll chase that rabbit's whelp of yo'r'n plumb off'n the range."

Greaser Sam laughed joyfully and produced a month's pay in silver and



"You couldn't ask fer anything fairer'n that, could you?"

dirty notes. Yank Collins was made stakeholder, while Chip, stone deaf to the warnings of certain unbelievers, knocked the dottle from his pipe and whistled to his dog. Joe came over—for protection, it seemed—and laid a trembling chin on the master's knee.

"Joe, ole man," asked Chip, in the tone of a mother's tender solicitude, "is that there Mexican skunk a pesterin' of you?"

The dog, of course, said nothing—that is, verbally—but his two great, glorious eyes spoke volumes. In them the master read his earnest, but respectful plea:

"Mr. Moseby, sir, if you will only say the word and allow me to chew up that bow-legged son of a one-eyed pariah, I'll love you till the crack of doom!"

The master, who was a gentleman fighter himself, smiled grimly, stroked the ugly head, and waved his pipe-stem in the general direction of the bumptious Tonque.

"All right, son, go eat him up!"

It may here be stated that one of Joe's grandest qualities lay in strict obedience; or, failing in the letter of command, he did his best.

The incident occurred just after dinner, when the cow-punchers, replete with coffee and fried bacon, were enjoying a quiet smoke. They rose to a man, formed a whooping ring about the contestants for camp prestige, and wagered on the outcome. The battle, minus revolting details, was soon over and all bets paid, for—briefly—Joe did his best. Only an angel or a ring-seasoned bull-terrier could have done more. Greaser Sam lost twenty dol-

lars. Chip Moseby won ninety. Tonque, the bully, yelping in the dim distance, lost all of his pride, the better portion of one ear, and quite a depressing quantity of hide and hair.

Joe barked once, a hoarse shout of unholy joy—which was only human, after all—then sat down modestly, licked his wounds, and counted up the cost of his victory. He had made one enemy, and many friends; but Greaser Sam was only a cook, anyway—so the sting of a dozen ragged bites was peace unutterable.

Later, Sam partially squared the account by pouring a dipper full of boiling grease on Joe's back. Thus, by the time ten inches of hide curled up, peeled off, and healed up again, the cur-dog loathed all breeds of Mexicans, and one in particular. Also, Joe suffered some in the matter of scraps and bones; then affairs took a turn for the better. Greaser Sam, while revelling in a noon-tide siesta, inadvertently rolled on a rattlesnake, and, in spite of a copious supply of antidote on hand passed out in hideous agony.

At the unpretentious funeral Joe controlled his features admirably, with the one exception of his tail, which would wag itself in spite of every gentlemanly instinct. This was wrong, of course, but a dog's ideas on the ethics of retribution are simple and direct. Joe was glad—very glad. He threshed poor Tonque again—not from malice, but merely in a spirit of exuberance. One of his ancestors had been an Irish setter, though Joe was unaware of it.

CHAPTER III.

And now the waif began to find his own. He learned the profession of cow-punching, together with the arts and observances thereof. He could aid in a round-up nobly, for his wolf-hound length of limb gave him speed, which made even the tough little broncos envious. At branding-time he could dive into the herd and "cut out" any calf desired, then hold the evil-minded mother en tete-a-tete till the irons did their work. This saved the cow-men much exertion, but was hard on the cattle, and harder still, as it proved, on Joe.

His deeds were praised just a fraction too highly, so the cur-dog lost his head, puffed up with pride, and grew "sassy"—an elusive state to which even humans are subject. It was borne in upon Joe that he owned the camp, the bucking broncos, the grazing long-horns, and, yea, even the prairie itself for a most expansive sweep, and life seemed good to him.

(Concluded next week).

HAIRY WOODPECKER A GREAT GRUB DESTROYER.

Tap tap! Tap tap! Tap tap! The bill of the woodpecker is the oldest hammering tool in the world. The special ambition of this family of active birds is to rid trees of insects which hide inside the bark. The woodpeckers are hardly individuals and they stay with us throughout the year. In many sections the larger woodpeckers have been considered semi-game birds and thousands of them have been shot by farmers and farmers' boys, the very people to whom they are the greatest friends.

Once strictly a wood bird the woodpecker has also taken kindly to the farm and every orchard is carefully inspected many times a year by several species of the family—in most localities by at least the little downy woodpeckers, the hairy woodpecker, the red-headed woodpecker and the flicker or yellowhammer. Through fair and wintry weather these attractive, friendly, birds may be seen clinging to the trunks and branches of trees industriously scanning every inch for the well-known signs of the boring worm or destructive fly.

The hairy woodpecker, like many another sojourner of the farm, is responsible for many country sayings. "Woodpecker is pecking mightily low

on the trees; look out for warm weather," but if you will watch this woodpecker long enough you will probably observe him just as carefully tapping the high branches of another tree, so according to that the weather will be cooler. One or the other is quite likely to prove true.

The good that the woodpeckers do in killing tree enemies is very great. Hard as the bird must work to dig out a wood borer and put an end to his tree girdling operations, the hairy woodpecker has been known to drill for and eat over forty borers at a meal.

The hairy woodpecker can not be said to be an ideal husband. In the autumn he begins to excavate his winter quarters, chiseling through remarkably hard dead wood, but the hole is for himself. His mate may make herself comfortable or not as she chooses in some abandoned hole. Intent on his own comfort the male bird drills a perfectly round hole, usually on the under side of a limb where neither snow nor wind can harm him and then digs out a horizontal tunnel in the dry wood deep in the tree, finally carving out a circular or oblong chamber where he lives in selfish security and solitude. When the nesting season arrives he wakes up into an ardent lover and his long neglected but dutiful mate accepts it all as part of the great game of life with apparently never a thought of rebellion. Bird suffrage should begin with Mrs. H. Woodpecker.

THE GAME OF PASSING BEANS.

BY J. M. WILLSON.

This is an exciting game and needs at least two older people to superintend it. The children are all arranged in two lines with a small table or chair at the head of the lines, upon which is placed a bowl of common white beans. There should be a bowl at each end of the lines with the same number of beans in each bowl, say twelve or fourteen in all, (more if desired).

The child next the bowl takes out a bean, passing it to the next child, who in turn passes it on down the line while the leader continues to take out the beans, one by one, until all are passed, the order being reversed when the end of the line is reached, and the beans started back again, the child at the end dropping them into the bowl.

There are sure to be more or less beans dropped in the excitement and when all are returned those in each bowl are counted, the one having the greatest number, winning the game. In case both sides are even in number of beans at the end, the one who can get them in first wins the game.

It is well for some of the older people to stand near the lines to keep order for the children will get excited as this is an exciting game.

THERE'S ALWAYS SOMEONE WORSE OFF THAN YOU.

BY M. P. EARL.

It isn't right to feel that way, It's very selfish, some folks say,

Perhaps it's true; But on the whole, it's apt to pay To think there's someone, every day Worse off than you.

You get that feeling of despair, When something looks to you, less fair, You know you do; You think there's no one, anywhere, With such a heavy load of care And toil as you.

And if you've little cash to spend, You think you haven't got a friend, When feeling 'blue', But such a thought will quickly end You'll see it's foolish to pretend That such is true.

If you'll but let your thoughts all go To other people whom you know, There's quite a few, You'll find, in life, both high and low, Who have of sorrow, toil and woe, Much more than you.

It seems to make the sky more bright, And seems to make the load feel light, Old things look new, So I believe it's only right To think, there's someone, day and night, Worse off than you.

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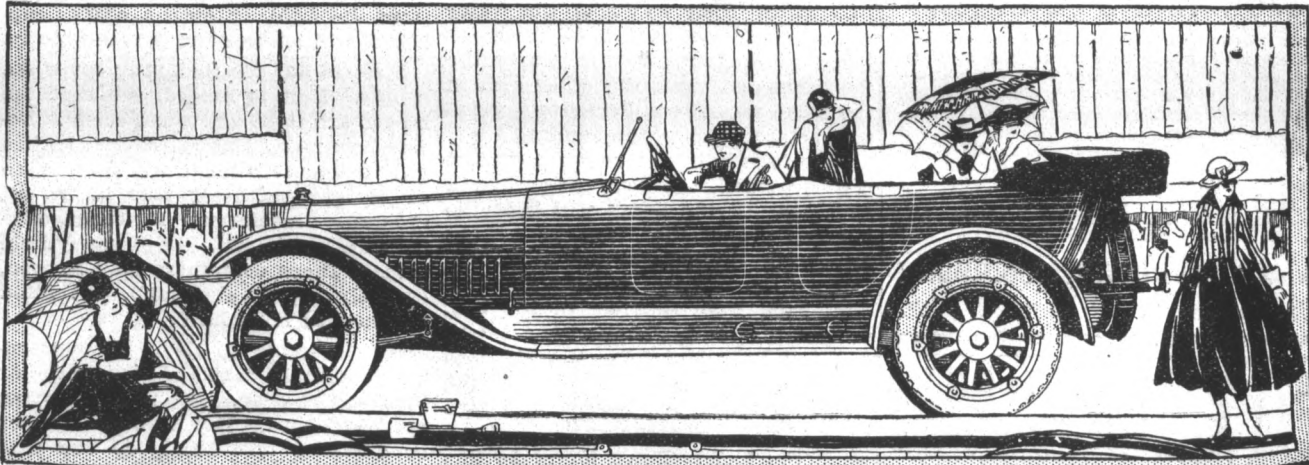
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Woman and Her Needs

At Home and Elsewhere

"Health Day" at M. A. C.

(Continued from last week).

FOLLOWING Miss Parker's talk, Miss Koertje, visiting nurse in Lansing, gave a demonstration of several kinds of treatment used in the sick-room. The part of the patient was taken by a charming little girl who looked the picture of health but made herself into as helpless a patient as nurse could wish.

As it was an exceedingly hot day, Miss Koertje removed the spread and blanket from the bed, leaving the little patient covered only by a sheet. In preparing a patient for the day, the speaker said she usually began by combing the hair, especially if the patient was a very weak one. Most invalids seem to dread the combing of the hair more than anything else, yet it is very important that the hair be kept free from snarls. First of all, protect the pillow with a towel and, if the patient is unable to sit up, turn her head so that you can comb one side easily. Then begin to comb snarls from the bottom, keeping the hand between the head and the snarls, and gradually work toward the scalp. This will greatly reduce the pulling. When the snarls are all out, braid, beginning high up and well back of the ear, to make the patient comfortable. Fasten the end of the braid securely, turn the head gently and comb the other side.

The Cleansing Bath.—Before beginning the bath the nurse should see that everything necessary is at hand; plenty of towels, two washcloths, mild soap, and water warm enough to be comfortable. Protect the sheet with a towel, then wash the face, the front of the neck, and the ears. Wash the arm next, having first placed one towel on the pillow to protect it, and another under the arm ready for wiping it. In washing and drying the arm, remember that most people enjoy a little pressure on the part of the nurse. They also like to dip their hands in the water and the nurse should hold the wash basin so they can do so. Cover the first arm and wash the other arm in the same way. It is better to dry the arm before washing the hand.

Now turn back the bedding, protect it with a towel, and wash the chest and abdomen. If the nurse will hold the bedding out of the way, the patient can wash the pelvic region herself. Change the bath water, turn the bedding back from the foot of the bed, protect the lower sheet with a towel, and bathe the legs. Put the feet into the water, the same as you did the hands. Replace the bedding and turn the patient on her side so that you can wash the back. Don't forget at this time to wash the back of the neck, and remember that a gentle rubbing of the back is soothing and restful to the patient.

In putting on the fresh nightgown, bring it well up on the back, let the invalid put her arms in the sleeves, slip the gown over the head, and gently pull it down over the hips. Raise the patient's head with one hand, turn the pillow, and smooth out the wrinkles.

The Foot Bath.—The foot bath is a panacea for all ills; it relieves that tired, nervous feeling, simple headache, and, taken at the beginning of a cold, will often break it up. If you have no foot-tub, use a small wash tub, baby bath tub, or a dishpan kept for that purpose. Prepare the patient for the bath by removing nightgown and covering her with a sheet; keep a cool cloth on her head during the bath.

Loosen the bedding at the foot of

the bed, protect the lower sheet with a towel and place the tub on it. Have the water at a comfortable temperature in the beginning, lift the feet carefully and place them in the tub, cover the tub with an extra towel to protect the bedding, keep in the steam, and make the bath more effective. When adding hot water to the bath, keep the hand between the patient and the hot water. This treatment can be continued from fifteen minutes to one-half hour if the head is kept cool, adding water as often as that in the tub cools. At the close of the bath, lift the feet, pour a little cold water over them quickly, cover with a towel ready on the bed, and remove the tub. Dry the feet carefully, being sure to dry between the toes. The cold water drives in the heat and makes the effect of the bath more lasting.

Home-Made Fireless Cooker

By EMMA GARY WALLACE

Anyone who wishes may have a fireless cooker, and that, too, at small expense of time or effort. To be sure, these home-made cookers will not do some of the things which the highly-improved, patented affairs will, but such a cooker will prepare a nice hot dinner while you sit on the piazza, and will make possible the use of less expensive cuts of meat. In it you may cook cereals, vegetables, meat, fruit, and puddings. It will not bake unless you have soapstone griddles which you can fit into your nests.

For the outside of your fireless cooker, you can use any tight container you happen to have handy which has a snugly-fitted cover. A candy pail, a box, a small tub, a bucket, an old trunk from the attic, or even a corner cupboard, will answer the purpose nicely.

First of all, see that your cover fits snugly. If it is hinged, see that the hinges are tight and work easily. Decide how many tightly covered kettles your outside container will take in, so as to leave at least four inches all around for insulation. If you have selected a candy pail, it will easily hold three. These containers may be iron, enamelware, or aluminum, but fitted covers they must have.

Now crumple up clean, old newspapers and make a bed of these three or four inches deep. Pound them down good and hard. Use a potato masher or anything else handy to see that they fill all of the corners.

Next set your kettles in place. Make a nest for each kettle out of a cylindrical piece of stout pasteboard or chickenwire. This cylinder should be fairly rigid. Line it with two thicknesses of heavy asbestos paper. Make them just large enough and high enough for the kettles to slip in and out easily. Fill the rest of your space with more crumpled papers, beating them down so that they are solid. Line the top of your cover with asbestos paper and make cushions of anything handy that is clean, such as cotton or excelsior, to fit down over the top and fill in the spaces sure to be left when the cover is adjusted. These cushions should have washable covers. The point is to see that the fireless cooker is tight and there is no chance for the loss of heat. Fasten the cover, if it needs it, with a stout hook and eye. So far the

Hot Fomentations.—Hot fomentations applied to the spine at the close of a foot bath are very soothing. For this two squares of flannel or woolen cloth are necessary. These squares should be the full width of the cloth. Fold one square about four times crosswise, so that you have a strip about six inches wide; take one end of this strip in each hand and dip it into very hot water, keeping the ends dry. Wring dry, cover with a dry cloth, and place with the dry side next to the patient. Then prepare the second square of flannel in the same way and remove the first one. Hot fomentations are usually changed three times, but only two flannels will be needed, as the first one can be reheated when the second one is in place. After removing the fomentations, put a cold compress on the area treated, or rub it with a piece of ice. This will be very grateful to the patient and will prolong the effect of the heat as the cold water prolonged the effect of the foot bath.

fireless cooker need not have cost a cent except for the asbestos paper.

If you wish to prepare your Sunday dinner, you must start early—Saturday night, in fact. We have three containers in our trunk with which to work. In the largest or central container, we will cut up a nice plump fowl—the grandmother of the lot which would otherwise be very tough. Cover this with water and bring to the boiling point Saturday night. Let cook for five minutes, then plump it into the middle nest. Put down the cushion and close the lid. In the next smallest container, we will put some nicely washed and pared potatoes and enough green peas for the next day's dinner. These are likewise brought to the boiling point and a little salt added, and this kettle put into its nest.

Into the third container we will put some figs which are to be barely covered with water. These are likewise heated and put to bed.

In the morning the fireless cooker is opened up and the three containers brought to the boiling point again. This time the fowl has added to it the necessary seasoning, and the gravy is nicely thickened. The peas and potatoes are also seasoned with salt, pepper, butter, and a little cream. The figs have a small quantity of sugar added. This whole work has only taken about five minutes.

The family can now go to church quite contented that a good hot dinner will be waiting for them when they return. While the children are slipping off their dainty Sunday frocks and putting on their practical, neat little blue and white ginghams, mother can take up the dinner. Perhaps she will have lighted the oil or gas stove and boiled the teakettle so as to make a cup of tea. Possibly she will prefer a pitcher of lemonade.

The potatoes are tender and mealy and are taken up and allowed to steam a moment. The peas are cooked to a turn, and the grandmother fowl is so tender it almost falls apart as you take it up. The figs are turned out into a glass dish and a cupful of cream whipped and sweetened to go over them. With a fresh salad ready for the dressing, bread and butter, and a few after-dinner mints, a delicious repast is ready in fifteen minutes at the outside.

Farmers' Clubs

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Clubs of Central Michigan and all others interested. Date, Wednesday, August 16, 1916. Place, Michigan Agricultural College.—W. L. Cheney, Secretary, Mason, Mich.

THE FARMERS' CLUB AS AN EDUCATOR.

In every community where a Farmers' Club exists, the educational value of the organization is conceded on every hand, yet one who is familiar with the organized life of almost any local Farmers' Club will feel upon reflection that the organization has not fully lived up to its possibilities in this respect. In common with other organizations of a social nature, the programs of most Farmers' Club meetings are wide in their scope, contemplating a discussion through the year of a great variety of subjects from the broadest national questions to questions of merely local import. This is entirely right and proper, and is in itself a wholesome influence, since any man who makes a study of any subject preparatory for such discussion is certain to have his viewpoint broadened and to impart something of that broader viewpoint in his handling of that subject at the Club meeting.

One shortcoming of the Farmers' Club as an educational factor seems to the writer to be the cursory nature of the consideration given to the most important questions. This is particularly true of questions of considerable



Cloverville Grange Drill Team.

importance to the social or industrial life of the community which are perhaps least frequently discussed in the local Clubs of any class of questions which might be mentioned. At the same time a very broad opportunity presents itself to the local Farmers' Club to take up these topics of local and industrial welfare and carry their study and discussion from meeting to meeting until the sentiment of the membership has crystallized to an extent which will warrant some definite action being taken looking toward the betterment of local conditions.

Right now, for instance, a good subject for discussion at the monthly meeting of every local Farmers' Club in a community where dairying is practiced to any extent is the question of the cost of producing market milk and the taking of the initiative looking toward the effecting of a local organization of milk producers in the community, provided no such organization exists. This is of the greatest industrial importance

CLUB DISCUSSIONS.

Children's Meeting.—The Washington Center Farmers' Club met at Rose-land, the home of Mr. and Mrs. L. C. Curren, Thursday, July 13. This was the annual meeting for the children. The entertainment given by them, which consisted of songs, piano music, and recitations, was performed in a very creditable manner and was enjoyed by old as well as young. The children's day meetings makes them feel as if they had a part to perform to help make life worth living and the old feel young again. After serving ice cream, cake and oranges by the hostess, the Club adjourned, leaving the place of meeting for the Tri-Club Picnic and Rally Day in August.

Grange.

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

STATE GRANGE OFFICERS.

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

AMONG THE LIVE GRANGES.

Coleman Grange, in Midland county, celebrated the Fourth of July in a safe, sane and happy way. There was a picnic dinner, plenty of games and sports and a good program of readings, songs and recitations and a patriotic address by the State Grange Lecturer. The Wise Band and String Orchestra furnished plenty of fine music. In spite of the fact that there were five other picnics in the surrounding neighboring communities there was a good crowd, including Grange visitors from other Granges that enjoyed a happy Independence Day.—D. S.

Two Suggestions for Grange Work.—On June 17 the lecturer and young people of Cloverville Grange in Muskegon county put on an entertainment which included a drill by 18 of their young people. The drill was the one given in the January Bulletin. The accompanying cut shows a snapshot of

the young people in their costumes. The young women under the direction of their lecturer made their own costumes which were white percale with a tiny black dot and edged with crocheted lace, all the work of the young women, at a total cost of 50 cents each. This incidentally indicates some fine home economics lessons which a Grange lecturer, who is a dressmaker, taught the girls of her Grange drill class. The women of this Grange also plant a Grange flower bed and have the flowers to use for charity committee purposes. Here are two practical suggestions which are adaptable to any Grange willing to work and imbued with real Grange spirit.—Dora Stockman.

Riga Working Grange had its annual Children's Day on June 17. At one o'clock they began to gather. The children spent the time until noon, having a good time, then gathered in the dining-room for a big feast. After dinner they all repaired to the upper hall where the children treated the grown-ups to a fine program, composed of recitations, dialogues, songs and instrumental music. There were 50 children present and about 75 grown-ups.

GRANGES ORGANIZED AND RE-ORGANIZED.

The following is the number of Granges organized and re-organized from April 1, 1916, to June 30, 1916, both inclusive.

Organized.

California 1; Colorado 20; Idaho 3; Illinois 2; Indiana 2; Iowa 3; Kansas 13; Maine 1; Maryland 4; Massachusetts 2; Michigan 2; Missouri 1; Montana 2 Nebraska 2; New York 2; North Dakota 2; Ohio 17; Oregon 7; Oklahoma 12; Pennsylvania 15; South Dakota 2; Washington 17; West Virginia 6; Wyoming 1; total 139.

Reorganized.

Idaho 1; Ohio 2; South Dakota 2; Washington 1; total, 6.

MICHIGAN STATE FAIR

DETROIT SEPT. 4-13

BIG ENTERTAINMENT AND EDUCATIONAL FEATURES THROUGHOUT TEN DAYS

Michigan's exposition will be greatest event of its kind in the history of the Wolverine State. Notable attractions are announced for every day.

Special features will be the Million Dollar Livestock show and stupendous display of farm machinery. Practical demonstrations will be given by noted experts in the industrial and agricultural world.

SPEED EVENTS

Opening on Labor Day, Michigan's fastest trotters and pacers will compete for rich purses.

America's famous auto drivers will contest for over \$5,000 in cash prizes and will attempt to lower dirt track records.

Other events on the speed program are chariot races and running races, as well as contests for men and boys.

MACHINERY DISPLAY

Most modern types of farm machinery, including gasoline engines, cream separators, silo fillers, farm tractors and other time saving inventions of mechanical experts, will attract the attention of Michigan rural residents especially. The display of machinery and mechanical appliances will set a new record for size and interest it will create.

CHILDREN'S EXERCISES

The State Fair management has arranged special entertainment for the children, and in addition the children will give drills and folk dances on the stage in the grove. There will be games and contests for the children, and amusement features, including dog and pony shows, vaudeville acts, etc.

Notable attractions which will be of interest to the children, as well as their parents, include the automobile show, Better Babies' Contest, Boy's State Fair School, poultry and pet stock show, day and night fireworks, horse polo, athletic events, domestic exhibits, auto polo, entertaining midway shows, girls' milking contest, aeroplane flights, day and night horse show, trained animal acts, wild fowl exhibits and superb displays of the products of Michigan's farms and factories.

REMEMBER THE DATES—SEPT. 4-13

G. W. DICKINSON,
Secretary-Manager



Markets.

GRAINS AND SEEDS.

August 1, 1916.

Wheat.—Although values are fluctuating, they are being well maintained. Crop conditions in the spring wheat states and provinces are discouraging, while foreign buyers are quietly buying large blocks of American wheat now at the primary markets. In many sections of North and South Dakota extensive areas of wheat will never be cut. No one seems to be able to tell with any degree of accuracy as to the crop losses in the spring wheat country. There is a growing confidence that the losses will be materially larger than trade reports have generally represented them to be. Receipts of wheat at primary points as reported on Monday were 3,587,000 bushels as against 1,477,000 bushels a year ago. The visible supply also shows an increase of 2,253,000 bushels. When the market can show an advance in price with statistics so unfavorable there is certainly a strong influence behind the buying. It is stated that speculators have purchased 15,000,000 bushels and are ready to take more. They have confidence that the year's crop will be a short one, and that the world consumption will require the grain at prices that warrants their investing. One year ago No. 2 red wheat was quoted at \$1.10½ per bushel. Detroit's quotations last week were:

| | No. 2 | No. 1 | Sept. |
|-----------|-------|-------|-------|
| Wednesday | 1.25½ | 1.22½ | 1.27½ |
| Thursday | 1.29½ | 1.26½ | 1.32 |
| Friday | 1.27½ | 1.24½ | 1.31 |
| Saturday | 1.26½ | 1.23½ | 1.30 |
| Monday | 1.27 | 1.24 | 1.30½ |
| Tuesday | 1.30 | 1.27 | 1.32 |

Chicago.—September wheat \$1.24½; December \$1.28½.

Corn.—While this crop has been growing nicely, complaints are now coming forward that unless good general rains appear in the next few days there is likely to be another sharp advance in the corn market because crop prospects would be greatly reduced. While the demand is only moderate, the market has been firm. A year ago No. 3 corn was quoted at 81½c per bushel. The visible supply increased 554,000 bushels. Last week's Detroit quotations were:

| | No. 3 | No. 3 |
|-----------|--------|---------|
| | Mixed. | Yellow. |
| Wednesday | 83½ | 85 |
| Thursday | 83½ | 85 |
| Friday | 83½ | 85 |
| Saturday | 83½ | 85 |
| Monday | 83½ | 85 |
| Tuesday | 83 | 84½ |

Chicago.—September corn 78½c per bushel; Dec. 67½c.

Oats.—The volume of trade in this cereal is comparatively small. The new crop is maturing well, and the final yield may exceed estimates. Prices on Monday declined 1½c on the local market. Eastern dealers, however, seem ready to take the cereal whenever a decline occurs. Standard oats were quoted at 59c a year ago. Detroit's prices for the week were:

| | Standard. | No. 3 |
|-----------|-----------|--------|
| | | White. |
| Wednesday | 45½ | 44½ |
| Thursday | 45½ | 44½ |
| Friday | 45 | 44 |
| Saturday | 44½ | 43½ |
| Monday | 43 | 42 |
| Tuesday | 43 | 42 |

Chicago.—September oats 40½c per bushel; Dec. 43½c; May 46c.

Rye.—No. 2 rye has advanced 2c and is now selling at 97c.

Beans.—Prices advanced during the week to \$6 but on Monday offerings increased and the quotation was marked down to \$5.70, which is 20c higher than the quotation for cash beans a week earlier. At Chicago pea beans hand-picked are quoted at \$6.75@7, common to good \$5@6.50, red kidneys \$6@6.10.

Seeds.—Prime red clover \$9.30; prime alsike \$9.30; prime timothy \$3.10; prime alfalfa \$10.10.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$6.60; seconds \$6.40; straight \$6.20; spring patent \$7; rye flour \$6.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$24; standard middlings \$25; fine middlings \$33; cracked corn \$35; corn and oat crop \$32 per ton.

Hay.—No. 1 timothy \$17.50@18; standard timothy \$16.50@17; light mixed \$16.50@17; No. 2 timothy \$9@10; No. 2 mixed \$9@10; No. 1 clover \$10@11.

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

DAIRY AND POULTRY PRODUCTS.

Butter.—Market is steady and without change. Extra creamery 27½c; firsts 26½c; dairy 23c; packing stock 21c per lb.

Elgin.—The hot weather is shortening the supply and causing lower quality. Price for the week, based on sales is 28c.

Chicago.—The market is firm and prices are higher for fancy grades. Much of the butter is arriving in poor condition. Extra creamery 28c; extra firsts 27@27½c; firsts 25¼@26¼c; packing stock 22@22½c.

Eggs.—The best candled eggs are firm; other grades steady. Prices are unchanged. Current receipts are quoted at 21½c; firsts 24c.

Chicago.—The feeling is firm for the strictly fresh stock and prices slightly higher. Heat-affected stock must sell at a great discount. Firsts 23c; ordinary firsts 21@22c; miscellaneous lots, cases included 18@22½c per dozen.

Poultry.—Market is steady and active with hens higher and broilers 1c lower. Fowls are slightly higher. Fowls 18½@19c; broilers 23@26c; ducks 17@19c; geese 12@13c.

Chicago.—Trading has been fairly active with hens ½c higher but springers and ducks lower. During hot weather crates should not be overcrowded. Hens 16½c; roosters 13c; spring chickens 1¼ lbs. and over 21c; 1@1½ lbs., 20c; ducks 12½c; spring geese 14@15c.

FRUITS AND VEGETABLES.

Cherries.—Are scarce on the local market and selling at \$3@3.50 per bu. At Chicago the market is firm with Montmorencies selling at \$1.40@1.60; Richmonds \$1.25@1.35; sweet cherries \$1@1.50.

Small Fruits.—Gooseberries \$1@1.15 per 16-qt. case; black raspberries \$2@2.15 per 16-qt. case; red raspberries \$5@5.50 per bu; red currants \$2.75@3 per bu; blackberries \$4.25@4.50 per bushel.

Chicago.—Gooseberries 50c@1.25 a 16-qt. case; dewberries \$1.65@1.75 per 16-qt. case; Wilson blackberries \$1.75; black raspberries 90c@1.75; reds \$1.75@2.50 per 24-pt. case; red currants 50@60c; cherry currants 50c@1.

Peaches.—Michigan clings are selling at 10@15c per one-fifth bushel basket at Chicago.

WOOL AND HIDES.

Wool.—The tendency of the market is toward higher prices. Fleeces are not particularly active yet, although some transactions have recently been closed. Michigan unwashed combing held at 35@42c; do. delaines 35c; do. clothing 28@31c. Wool from the west is well cleaned up and since foreign supplies are nearly exhausted there appears at present to be no relief for those who are obliged to purchase this product.

Hides.—No. 1 cured 19c; No. 1 green 16c; No. 1 cured bulls 14c; No. 1 green bulls 12c; No. 1 cured veal kip 23c; No. 1 green veal kip 18c; No. 1 cured murrain 18c; No. 1 green murrain 16c; No. 1 cured calf 29c; No. 1 green calf 27c; No. 1 horsehides \$5.50; No. 2 horsehides \$4; No. 2 hides 1c and No. 2 kip and calf 1½c lower than the above; sheepskins, as to amount of wool, 50c@1.25.

GRAND RAPIDS.

Eggs are quoted at 22½@23c but are firm at these quotations and prices may advance this week. No change in the butter market. Early potatoes sell in a small way at 85c@1. Hot weather has shortened the berry crop and prices range about as follows: Gooseberries 75c per crate; currants 75@85c; huckleberries \$2.50; blackberries \$1.75@2.25.

DETROIT EASTERN MARKET.

There was a good volume of trading at the eastern market Tuesday morning. Prices are being well maintained. Field tomatoes are selling at \$5@6 per bu; greenhouse tomatoes \$1.50@1.75 per 14-lb. basket; corn \$1.40@1.60 per 10 dozen bag; large cucumbers \$1.75 per bu; string beans \$2.50 per bu; new potatoes \$1.25; lettuce 75c; thimble berries \$3.75 per 24-qt. case; honey extracted 25c a jar, 15c per section; eggs 35c; chickens \$1.25 per pair. Loose hay is being offered in small quantities.

LIVE STOCK MARKETS.

Buffalo.

July 31, 1916.

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

Receipts here today as follows: Cattle 115 cars; hogs 60 d. d.; sheep 10 d. calves 1000 head.

With 115 cars of cattle today, the

good shipping cattle were very scarce and there was a good demand for what few were here, selling 35@50c per cwt. higher. There was a good demand for all butcher steers, heifers and cows, and bulk of them sold 25c per cwt. higher. We look for a fair run of cattle next Monday and about a steady trade.

Our receipts of hogs were rather light today, but while the demand was fairly good, western markets were all lower and consequently our prices showed a loss of about 10c per cwt. on all except pig weights, about everything selling at \$10.50, one or two loads of fancy a little more, and the bulk of the pigs and lights around \$10.25 per cwt; roughs \$9@9.25; stags \$6.50@7.50; everything sold at the close and prospects appear quite good for balance of the week.

Sheep receipts were light again today and prices were about 25c per cwt. higher than the close of last week on sheep and lambs. Prospects are about steady.

We quote: Best spring lambs \$11@11.25; cull to common lambs \$9@10.50; yearlings \$7.75@9.50; bucks \$5.50@6; ewes \$7@7.75; cull sheep \$3.50@6; wethers \$8@8.25; top veals \$12.75@13; heavy \$9.50@11; common and light \$10.50@12; grassers \$5.50@7.50.

Chicago.

July 31, 1916.

Cattle. Hogs. Sheep.

Receipts today..19,000 41,000 17,000
Same day 1915..15,633 27,761 17,103
Last week.....31,348 102,352 63,693
Same wk 1915..39,161 125,449 71,545

Steers sold 10@15c lower for the bulk while a few prime animals sold steady, best making \$10.25. Butcher stock sold steady to 10c higher and closed weak. Calves were unchanged. Bulls were a little higher. Stockers and feeders more numerous and sold 10@15c lower. About 1,100 rangers weak. Pigs were steady to 10c lower, sold at \$7@7.65.

Hogs were 10c lower on best and 10@20c off on packing grades, with finish top for butchers and heavy made \$10.05, with prime lights at \$10 and some selected "singers" for the Canadian trade at \$10.05, averaging around 190 lbs. Bulk of all grades cleared at \$9.40@10. Quality was fair and price range wide. Pigs sold at \$9@9.40. Average weight last week 230 lbs. against 231 lbs. the previous week.

Sheep in native division sold steady but lambs of that character went 10@25c lower although they closed strong. Range sheep went steady to 10c lower and lambs from Idaho and Washington showed no change. Range wethers went at \$8.25; yearlings at \$8.25@8.40 and lambs at \$10.90@11. Native lambs topped at \$10.40, with the best ewes at \$7.50.

The past week cattle receipts were much lighter, due to the hot weather and sharp declines two weeks ago. Naturally prices worked higher but they are still far below the high time of the year. Closing prices for best steers looked 25@40c higher on the bulk and even the cheaper grades showed 15@25c advance. Cannors showed 10@15c gain and better classes of she stock advanced 25@40c. Stockers and feeders were in better demand despite the lack of rain in the corn belt states and prices were 25@40c higher. Calves sold strong all week and finished firm to 25c higher. There were a few range steers on sale and they sold comparatively firm. More rangers are in sight for the coming week and they will come in competition with the medium grades of natives. The best native steers sold at \$10.35 against \$11.50 at the high time of the season for offerings not much better. Bulk of the good to choice lots went at \$8@9.50 and sales at \$10 and better were limited while cheap stuff went at \$6.50@7.50. Good cows went at \$6.50@7.25 and a few up to \$7.75 while cutters were taken mainly at \$5@5.50, cannors selling at \$4.25@4.75. Bologna bulls were most numerous at \$6@6.75 and butcher kinds at \$6.50@7. Calves sold largely around \$11.75, a few fancy ones making \$12 and only coarse heavy ones much below \$11. Most of the feeders landed at \$6.75@7.50, with best quotable around \$8, while stockers were the most numerous at \$6@6.50.

Hogs sold better than late the previous week and closing prices for best grades showed 25@30c advance, with packing grades and mixed stock up 15@20c. The pigs were in good demand and scored a 25c advance. The light weight hogs are fast approaching the top of the market and such lots showed the most upturn this week. The range is exceptionally wide, with old heavy sows selling at the greatest discount. Corn-fed lots of all weights sell close together, more so at present than for many weeks. The shipping demand was the largest in two months while the receipts were smallest since last October, leaving a smaller net supply for the packers than for many weeks.

At the week's close hogs sold at \$9.25@10.15 against \$9@10.05 a week ago, while most of the good pigs made \$9@9.50. Light weights sold largely at \$9.90@10.10.

Range sheep were in larger proportion than any previous week since the opening of the season and western lambs were much scarcer than usual, undoubtedly because of the sharp decline in prices the week previous. Natives were in the usual proportion and held more stationary than other classes. Most of the range sheep and yearlings were mainly Idahos, Washingtons and Montanas, with wethers more numerous than other classes. The buyers lost sight of a supposedly bad dressed market in their endeavor to get lambs, and sellers accomplished a big boost in values. Native lambs were 50@75c higher than the close of the previous week and fat rangers showed 75@80c upturn. Range sheep the first half of the week were 15@25c higher but this gain was eliminated before the close. Native sheep held steady from start to finish. Breeding and feeding stock was in excellent demand at steady prices but suitable stock was remarkably scarce. Wethers sold at \$7.90@8.50 and yearlings at \$7.50@9, while ewes landed at \$3@7.75. Bucks went mainly at \$5@5.50. Native lambs opened at \$10@10.25 and closed at \$10.75 for the best while Idahos sold at \$11@11.05 freely at the finish against \$10@10.90 on earlier days for plain to prime lots. A few feeding lambs sold at \$9.50 but the best had a nominal value at \$9.60 and higher. Feeding ewes made \$5.40@5.60, with breeders at \$7.50@9.75, only yearlings passing \$8.50. Some breeding bucks sold at \$5.75@6.50.

The usual summer dullness pervaded the horse market and little business was transacted except where offerings were suitable for army buyers. Commercial kinds were weak and the army grades about steady. The army buyers paid \$165@185 for the bulk and occasionally gave \$200 for heavy artillery kinds and bought a light class down to \$125. Drafters usually sold at \$185@225 and lighter grades at \$140@160, with old nags to city peddlers at \$50@75.

LIVE STOCK NEWS.

Hogs have been coming to the Chicago market recently considerably lighter in average weight than in previous weeks, the cause being a marked curtailment of supplies of heavy old sows, for the intensely hot weather was hard on big lard hogs; and these times of fancy prices every dead hog in a car counts up. With smaller supplies of hogs the packers found it difficult to hold the market down, and the best hogs sold above \$10 per 100 lbs. As is customary at this season of the year, the average quality of the receipts has been falling off, and this explains why the spread of prices has been widening out much of the time. Eastern shippers are still very moderate buyers, paying top prices for the best weighty barrows on the butcher order and a discount of about 15c for the best light shipping lots. Underweight hogs and mere pigs are much in demand for the fresh pork trade, and more are arriving than could be used advantageously; but stockmen find it more profitable to make their hogs weigh up well. There is also a large domestic and a heavy export demand for lard and cured hog meats, despite their dearthness. On the whole, farmers can make money no more easily than in converting corn into lard and meats.

There has been a great decline in cattle prices in the Chicago market in recent weeks, the inevitable penalty of rushing in liberal supplies at a time when because of extremely hot weather the consumption of beef was materially lessened. But sales were still made at much better prices than prevailed in former summers, however, especially for the choice to fancy grades of corn-fed cattle, which have been in comparatively limited supply. These steers were purchased at \$9.75@10.25 per 100 lbs., while at the high time several weeks ago they were bringing from \$11@11.50. The demand has been running mainly on fat butcher cattle and on medium-priced steers, with the receipts comprising a generous proportion of grass cattle, largely from southern pastures. Plenty of stockers and feeders have been coming on the market, and they are offered at a big decline from prices asked several weeks ago, yet demand is extremely small.

William Booth, known far and wide as one of the large land owners of Benton county, Mich., appeared on the Chicago market recently and sold three carloads of cattle of his own feeding for \$8.90 per 100 lbs. He showed his faith in the future market by buying the same number of feeding cattle at \$6.50 per 100 lbs. to take back with him.

THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKET.

Thursday's Market.
August 4, 1916.
Cattle.

Receipts 2213. The continued dry weather seems to be driving the cattle from the farm to market regardless of the way they are selling and have been for several weeks. Top of a heavy supply a week ago there was over two thousand on sale this week and although the market was a trifle more active prices on everything but the extra good steers and canners and bulls took a slump of 50c per cwt. from the close a week ago and on Wednesday night quite a number went over unsold. At present quite a number of thin common canner cows are being shoved on the market that are unfit for food and many of them are even unfit for Chicago canner use and are condemned by Meat Inspector Waltz and killed. Good milch cows are selling a trifle better but common grades are dull and draggy. The demand for stockers and feeders is dull owing to dry weather and poor pasturage. The close was dull as follows:

Best heavy steers \$8@8.25; best handy weight butcher steers \$7@7.50; mixed steers and heifers \$6.50@7; handy light butchers \$6@6.25; light butchers \$5.50@6; best cows \$6@6.25; butcher cows \$5@5.50; common cows \$4.25@4.75; canners \$3@4.25; best heavy bulls \$6@6.50; bologna bulls \$5.50@6; stock bulls \$5@5.50; feeders \$6.50@7; stockers \$5.50@6.50; milkers and springers \$4@7.5.

Bishop, B. & H. sold Sullivan P. Co. 18 cows av 1048 at \$5.85; to Parker, W. & Co. 21 steers av 916 at \$8, 20 do av 1125 at \$8.25, 2 cows av 695 at \$4.25; to Resnick 9 butchers av 684 at \$5.25; to Hammond, S. & Co. 6 bulls av 1161 at \$6; to Nagle P. Co. 18 steers av 880 at \$7, 19 do av 866 at \$7.25; to Bray & B. 1 cow wgh 1270 at \$6, 5 do av 1112 at \$6; to Sullivan P. Co. 6 do av 980 at \$5.25; to Parker, W. & Co. 6 do av 803 at \$4.25, 1 bull wgh 880 at \$5.75, 3 do av 1020 at \$5.75; to Mason B. Co. 6 steers av 1068 at \$7.50; to Davis 2 feeders av 775 at \$6.75, 22 do av 833 at \$6.25; to Tamara 3 cows av 1097 at \$4.70; to Sullivan P. Co. 2 steers av 1035 at \$8, 24 butchers av 927 at \$6.25; to Goose 5 do av 684 at \$5.60; to Brighton D. M. Co. 12 butchers av 808 at \$6.30.

Veal Calves.

Receipts 772. The veal calf trade for good stuff was 75c@1 lower than at the same period a week ago, selling from \$10.50@12 per cwt., and heavy grades at \$5@8 and not only active at the decline.

Erwin & S. sold Thompson 10 av 168 at \$12; to Newton B. Co. 3 av 140 at \$11.50, 7 av 160 at \$12, 1 wgh 150 at \$12; to Parker, W. & Co. 2 av 135 at \$11.50, 5 av 165 at \$11, 5 av 145 at \$12; to Rattkowsky 2 av 280 at \$7.50, 2 av 150 at \$10.50.

Sheep and Lambs.

Receipts 1909. The sheep and lamb trade was active at last week's prices; bulk of the good lambs sold at \$10.50; the supply was fair and the quality some better than for several weeks. The close was steady as follows: Best lambs \$10.50; fair lambs \$9.50@10; light to common lambs \$8@9; fair to good sheep \$5.50@6.50; culls and common \$3@5.

Bishop, B. & H. sold Sullivan P. Co. 42 lambs av 80 at \$10.25, 5 do av 75 at \$10.50, 25 sheep av 110 at \$6.40; to Nagle P. Co. 29 lambs av 50 at \$9.75; to Thompson 46 do av 70 at \$10.40, 51 do av 70 at \$10.50; to Harland 20 do av 75 at \$10.50; to Newton B. Co. 5 do av 50 at \$9, 48 do av 80 at \$10.50, 30 sheep av 100 at \$6.

Hogs.

Receipts 3517. The hog trade is dull and the quality common, the general market being 5c lower than on Wednesday. Yorkers and mixed \$9.70@9.80; pigs \$8.50@9.50.

SUMMER MEETING OF MICHIGAN JERSEY CATTLE CLUB.

The summer meeting of the Michigan Jersey Cattle Club will be held at Ann Arbor, August 10, 1916. The morning session and dinner will be at the Whitney Hotel, the afternoon session at Brookwater Farm, the home of Prof. H. W. Mumford, of the University of Illinois.

Mr. Wallace MacMonnies, chief of the Extension Department of the A. J. C. Club, is expected to be present. Important business is to come before the club and every breeder, owner and lover of Jerseys is most cordially invited and urged to attend this meeting.

WHAT will you do if your corn does not mature and you have no silo to put it in? This is a serious matter—means the possible loss of your crop—as important as rushing to get in your hay or other crops.

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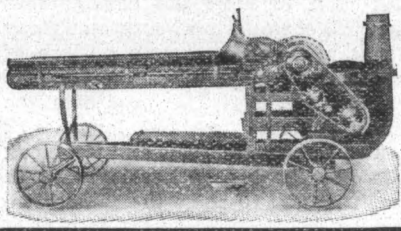
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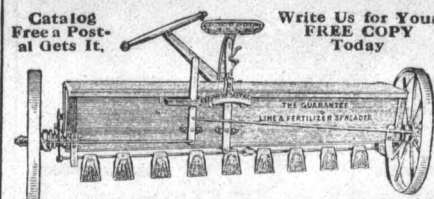
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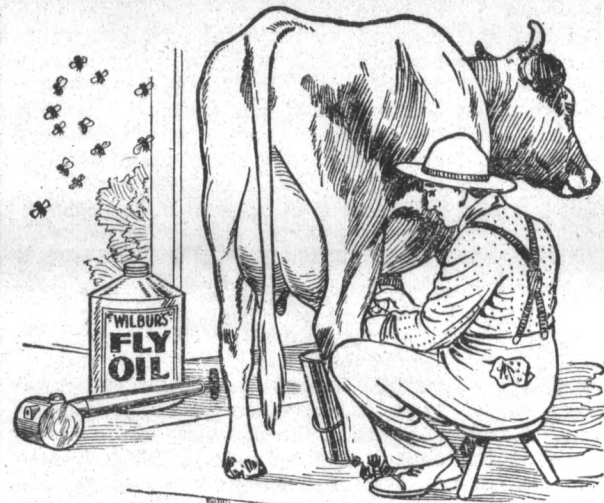
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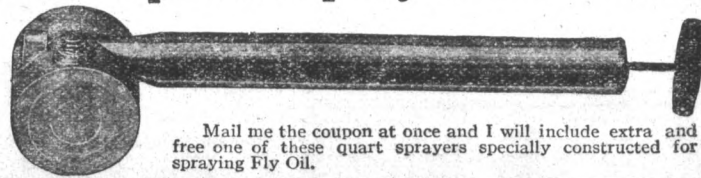
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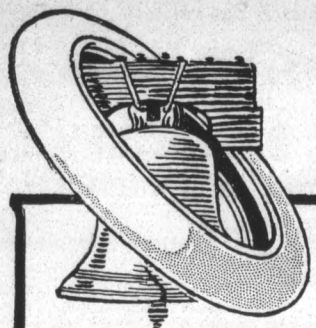


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|-------------|--------|----------|---------|
| 28 by 3 | \$5.80 | \$6.20 | \$1.90 |
| 30 by 3 | 6.25 | 6.95 | 2.00 |
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| 33 by 4 | 11.95 | 13.65 | 3.30 |
| 34 by 4 | 12.10 | 13.85 | 3.40 |
| 35 by 4 | 12.25 | 14.25 | 3.60 |
| 36 by 4 | 12.75 | 14.75 | 3.60 |
| 36 by 4 1/2 | 16.80 | 18.55 | 4.25 |
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Costs less to buy—less to operate—less for upkeep. The Freeman combines the limit of quality and economy.

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Steel Enclosed Carrier reduces running expense, prevents feed blowing away.

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Best Hardy Non-Irrigated Seed 99.6% Pure 96% germination. \$12.60. Government tested. Absolutely guaranteed Northern grown, extremely hardy. No seed better. Have Turkestan Alfalfa, Sweet Clover, New Timothy, grass seed of all kinds. Ask for our latest 60-page book on growing Alfalfa, 100-page catalog and samples. All sent free. We can save you money. Write today.

A. A. BERRY SEED CO., Box 431 CLARINDA, IOWA

Farm Commerce.

Marketing Surplus Cockerels

THE surplus cockerels that are not suitable for breeders should usually be disposed of at the broiler age as a three-pound broiler will usually bring as much or more than a five-pound stag and it costs money to add the two pounds of meat to the heavier bird. At the present price of poultry feeds it is hardly possible to make any money by feeding roosters beyond their first marketable age and it is better to market them and use the money received in developing the pullets to the laying age.

In the average city there is a wide difference in the capacity of local dealers to handle broilers to advantage. One dealer whom I reached on the 'phone stated, "The class of my customers that formerly purchased broilers now have their motor cars and frequently motor to distant towns for their Sunday dinner while the others prefer to spend their money for old hens." He offered me but 18 cents per pound for three-pound Barred Rock broilers. Another dealer within one block desired 35 broilers that day and offered 20 cents per pound. In a large city 80 miles away the market quoted broilers from 25 to 27 cents per pound. It would probably have paid me to ship the broilers in this case but as a usual thing I believe that disposing of broilers on the local market is the most satisfactory way.

When a poultry farmer becomes fairly well established and will be able to market at least four or five hundred broilers in a period of four or five weeks it pays to cater to the hotel and restaurant trade. The only objection to this is the fact that these special markets may demand dressed fowls and the busy farmer will frequently not have the time to dress poultry, especially if he is doing some general farming with the poultry business.

The American breeds are undoubtedly the best broiler fowls, although Leghorns develop rapidly and the White Leghorn is received with much favor on some markets. I have had much better success in selling Barred Rock broilers than I have had with Leghorns. The White Rock would

probably be a little better as the pin feathers would not show, but the Barred Rocks are hardy birds and I have been more successful with them than with any other breed in spite of the fact that they hardly make as neat an appearing carcass as a white fowl.

The practice of sending free range cockerels to the broiler market without any fattening will usually mean a shipment of "skinny broilers" and the dealers do not like them and will not pay as much for fat young broilers that have a plump appearance on the market stand. For nine or ten cents a pound of good meat can be added to a strong vigorous young Barred Rock cockerel and the extra pound will bring from twenty to twenty-five cents while the buyer will appreciate the consignment and be glad to purchase more of the same kind.

In shipping broilers the coops must not be overcrowded and about 50 to 75 pounds of poultry in each coop will be all right. When shipping to distant cities plan to have the consignment reach the commission house on Friday as that is the best day to dispose of the stock to good advantage on the Saturday market. The profits in the broiler business are not large with grain at its present price and if we can make the surplus cockerels bring in enough money to raise the pullets we consider them a very desirable part of our poultry business. On the general farm where there is an abundance of sour skim-milk and buttermilk it is possible to develop broilers to a marketable size at a very early age and in cases of this kind it is evident that broiler selling can be made quite an item in the farm income. All that is necessary is a good incubating and brooding equipment so that a fair-sized flock of young chicks can be assured and the losses after hatching can be reduced to the minimum. There is money in capons if you have a market for them but the average busy farmer can be sure of a fair profit by making his surplus cockerels into fat broilers and then getting rid of them the first time that the market looks good.

Ingham Co.

R. G. KIRBY.

Want \$1.65 and \$2.00 for Milk

THE board of directors of the Michigan Milk Producers' Association held a very enthusiastic and profitable all-day session at the office of President N. P. Hull, in Lansing, Monday, July 24. This being the first session of the board since the newly appointed field secretary, R. C. Reed, of Howell, had launched his campaign in the state, the board put itself squarely and enthusiastically behind the work and pledged to the field secretary the most earnest and loyal support.

This campaign is the outcome of a vision of great opportunity and great responsibility. The slogan is "Education, Legislation and Co-operation" for the milk producers and consumers of our nation. After the May 3 meeting at Lansing but little was left in a financial way upon which to launch a great campaign such as lies before the milk producers of Michigan. The membership fee was considered too uncertain a factor to rely upon, consequently the field secretary launched the financial guarantee fund plan. This plan is meeting with a greater success than the most sanguine at first anticipated, for already one county in the state with three-quarters of its territory

worked has put into this fund more than \$3,000. When the milk-producing districts of the state have been reached it is expected to have this guarantee fund reach from twenty to twenty-five thousand dollars, and with this amount of money back of the board of directors to enable them to keep the machinery in motion it is felt that the work may be carried on for a series of years that the milk producer may know better how to enter into milk production as a business enterprise and the consuming public may also come to know of the great food value of milk.

One of the important steps taken by the board of directors was in putting itself on record in regard to the minimum price at which milk could be produced under present conditions. The resolution follows:

Whereas, it has been clearly established by various experiment stations, our own M. A. C., and many individual farmers, that the cost of producing milk is and has been for some time considerably above what it has been selling for,

And Whereas, dairying is an industry vital to the problem of feeding our

fast increasing population and to maintaining the fertility of our soil,

And Whereas, it is clearly apparent that the producer of milk must receive a price for this product that will remunerate him for his feed and time, or else he must sell his cows and go out of business.

Therefore, be it resolved that it is the sense of the board of directors of the Michigan Milk Producers' Association, that the price to be paid to the producers of milk in the state of Michigan should not be less than \$1.65 per hundred, as an average, for the months of May, June, July, August and September; and not less than \$2.00 per hundred, as an average, for the months of October, November, December, January, February, March and April of each year for milk testing 3.5 per cent butter-fat, and also a proportionately greater price for extra grades of milk produced especially for consumption in the raw state, under city ordinances.

A multitude of calls from various parts of the state were presented to the board of directors at this meeting for assistance from its officers in forming and encouraging the many local organizations over the state. It is the plan to link up one by one of the local organizations to the state organization trusting that the dues from these local organizations will be sufficient to carry on the state work and that the guarantee fund may remain intact as a reliance upon which the organization may depend for years to come.

WHEN GROWERS REALLY CO-OP. OPERATE.

The Cook County Truck Gardeners' and Farmers' Association, of Illinois, as composed of 21 local branches in the county, has as its object the wiping out of the non-existent and imagined lines between country and city, building a more unified and capable citizenship and adding to the understanding and happiness and material welfare of its members and those with whom it comes in contact. Aside from being one of the strongest agricultural societies in the country, it has made the building of state highways, having a sort of a highway association in connection with the distribution of farm products.

What has been accomplished by these farmers should serve to aid those of other sections taking on renewed spirit. For the last fourteen years the members have been endeavoring to get better roads; the first seven or eight years little headway was made. This season some 250 miles of highway are to be made accessible for the farmers, there being about \$300,000 available for this work. Last year seventeen miles of concrete roadway was completed, and forty-five miles of improved highway are to be built this season.

With the coming of better highways, the Cook County Association is to employ motor trucks to reach city markets. Ten trucks will be used this year as against one last season. Motor truck express companies are running from the gardening districts to Chicago. August Gewecke, president of the organization, advises that it will be possible for farmers to sleep nights in a short time, instead of being forced to haul vegetables to market, for the coming of the motor truck will greatly lessen the night work, presently prevailing in this district. Vegetables reach the market early enough for the first morning buyers, fresh with the dew of the field, and the grower is able to receive an increased price as a direct result. Land has increased \$50 per acre where the highways have been improved to allow the use of motor cars. The organization officials believe that they will be able to double their production in the near future, due to the better transportation facilities, supplying a large quantity of vegetables for which Chicago now depends upon outside territory.

New York.

EARL W. GAGE.

The Fundamentals of Railroad Bonds

TO treat of a subject in the brief space devoted to the discussion in these columns is to greatly neglect important facts and by no means do justice to the theme that has formed the material for many volumes and has been dignified in receiving the attention of brilliant writers in an effort to convey to the investor a mere smattering of knowledge of this vast and intensely interesting subject. Railroad building has been so closely identified with empire building and has been the life work of so many great national figures that its scope really touches the life and interest of many people and the great financial transactions which have been allied with railroad development are the high spots in the lives of many bankers and business men. It is not the intention to deal in this short article with the sensational side of the subject but rather to give the reader an idea of the suitability of railroad bonds and stocks as an investment medium to the end that they may receive consideration when it becomes necessary to safely employ money in this type of security.

Good railroad bonds and stocks are an excellent investment and poor ones are very poor. It requires so much skill to distinguish between the good and the bad that I strongly advise consultation with a responsible banking house before investing. There are so many considerations affecting these securities which only a trained expert is competent to pass upon and unless sound advice is available serious losses are liable to occur. Railroad bonds have been bought and sold for many years and they are considered standard in many places. However, the larger systems have found that the old first mortgages are now obsolete and by no means adequate to care for their present requirements, and this condition has brought out many blanket or consolidated mortgages securing bond issues running into many millions. The original first mortgage bonds are now very scarce, many having been paid off and more refunded into the larger issues. However, since the war made necessary European liquidation in such quantities, American investors have been able to pick up many choice bonds of the old underlying liens that were held in strong boxes abroad and would never have been allowed to come back to this country were it not necessary to finance the heavy government expenditures by means of bond issues.

The bonds of the larger railroad systems are now available at prices to yield from four to five per cent, according to the size and credit of the road. The new issues are largely parts of the new consolidated mortgages which will in time be a first mortgage upon the entire system as the old liens are gradually retired or refunded. In the case of the smaller roads divisional bonds are sometimes available at prices to yield around five per cent as are the bonds issued to provide funds for the construction of new terminals or new road extensions.

As a rule the railroad bond if it is a part of a large issue is listed on the New York Exchange. This is supposed to create a market and obtain for the holder a fair degree of convertibility into cash, although the price to be obtained depends largely upon financial conditions and the condition of the money market. In order to secure this feature to any marked degree it is essential that one purchase a bond that is actively dealt in and subject to many buying and selling orders. The mere fact that the bond is listed does not necessarily mean that it is liquid. It must be part of an issue that is well known and well distributed among institutions and individuals.

Until very lately the railroads of this country were hard pressed owing to certain government regulations concerning rates, and earnings were showing glaring decreases over what they were some years ago. This forced the

roads to pay a fancy price for money and at the same time to sell short term notes instead of long term bonds, a method of financing both expensive and undesirable from the road's standpoint. However, of late the opposition towards our public carriers has subsided somewhat and the present prosperity of the country is quickly reflected in the better showing being made by the railroads, and their ability to sell long-time bonds at a fair price. The convertible bond which gives the investor the right to exchange his bond into stock at an agreed price has been a popular method of financing of late. This scheme gives the investor the security of a bond and still give him the chance for a profit in case prosperity should be reflected in an increase in the company's stock quotation.

No article on railroad bonds is complete without a mention of the equipment bond. This type of security is rapidly coming into its own. For safety and income yield it is unsurpassed. The money is raised to pay for rolling stock and is paid off during the life of the equipment. The history of equipment issues is better than that of any other type of railroad securities and the investor secures a wide range of maturity and income yield. The method of financing is very sound and there has never been a case in receivership where the equipment obligations of the railroad have been allowed to suffer a sustained default. The equipment is too essential a part of the road to permit sale under foreclosure and the best way to prevent this is to keep the security holders satisfied.

The laws governing investment of saving bank funds and trust funds in the east clearly favor the bonds of those systems which can meet the rigid requirements of the law regarding the amount of debt per mile and the steady payment of dividends of the stock at a certain rate over a number of years. In view of the fact that money invested from these sources is more attentive to safety of principal than to return, railroads strive to meet these requirements in as much as it enables them to sell their bonds at a lower rate of interest and much more easily. In case one has not the facilities to investigate different offerings a good safe rule in investing in rails is to follow the rules adopted by the savings banks which are so restricted in their operations.

In general, then, it may be stated that now that this country is gradually being opened up and developed the peak has been passed. Railroad bonds have probably gone through the uncertain period in their history and barring adverse regulation and occasional setbacks in certain sections or business oppressions which are bound to occur, they should be a safe investment for the funds of both individuals and institutions which have the means and ability to select the right ones.

Financial Editor.

BETTER SWINE FOR OUR FARMS

(Continued from Page 110)

ing hogs in a dry lot as a rule. The mission of the hog to a dairy community is to make use of the by-products. Outside of the dairy districts, he must be made to get a large part of his living from the pasture, and it will often be found best to make him harvest much of his own grain. We think these facts are quite generally accepted. What we need in connection with this program, is better hogs. In fact, we need to wake up, and give this matter some of the good helpful work and much of the practical thought that we are wisely applying to other lines of live stock betterment. Thus shall we find the improved hog a splendid complement to a number of our agricultural lines, and the more we can succeed in improving him, the greater will be our profits.

W. F. TAYLOR.

Stanolind Gas Engine Tractor Oil

is the product of the Standard Oil Company, (Indiana). That's sufficient certificate of character in itself.

It is produced under the watchful eyes of men who have made a life study of lubrication.

It is made expressly for gas engine tractors where kerosene is used for fuel.

It is equally efficient for stationary gas engines as well as for lubricating bearings of all types of harvester machinery and heavy gearings of tractors.

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It does away with scored cylinders.

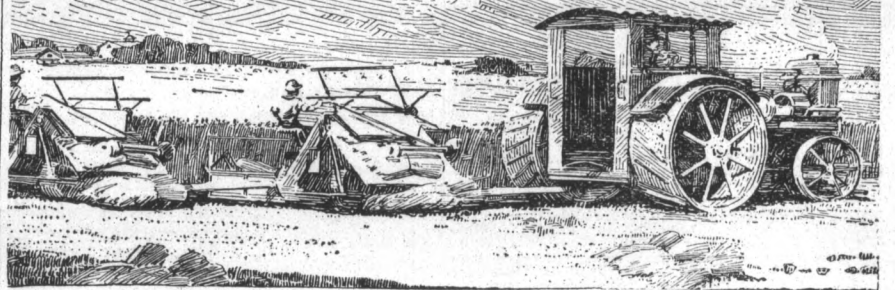
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It's use means perfect lubrication and that's the secret of efficiency in all tractors. Don't practice false economy. Inferior lubricating oil means gross extravagance in the end.

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Actual records prove that Appleton Silo Fillers cost the least

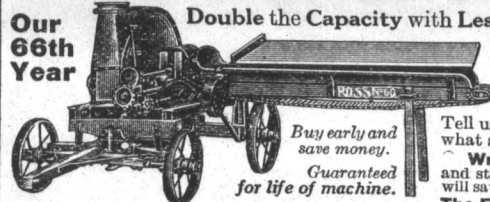
per ton of silage put up or per year of life. Tremendously strong construction makes an Appleton practically proof against breakdown. Solid oak and steel frame, mortised, braced and bolted; impossible to pull out of line. Many exclusive power and labor saving features, such as independent belt driven blower allowing speed to be adjusted for minimum use of power for any height silo; frictionless feed table running on chilled iron rollers; knives spiraled to give clean shearing cut, requiring least use of power. (10 lengths of cut, 5-16 to 2 1/2 inches.) Both feed rolls and table controlled by single lever. Positive self-working safety device.

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Guaranteed to do more and better work with less power than any other silo filler.

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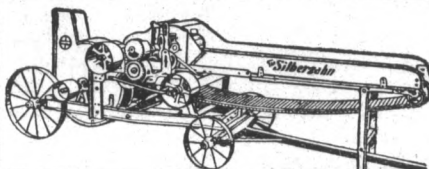
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Write for Our Special Proposition Today and state if you intend to buy this year. Early orders will save you money.

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New and exclusive improvements for 1916 make the Silberzahn the strongest, safest, simplest, ensilage cutter you can buy. It's the only cutter with all steel frame. Automatic force feed saves one man's time. Has low-speed six-arm blower, positive safety device, malleable knife heads, reversible feed rollers.

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KHARKOV HAS YIELDED 50 TO 70 BU. PER ACRE

Write for catalog and circular, describing this wonderful yielder, BERRY'S ORIGINAL KHARKOV. Imported direct from Russia. Has no superior. Has no superior. Largest yielder by tests and withstands the severest winters. Have improved Turkey Red, other varieties and Mammoth White Rye. Large stock Alfalfa, Timothy and all Grass Seed. Write for circular, free samples, special low prices.

A. A. BERRY SEED CO., BOX 131, CLARINDA, IOWA

ALFALFA LOW PRICES HIGH QUALITY

Guaranteed non-irrigated for \$9.00 bu. and up. Best seed—99 1-2% pure. We save you money on Alfalfa, Clover, Timothy, Sweet Clover and all grass seeds. Write for prices, free samples, and big Profit Sharing Seed Guide.

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VETCH SEED: \$8.00 per bushel

A. A. LAMBERTSON, CEDAR SPRINGS, MICH.

Seed Wheat Read's Vermont. New varieties sown Sept. 20th. average yield 56 bushel to acre. Write for circular. G. A. Read, Charlotte, Vt.

Mammoth White Rye, Timothy, Alfalfa, Vetch, etc. 5000 bushels Seed Wheat. Sample, and catalog free. W. N. Scarff, Box E, New Carlisle, O.

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Practical, Snappy, Instructive—YOUR
PAPER. For the breeders of Mich.
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wanted. Big 4 Poultry Journal, Desk
26, Chicago.

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BARRED Rocks Parks 200 Egg Strain with records to
230 eggs a year—\$1.50 per 15. Delivered. By Parcel
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Barred Rock Eggs, laid 950 eggs in one year.
W. C. COFFMAN, BENTON HARBOR, MICH.

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

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

JOHN'S Big, beautiful, hen-hatched Barred Rocks, Eggs,
30, \$2.50; 100, \$7.00. Select matings 15, \$4; 30, \$7.00, all
postpaid. Photos. Circulars. **John Northon, Clare, Mich.**

FOR SALE Pure bred S. C. Buff Leghorns and white Plymouth Rock cock-
erels. **Kletzen & Webster, Bath, Mich.**

Hatching Eggs Buff, Barred, Columbian, Par-
tridge, Silver and White Rocks
Pekin and Rouen Ducks, Sheri-
dan Poultry Yards, Sheridan, Mich. **Chicks**
Duckling

Fowlers' Buff Rocks Prices reduced one
half, balance of season. Utility eggs \$1.75 for 15, \$1.50 for 30, \$2 for 50, \$3.50
for 100. **R. B. FOWLER, Hartford, Mich.**

Breeding Cockerels White, Brown, Buff and Black Leghorn, Barred
Rocks, Rhode Island Reds. Prices Reasonable.
Sunnybrook Poultry Farms, Hillsdale, Michigan.

ORPINGTONS: —White, Single-Comb Keller-
strass 8 wks. old chix Cockerels
75c, pullets \$1. up. **M. E. THOMPSON, Redford, Mich.**

Pine Crest, S. C. White Orpingtons. Bargain, 4 year-
ling hen and cock, \$5, \$12 and \$15, just one half
what they will cost next spring. **MRS. WILLIS
HOUGH, Pine Crest Farm, Royal Oak, Michigan.**

300 R. I. RED HENS, Rose and Single Comb. Write
for Price List. Sell your mon-
ey and buy pure bred R. I. Reds.
INTERLAKES FARM, BOX 39, LAWRENCE, MICH.

Rose and Single Comb Reds, young and old, for sale.
Correspondence as to your Red needs invited.
JENNIE BUELL, Ann Arbor, R. 8, Michigan.

R. and S. C. R. I. Reds, eggs and breeding stock for
sale at reduced prices for bal. of season, Belgian
hens very reasonable. **O. E. Hawley, Ludington, Mich.**

Rose Comb Brown Leghorns
Kulp and Gale strains \$2.50 per 100 eggs. Cockerels
50c each. **CLAUDIA BETTS, Hillsdale, Mich.**

Ferris 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.

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 38 lbs. according
to age \$6 to \$25, 10 eggs \$5. **A. E. Cramton, Vassar, Mich.**

S. C. WHITE LEGHORN HENS
We offer 800 choice S. C. White Leghorn yearling hens
at a bargain. These hens have composed our breeding
flock for the past season and are the pick of our flocks
in size, vigor and egg production. We are making
price of \$8 per 100. In lots of 50 or less \$1.00 each. We
will be glad to furnish references on our stock. Write
Krentel Bros. East Lansing, Mich. Box 624.

S. S. Hamburg Eggs, reduced prices, balance of sea-
son. Free delivery. R. C. white
Leghorn hens \$1.00. Belgian Hare Buck \$5.00 with
Pedigree. **RIVERVIEW FARM, Vassar, Mich.**

SILVER GOLDEN AND WHITE WYANDOTTES.
Eggs from all matings, 150 per 15, \$2.50 per 30 until
July 1st. **O. W. Browning, R. 2, Portland, Mich.**

White Wyandotte Cock & Cockerels. Eggs \$1.25, \$3,
per 15, \$4 per 50, \$7 per 100.
DAVID RAY, 202 Forest Ave., Ypsilanti, Michigan.

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

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

FOX, COON, SKUNK, HOUNDS
Broke to gun and field, and guaranteed. Fox, coon & rab-
bit hound pups, from the best of stock—\$5.00 each.
Stamp for photos. **H. C. Lytle, Fredericksburg, Ohio.**

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Ten Days before date of publication.

CATTLE.

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

Pure Bred Aberdeen Angus, a few bulls and heifers
one year and older at \$100 each.
GEO. HATHAWAY & SON, OVID, MICHIGAN.

AYRSHIRES—One of the foremost dairy breeds. The
most economical milk producers. Calves
for sale. White Leghorn cockerels; Duroc Jersey
swine, Michigan School for the Deaf, Flint, Michigan.

MILO D. CAMPBELL **CHAS. J. ANGEVINE**

BEACH FARM
GUERNSEYS

Average yearly production 422.3 lbs. of fat, three
fourths of them making their records as two year
olds. By the use of a pure bred sire, a big im-
provement can soon be attained if the right
selection is made. The breeding of the Beach
Farm Herd is as good as can be found, and we
guarantee them to be free from contagious dis-
eases and to be satisfactory in every way or
money refunded. Write and let us tell you about
them.

CAMPBELL & ANGEVINE,
Coldwater, Michigan.

Starting with Poultry

IN the poultry business everything
is becoming practical and the nice
looking hen which the fancier has
admired does not receive the approval
of the farmer unless that hen is an egg
producer or a first-class market fowl.
The farmer with a fair income is not
apt to be enthusiastic about the poul-
try business as it is fairly well known
that the great American hen has dis-
couraged a great many sensible people
and reduced many bank accounts.

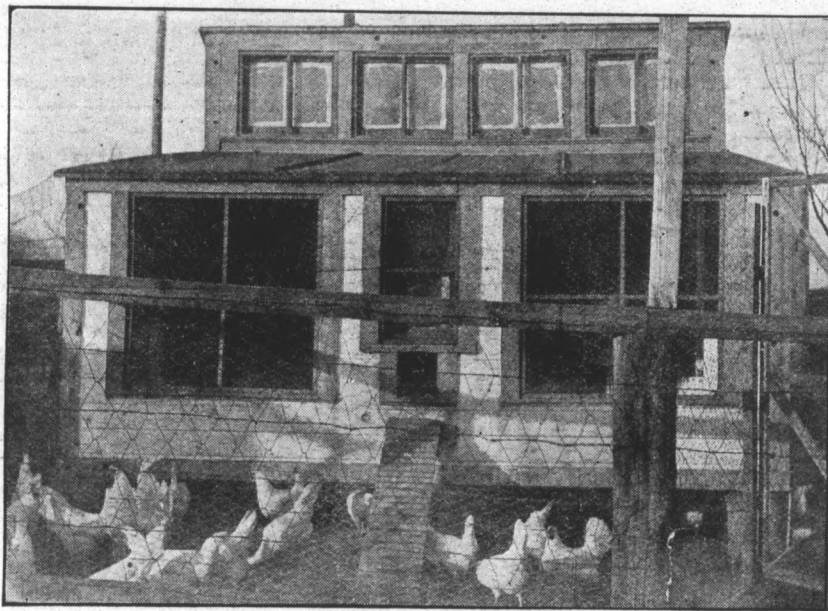
The beginner who aspires to an in-
come from poultry immediately figures
that one hen should make a dollar per
year. It follows that 1,000 hens should
earn \$1,000, and the dream can wander
along until it piles up a couple of mil-
lion dollars. This sometimes leads to
farmers going into poultry raising ex-
tensively without equipment and this
invariably leads to overcrowding and
losses. Moderation in all things pays
and the poultry farmer who can be sat-
isfied when he has enough will enjoy
his work, while the dreamer who goes
on building carelessly will some day
wake up disgusted with the whole
business.

Making an Economical Start.

How to start with poultry cheaply is
the problem that should receive con-
sideration. The money that you do not
spend on chickens you will not lose in

ens or hatch more chickens than I can
possibly hope to house.

A poultry house must be dry and
well ventilated and last for an indefi-
nite period. To get into the poultry
business on the farm cheaply I believe
that three or four 8x10 colony houses
covered with building paper will be
the best investment. They can be lo-
cated in a clover field or in an orchard
and will house the young stock in an
ideal manner. Later when the flock
has been culled thoroughly for winter
these houses can be used for laying
stock if it is necessary and then what
profit is made in this way can general-
ly be used toward building a laying
house. A colony house of the type men-
tioned can be six feet high in front by
four feet high in the rear, and the cost
including the building paper, should
not be much over \$18. In addition,
houses of this kind will always be
units of a certain earning capacity on
the poultry farm, no matter where they
are used and they can be turned into
pig pens if the chicken business be-
comes discouraging and the American
hen has another failure recorded
against her. The point I am trying to
bring out is the fact that buildings of
this kind do not tie up much capital
and for this reason they place the farm
poultry business on a safer basis. I



An Economical and Serviceable Poultry House.

the chicken business and while noth-
ing risked means nothing gained, it is
also well to remember that "a fool and
his money are soon parted," and the
worst of that is the fact that when
you first go into the poultry business
you do not know whether you are a
fool or not, so it is good business to
build slowly and part with your dollars
reluctantly. A cheap start does not
mean starting with cheap stock. It is
good judgment to buy the best birds
obtainable but only a few of them.
You will then stand a chance of build-
ing up a good flock of your own and in
that way at the end of five or six years
you may have a large flock which will
not have cost a large amount of mon-
ey. Furthermore, it is difficult to pur-
chase fine stock in large flocks with-
out spending a lot of money and after
spending the money you would not
know how to handle the stock to the
best advantage and the large number
of birds would make it more difficult
to build up a high quality flock of your
own.

Build a Practical Poultry House.

But I have "the cart before the
horse," and must emphasize right here
that most poultry keepers like to buy
their poultry first and build the house
second. There is something more at-
tractive about a fine looking pen of
fowls than there is in the mess of
two-by-fours and general material used
in the construction of the house. I
guess that must be the reason and in
my own experience I constantly have
to fight the desire to buy more chick-

do not believe in going into the poultry
business on a large scale at once, as
this demands expensive laying houses,
plenty of storage space for feed, and
an intricate knowledge of poultry grow-
ing and marketing which cannot be
picked up in a few years, and even un-
limited capital cannot replace that im-
portant factor—practical experience.

In summing up the whole proposi-
tion it is evident that there is money
in poultry farming, and the safest way
to succeed is to get in cheaply and
build as the growth of the business de-
mands a greater investment. This
means a small initial investment in
first-class stock and equipment and
then a gradual increase as a knowledge
of the business proves that you are
capable of making it pay.

Ingham Co. R. G. KIRBY.

WHEN TO PICK GESE.

This is the first year we have had
geese. I would like to know the best
time to pick the feathers and how
often.

Newaygo Co. Mrs. E. S.
The best time to pick geese is when
picking the feathers will not draw the
blood; this is usually just before molt-
ing time. Some make a practice of
picking the geese twice a year, but
this is not a good practice, as it de-
pletes the vitality of the geese, and
unfits them for good service as
breeders.

After the feathers have been picked,
they should be spread out to dry, after
which they are ready for the market.

VILLAGE FARMS, Incorporated Grass Lake, Michigan, GUERNSEY CATTLE BERKSHIRE HOGS

Reg. Guernsey Bulls, serviceable age, great grand
sons of Gov. Chene, also grade Guernsey and Jersey heifers
6 wks old \$20 each. Avondale Stock Farm, Wayne, Mich

Guernsey (May Rose) Bull for sale, born Sept. 5, 1913.
Splendid animal in every respect. Dam 520 lbs. fat
class F. J. K. Blatchford, Auditorium Tower, Chicago, Ill.

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

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

Guernsey Bulls sold three last 10 days—One left Gr.
Son Pauline Spotswood. He is a beauty—and you
can buy him. **J. M. Williams, No. Adams, Michigan**

Herefords—One Bull Calf.
ALLEN BROS. PAW PAW, MICH.

HEREFORDS: 4 Bulls,
4 Heifers.
EARL C. McCARTY, Bad Axe, Michigan.



Purebred Registered
HOLSTEIN
CATTLE

Holsteins, the best dual purpose breed.

One reason for the fast growing popularity of
the registered purebred Holstein-Friesian cattle
is the almost universal recognition by medical
authorities of the superior value of purebred
Holstein cows' milk for direct consumption. This
endorsement together with the proven ability of
Holstein cows to produce much larger quantities
of milk at less cost is sufficient for the dairyman
who applies thought and business methods to his
operations. Investigate the big "Black-and-
Whites."

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

Do You Want A Bull?

Ready For Service.

From a grand daughter of The King of the
Pontiacs. Sired by a bull that is more than a half
brother to the Champion Holstein Cow of the
World, and whose dam is a 30 lb. 6 1/2 % fat daughter
of Pontiac Aggie Korndyke who has more 30 lb.
daughters than any other living bull. If you do
write for pedigree.

EDWIN S. LEWIS, Marshall, Mich.

HOLSTEIN BULLS FOR SALE

3 of them 1 year old in Nov. By 31 lb. sire. Dams
above 21 lbs. as heifers. Price \$100. Younger bulls
by son of Johanna McKinley Segis \$50. up.
BLISSVELDT FARMS, Jenison, Michigan

FOR SALE

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
them. **BIGELOW'S HOLSTEIN FARMS,**
BREEDSVILLE, MICH.

HOLSTEINS, a nice straight deep bodied, blocky built
bull calf, born Oct. 5th, 1915. His 7 nearest dams
have A. R. O. records that average butter 7 days 23.96
lbs., milk 533.36 lbs. **W. B. READER, Howell, Mich.**

30 lb. bull for sale, 2 years old, by a son of King of
the Pontiacs. Dam sold for \$1000 in Detroit sale.
Ferd. J. Lange, Sebewald, Mich.

\$75 gets Hazel-Jet grandson of Maplecrest De Kol
Parthena and Pontiac Maid 30.2 lb. Born
March 25. Dam Pontiac Hesperia 2nd. 14.80 lb.; 436.6 lb.;
her dam's sire brother to sire of world's record cow 31394 lb
milk 1 yr. **M. L. McLAULIN, REDFORD, MICH.**

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

"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**
CO., Howell, Michigan.

FOR SALE Two Holstein Bull Calves
6 months old from 20 lb. dams.
FREEMAN J. FISHBEEK, Howell, Michigan.

Grade up your herd with one of our Holstein bulls.
Their six nearest dams on the sire's side average
24 lb butter in 7 da. The semi-official yearly records
of three of these dams, including two two-year old
heifers, average 842 lb. of butter and 18,000 lb. of milk.
Sixteen months of age and from A. R. O. dams.
Peaceland Stock Farm, Three Rivers, Mich. Chas.
Peters, Herdsman. C. L. Brody, Owner, Fort Huron, Mich.

HOBART W. FAY,
MASON, MICH.
REGISTERED HOLSTEINS
ESTABLISHED 1904.

CHOICE HOLSTEIN BULLS—all from A. R. O. dams
Entire herd on Semi. of test for yearly work. Jr.
2-yr. old just finished year's record of over 15,000 lbs.
milk, over 100 lbs. butter record in mature class. Cherry
Creek Stock Farm, M. E. Farnelle, Prop., Billards, Mich.

Reg. Holstein Bull Calf, 2 nearest dams average 90 lb.
milk per day Pontiac Korndyke and Hengerveld
DeKol breeding. Prices right. **John A. Rinke, Warren, Mich**

FIRST \$100 CHECK

Gets 15 month old Handsome Thoroughbred Holstein
Bull. World record Sire. Dam 26 lb. 3 year old. Have
three as good, same age. **C. E. Winters, Augusta, Mich.**

Holstein Calves, 10 heifers, and 2 bulls 15-16ths pure,
5 weeks old, beautifully marked, \$20.00 each, crated
for shipment anywhere. **Edgewood Farm, Whitewater, Wis.**

FOR SALE—5 two year old Registered Holstein
heifers and one 2 year old Bull for \$125 each. Fine
Hill Farm, R. No. 3, Howard City, Mich.

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

Veterinary.

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

Roup—Sore Shoulders.—F. G. B., Carleton, Mich.—Your chicks suffer from roup; kill diseased birds, disinfect roost three times a week. Use your lotion on shoulder, but discontinue use of salve.

Wire-Cut.—A year-old colt got cut on wire fence a short time ago; wound is on fore part of hock; have applied carbolic acid lotion and wool-fat, which has about healed the wound. I wish you would tell me what will not only heal wound, but reduce swelling. R. B. C., Ithaca, Mich.—Dissolve 1 oz. of permanganate potash in one quart of water and apply to sore three times a day. Leave the bunch alone and it will gradually reduce in size.

Sweeny of Shoulder.—I sweened my four-year-old colt when plowing, causing lameness; the shoulder is now somewhat sweened. I have been applying caustic balsam full strength, is this right? J. A. Rice, Charlotte, Mich. Continue using caustic balsam full strength, but only once in 12 or 14 days.

Goutre.—Calf three months old has movable bunch in upper part of neck. A. A. G., Edmore, Mich.—Give calf 15 grs. of potassium at a dose twice a day and apply tincture iodine to bunch three times a week.

Hole in Side of Teat.—Have cow with two holes in one teat, one where it should be, the other two-thirds way on side of teat. Can side opening be closed? E. H., Stanton, Mich.—Make edges of opening raw, sew wound and apply tincture iodine cautiously every two days.

Cow Holds up Milk.—Have a seven-year-old Jersey that occasionally holds up milk. The calf is not allowed to suck her. I get results by feeding her when I milk, or when a surcingle is buckled around her waist. What had I better do for her? W. K., Pinconning, Mich.—She is too old to quit the habit. The same person should always milk her; besides, she should be treated kindly.

Sluggish Kidney Action.—My light driving horse seems to have a little trouble in passing urine. G. W. DeW., Holland, Mich.—Give him 2 drs. acetate of potash at a dose in feed or water two or three times a day when needed.

Lumpjaw.—I have a cow on which lumps appeared on different parts of face and jaw, which has suppurated and is now giving off a very offensive odor. My neighbor lost a cow some time ago which showed similar symptoms. S. M. F., Glennie, Mich.—Paint bunch with tincture iodine, also sores and give her 1 dr. of potassium iodide at a dose three times a day. You had better segregate her from balance of herd.

Infected Navel.—I have a colt two months old which when born we cut and tied cord; a few days later a large bunch formed above the string and after string came off water dripped from end of cord. We lanced bunch and now navel is all right. The colt at no time appeared to be sick, but it has a soft bunch on stifle joint and colt favors this leg. W. A. M., Beulah, Mich.—Apply one part tincture iodine and two parts spirits of camphor to bunch on stifle twice a week.

Sweened Colt.—Bursal Bunch on the Knee—Warts on Teats.—Have a three-year-old colt with sweened shoulder and I have seen bad results from blistering, in fact the hair never came on after they were blistered. I also have a cow that hurt her knee, leaving a large soft bunch and it feels as though it was full of water. I also have cows with warts on teats. G. W. H., Bloomingdale, Mich.—If there is no fever in shoulder and you will have your Vet. inject a few drops of rectified oil of turpentine underneath the skin in several places, your colt will perhaps get well and no scar will be left. Leave the cow alone until cooler weather, then have sack opened or apply tincture of iodine. Clip off warts and apply a saturated solution of salicylic acid in alcohol cautiously to flat ones three times a week, and it will take them off.

Seedy Toe.—I am told that my six-year-old mare is troubled with seedy toe, causing considerable lameness. She was not lame until her foot was pared considerable. She is a valuable mare and I would like to have her cured. N. A. B., Flint, Mich.—Occasionally apply tincture of iodine, also apply swabs dipped out of a solution made by mixing one part coal tar disinfectant and 30 parts water. It will also do her a whole lot of good to stand her feet in wet clay two or three hours a day.

HOLSTEINS

Dispersion Sale at Wixom, Mich., Aug. 15, 1916

Over 40 head of choice stock including the herd of E. M. Moore of Wixom and drafts from the herds of M. A. Smith and Son of Wixom and Musloff Bros. of South Lyon. Several A. R. O. cows with good records, young heifers from A. R. O. dams and bred to one of the choicest bred bulls in the state, in fact an extra good lot of stock all the way through. Wixom is easy to reach on either Grand Trunk or P. M. Rys. Sale will be held at farm of E. M. Moore 1½ miles south of village. Autos will meet all trains the morning of the sale. Write for catalogues.

Duroc Jersey Herd Boars

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

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

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

ABERDEEN ANGUS

We have a choice lot of Bull Calves, that are 6 to 12 months old and another crop coming. I will be pleased to have you visit our farm, where we have a stock show every day; we will also have a show herd at the Michigan State Fair. U. L. CLARK, Hunters Creek, Mich. SIDNEY SMITH, Manager.

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

Senior herd bull, Majesty's Wonder 90717, for sale, sire Royal Majesty, Dam Mina's Dewdrop, his full sister Majesty's Butter cup produced 703.2 lbs butter in 1 yr. Sons of Royal Majesty are scarce, here is a chance to get one reasonable, must sell to avoid too close inbreeding, write for particulars, also choice young bulls from above sire. Alvin Balden, Capac, Michigan.

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.

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.

REGISTERED JERSEY BULLS FOR SALE 1 yearling, and Bull calves from 8 to 10 months old. Also 3 cows. Write your wants. SMITH-PARKER, R. D. No. 4, Howell, Michigan.

BIDWELL SHORTHORNS

For "Beef and Milk" Registered bulls, Scotch-topped roans, reds and whites for sale. Farm at N.Y.C. Depot; also D. T. & I. R. Y. Address G. R. Schroder Mgr. BIDWELL STOCK FARM Box B, Tecumseh, Mich.

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

DAIRY BRED Shorthorns of best Bates strains, young bull 8 months old for sale, price \$150. J. B. HUMMELL, MASON, MICHIGAN.

FOR Sale—Reg. Short Horn Bulls by Maxwellton Monarch 2nd, a son of Avondale, from 8 to 10 mos. old John Schmidt, Reed City, R. No. 5, Michigan.

SHORTHORN COWS FOR SALE: No Bulls at present. R. R. Station, Elsie. H. B. PETERS, Carland, Mich.

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

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

Two yr. red shorthorn Bulls. Roan Calf 9 mo. old. Pol Angus Bull calf, 8 mo. old, not reg. Priced to move quick. CHASE'S Stock Farm, Marlette, Mich., R. 1.

Registered Shorthorn Cattle, young bulls and heifers \$100.00, bred cows and heifers \$150.00. Write, W. J. BELL, ROSE CITY, MICHIGAN.

Milking Shorthorns, roan 3 year old, Bates bred herd bull \$250. Young bulls and heifers. DAVIDSON & HALL, TECUMSEH, MICHIGAN.

REGISTERED SHORTHORN 1 heifer 7 mo. old, 1 heifer 2 mo. old, 1 heifer past 2 yr. old. H. W. MANN, Danville, Mich.

Red Polled Cattle. Have a fine young bull and O. I. C. pigs for sale. John Berner and Son, Grand Ledge, Mich.

FOR SALE—Two Reg. Holstein cows. due to freshen in Aug. Age 4 and 13 yrs. Both have A. R. O. records. Price for both \$325. Chas. I. Cook, Fowlerville, Mich. Box 438.

HOGS.

Royalton Bred Berkshires. Six weeks old pigs, both sexes, registered, nice shaped and marked. \$7.00 each. Order quick. D. F. VALENTINE, Supt., Temperance, Mich.

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.

SWIGARTDALE FARM

HOLSTEINS AND BERKSHIRES

We have for sale a fine bull calf born March 6th, nicely marked, dam a nineteen pound three year old, price \$100. In Berkshires we have a nice lot of fancy fall boars, sired by Sensational Charmers Masterpiece 2nd, also spring boars, these are all large high class animals, of unsurpassed breeding, our prices are right, and we guarantee to please, or return your money.

Swigartdale Farm, Petersburg, Mich.

The Very Finest Berkshire Pigs Cheap C. S. BARTLETT, Propr. Pontiac, Michigan

Berkshires. I have 6 choice fall gilts bred for Sept. farrowing at \$25 each for immediate delivery. A. A. PATULLO, R. 4, Deckerville Mich.

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

DUROC JERSEYS

A choice lot of spring pigs, both sex, pairs and trios, not akin. Prices reasonable. Send for pedigrees. THE JENNING'S FARMS, R. F. D. 1, Bailey, Mich.

Duroc Jersey Boars and Red pigs, price, weight pairs and trios not akin. I guarantee satisfaction, express prepaid. J. H. Banghart, East Lansing

Duroc Jerseys, some choice Jan. boars, spring pigs, of leading blood lines. W. C. Taylor, Milan, Mich.

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

Duroc Jersey Sows and gilts bred for early Sept. farrow. Spring pigs, either sex. E. D. Heydenberk, Wayland, Mich.

For Sale, Duroc Jerseys, choice breeding spring pigs either sex. Prices right. John McNicoll, Station A, R. 4, Bay City, Mich.

DUROC JERSEYS. Apr. pigs either sex, boars ready for service and a few bred sows for Sept. and Oct. Some Holstein cows bred for fall. E. H. Morris, Monroe, Mich.

DUROC JERSEYS ;-- all sold out for the present. Wm. W. Kennedy, Grass Lake, Michigan.

DUROC JERSEYS—A few fall boars 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 Combined, size, quality, breeding. Herd boars, spring boars, spring sows for sale. Orlo, L. Dobson, Quincy, Michigan.

DUROC Jerseys Gilts of the large heavy boned type bred to a Son of Orion Cherry King the greatest boar of his breed. Bred for early Sept. farrow. F. J. DROTT, R. 1, Monroe, Michigan

Durocs, Sows to farrow Aug. and Sept., spring pigs. Either sex. Percheron Stud colt one year old. E. J. ALDRICH, Tekonsha, Cal. Co., Mich., Bell Phone.

Duroc Jerseys. Sows Bred for Aug. and Sept. litters, also early Spring Boar pigs. M. A. BRAY, OKEMOS, (Ingham Co.) Mich.

Duroc Jerseys, if you want a spring boar sired by Principle 4th, you'll have to hurry, are going fast, only a few left. J. Robert Hicks, R. 3, St. Johns, Mich.

CHESTER WHITES Sows bred for Sept. farrow, spring pigs in pairs, not akin. F. W. ALEXANDER, Vassar, Mich.

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I HAVE started thousands of breeders on the road to success. I can help you. I want to place one hog from my great herd in every community where I am not already represented by these fine early developers—ready for market at six months old. Write for my plan—More Money from Hogs. G. S. BENJAMIN, R. F. D. 10 Portland, Michigan

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

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Stock For Sale—All Ages
Correspondence Solicited, Visitors Always Welcome

O. I. C. Swine—A nice lot of spring pigs. Write your wants. Meadow View Stock Farm, Holland, Michigan. R. R. No. 5.

400 Big Type O. I. C. and Chester White Pigs From Feb. Mar. and Apr. farrow sired by the five best boars in the state. School Master 52707 who won more champions, defeated more champions than any boar show 1915. Also 2nd, sire to our undefeated breeders young herd at 7 state fairs. Allen junior champion at Wis. State fair 1914, and Captain Jim 3161, under 6 months boar and Junior champion at every state fair show 1915. Then we have Le Dux model 29015, first in class at Sioux City, Iowa, 1914. Get our catalogue, its free. We Register Free; Guarantee satisfaction in every way. ROLLING VIEW STOCK FARM, Cass City, Mich.

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

O. I. C's. Send me your order for choice spring boars, shipped C. O. D. and registered in purchaser's name. G. F. ANDREWS, Danville, Mich.

O. I. C. Spring pigs either sex, large bone and good growth. Prices, C. O. D. A. J. BARKER, R. R. 1, Belmont, Michigan

O. I. C's. A few bred sows to farrow in April, May and June. I have 20 last fall boars to offer, also gilts, have them not akin. All good stock. Otto B. Schulze, Danville, Mich. ½ mile west of depot.

O. I. C's Some extra good fall boars; also gilts. Satisfaction guaranteed. A. R. GRAHAM, Flint, Michigan.

O. I. C. Stock all Sold JULIAN P. CLAXTON, Swartz Creek, Mich.

O. I. C. And Chester White Swine. Strictly Big Type. Spring pigs, now ready to ship. Can furnish in pairs not akin. These pigs are sired by Lengthy Prince and Model 1st. Two as good big type boars as there is in the breed. I will ship C. O. D. and record them free. NEWMAN'S STOCK FARM, MARLETTE, MICHIGAN, R. No. 1.

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

O. I. C. SWINE: If you are interested in O. I. C's, let me start you with a choice pair or trio, not akin, or a gilt, due to farrow about September first. A. J. GORDEN, R. No. 2, Dorr, Mich.

O. I. C's Pairs and Trios no akin. 2 Reg. Holstein bulls 6 and 8 months old. Cloverleaf Stock Farm, Monroe, Mich., R. No. 1.

O. I. C. Choice Gilts bred for fall Farrow and Spring Pigs. Prize Winning Stock. Write for low price. A. V. HATT, Grass Lake, Michigan.

O. I. C. Swine and Reg. Holsteins, few boar pigs of sired. ELMER E. SMITH, Redford, 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.

BIG TYPE Poland China sows bred for July and August arrow. Spring pigs. 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.

Poland China Spring Pigs

Our herd sire was Champion and Grand Champion at the State Fair last fall. Our sows are great big, stretchy, splendid individuals, with best breeding. Pigs from such matings will please you. Get our prices.

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KALAMAZOO, MICH.

FOR SALE, P. C. Sows, "Big Type" bred for Sept. farrow, good 7 months boar, March and April pigs. S. C. B. Minoras, R. W. Mills, Saline, Mich.

Large Strain P. C. A few choice fall boars ready for service, and 1 May boar. Gilts for early farrow all sold, a few choice Gilts to farrow in Aug. and Sept., bred to black Wonder and Oakland Equal Jr. H. O. Swartz, Schoolcraft, Mich.

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

BIG Type Poland Chinas. Sired by Big Type King, B our 1000 lb. boar. Spring pigs, sired by big type King, Fesenmeyer A Wonder Jr., and Mow's Big Bone. W. Brewbaker & Sons, Elsie, Michigan.

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

Heavy boned Poland China Spring pigs from large prolific sows, also young and old sows. Sired for Sept. farrow. ROBERT NEVE, Pierson, Michigan.

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

Large Yorkshires August and September pigs. 2 spring boars. Prices reasonable. W. C. COOK, Route No. 1, ADA, MICHIGAN.

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HAMPSHIRE SWINE Spring Pigs, registered. John W. Snyder, R. 4, St. Johns, Mich.

H. H. Halladay O. H. Halladay & Son Breeders of Hampshire Swine. Write your wants. Clinton, Mich.

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Kope Kon Farms Offers 100 Yearling Shropshire Rams. 100 Yearling And Aged Ewes. S. L. WING, PROPR., KINDERHOOK, MICH.

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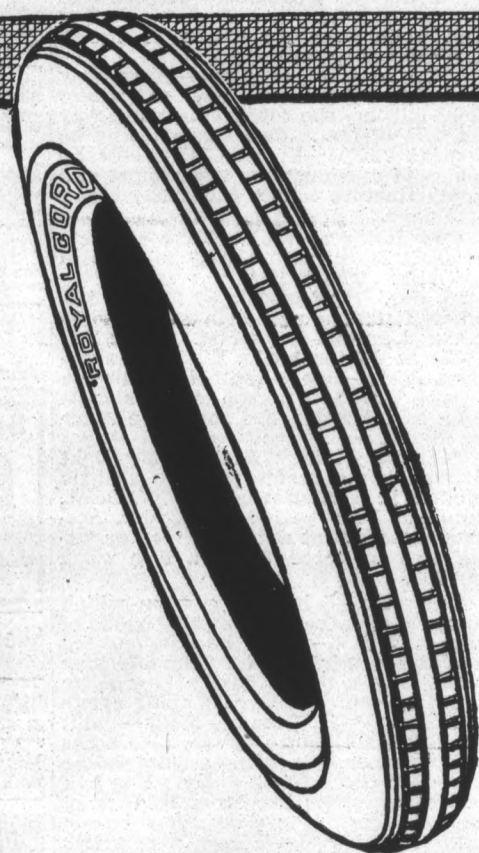
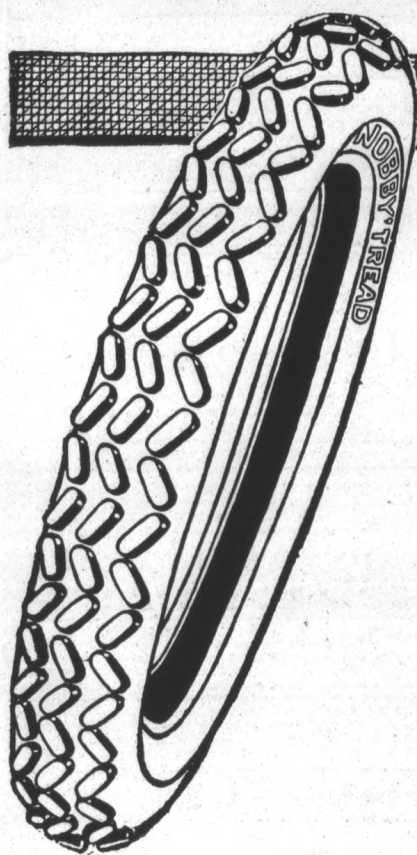
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